REGULAR AGENDA
BOARD OF SUPERVISORS
SEPTEMBER 17, 2024

5:00 P.M. - CALL TO ORDER - ROLL CALL OF MEMBERS - INVOCATION - PLEDGE OF ALLEGIANCE

PRESENTATIONS

PRESENTATION OF A PROCLAMATION RECOGNIZING SEPTEMBER 15 TO OCTOBER 15, 2024, AS NATIONAL HISPANIC HERITAGE MONTH

ADDITIONS - DELETIONS AND APPROVAL OF THE REGULAR AGENDA

ADD-ON TO ITEM # 10

REVISED PROFFER AMENDMENT

REVISED PROFFER AMENDMENT REDLINE

WORK SESSION ITEMS

1. CAPITAL PROJECTS TRANSPORTATION; TRANSPORTATION FUNDING AND ENGINEERING UPDATES

2. CAPITAL PROJECTS PUBLIC CONSTRUCTION; LAND ACQUISITION FOR UTILITIES AND CENTRAL SERVICES COMPLEX UPDATE

3. UTILITIES; SEPTAGE POLICY AND RATE UPDATES

PRESENTATIONS/REPORTS BY DEPARTMENTS

4. BUDGET AND MANAGEMENT: YEAR END (UNAUDITED) FINANCIAL REPORT

5. CAPITAL PROJECTS TRANSPORTATION; CONSIDER SUPPORTING CREATION OF A REGIONAL TRANSPORTATION AUTHORITY (RTA)
PROPOSED RESOLUTION R24-286
BACKGROUND SUMMARY: BOARD CONSIDERATION TO SUPPORT AN RTA AND ADD TO LEGISLATIVE PROGRAM.

6. CAPITAL PROJECTS TRANSPORTATION; CONSIDER A REQUEST FROM THE TRANSPORTATION IMPACT FEE ADVISORY COMMITTEE TO EXTEND ITS RECOMMENDATION DEADLINE
PROPOSED RESOLUTION R24-299
BACKGROUND SUMMARY: APPROVES EXTENSION.

6:15 P.M. - CLOSED MEETING

COUNTY ADMINISTRATION; A RESOLUTION TO AUTHORIZE CLOSED MEETING
PROPOSED RESOLUTION CM24-25
BACKGROUND SUMMARY: APPROVES RESOLUTION.

COUNTY ADMINISTRATION; A RESOLUTION TO CERTIFY THE ACTIONS OF THE STAFFORD COUNTY BOARD OF SUPERVISORS IN A CLOSED MEETING ON SEPTEMBER 17, 2024
PROPOSED RESOLUTION CM24-25(C)
BACKGROUND SUMMARY: APPROVES RESOLUTION.

PRESENTATIONS BY THE PUBLIC - 6:30 PM (3 MINUTES EACH)

PUBLIC HEARINGS

7. PARKS, RECREATION, FACILITIES AND TOURISM; CONSIDER LEASING COUNTY-OWNED PROPERTY AT DUFF MCDUFF GREEN MEMORIAL PARK TO CHARLES L. HENDERSON FARMS, LLC — **George Washington**
PROPOSED RESOLUTION R24-256
BACKGROUND SUMMARY: APPROVES LEASE.

8. DEVELOPMENT SERVICES AND PLANNING AND ZONING; CONSIDER REPEALING AND REPLACING THE DEPARTMENTS OF DEVELOPMENT SERVICES AND PLANNING AND ZONING FEE SCHEDULES
PROPOSED ORDINANCE O24-16
BACKGROUND SUMMARY: APPROVES REPEAL AND REPLACEMENT OF FEES.

9. PLANNING AND ZONING; CONSIDER A PROPOSAL TO AMEND THE "STAFFORD COUNTY, VIRGINIA, COMPREHENSIVE PLAN 2016-2036 2021 5-YEAR UPDATE," ADOPTED ON NOVEMBER 16, 2021, AS LAST REVISED, TO CHANGE THE FUTURE LAND USE DESIGNATION AND URBAN SERVICES AREA LIMITS TO SUPPORT HIGHER DENSITY COMMERCIAL DEVELOPMENT ON AN APPROXIMATELY 262-ACRE PORTION OF TAX MAP PARCEL NO. 38-124 (PROJECT KNOWN AS COM23154932; STAFFORD TECHNOLOGY CAMPUS) — **Falmouth**
PROPOSED RESOLUTION R24-187 (APPROVE)
PROPOSED RESOLUTION R24-188 (DENY)
BACKGROUND SUMMARY: APPROVES COMPREHENSIVE PLAN AMENDMENT.

10. PLANNING AND ZONING; CONSIDER A PROPOSED ZONING RECLASSIFICATION, WITH PROFFERS, FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT ON TAX MAP PARCEL NOS. 38-124 AND 38-29A (PROJECT KNOWN AS STAFFORD TECHNOLOGY CAMPUS) — **Falmouth**
PROPOSED ORDINANCE O24-20 (APPROVE)
PROPOSED RESOLUTION R24-189 (DENY)
BACKGROUND SUMMARY: RECOMMENDS APPROVAL OF ZONING RECLASSIFICATION.

CLOSED MEETING

COUNTY ADMINISTRATION; A RESOLUTION TO AUTHORIZE CLOSED MEETING
PROPOSED RESOLUTION CM24-26
BACKGROUND SUMMARY: APPROVES RESOLUTION.

COUNTY ADMINISTRATION; A RESOLUTION TO CERTIFY THE ACTIONS OF THE STAFFORD COUNTY BOARD OF SUPERVISORS IN A CLOSED MEETING ON SEPTEMBER 17, 2024
PROPOSED RESOLUTION CM24-26(C)
BACKGROUND SUMMARY: APPROVES RESOLUTION.

REPORTS BY BOARD MEMBERS

ADJOURNMENT

This agenda may be amended on the day of the meeting. Participation of all citizens is encouraged. For all individuals with special needs, please notify County Administration of any accommodations required at least 24 hours in advance of the meeting. The agenda and related materials may be found on the County's website at www.staffordcountyva.gov.

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
PRESENTATIONS

Subject:	
PRESENTATION OF A PROCLAMATION RECOGNIZING SEPTEMBER 15 TO OCTOBER 15, 2024, AS NATIONAL HISPANIC HERITAGE MONTH	
Recommended Action:	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
Overview:	
Discussion/Analysis:	
Attachments:	
None	
Summary/Conclusion:	
Strategic Priorities:	
Reviewed By:	

PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: September 13, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 Zoning District (including accessory uses) shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Fleet Parking;

d. Machinery sales and service;

e. Motor Vehicle Rental;

f. Parking and storage of tractor trailers;

g. Public parking lot;

h. Railroad sidings;

i. Recycling facilities;

j. Truck/freight terminals;

k. Truck wash;

l. Adult business;

m. Automobile salvage yard or operations

n. Drive-through;

o. Dwelling for watchman or caretaker on-premises;

p. Feed lots;

q. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district;

r. Junkyard.

s. Sale of motor vehicles of a gross weight greater than five (5) tons or with a capacity to carry more than sixteen (16) passengers;

t. Slaughter and animal product processing.

u. Solar facility other than what is used to provide energy to the buildings or structures on the Property;

v. Truck stop; and

w. Vehicle fuel sales.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 26 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Height shall be measured based on the existing definition of height in the Zoning Ordinance in effect at the time of approval of this rezoning. Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. A maximum of (6) electric substations shall be permitted on the Property without requiring any further conditional use permit(s). In the event seven or more substations are needed on the Property, each additional substation over six (6) shall require a conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) shall provide written notice to the Zoning Administrator of its

intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety-five feet (95') in height. Transmission structures may be taller than ninety-five feet (95').

c. Location - Substations on the Property shall be located adjacent to the new connector Road or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP. In the event a substation is located to the south of the new Connector Road, or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP, the substation may not be located within five hundred and fifty feet (550') from Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. In the event the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

a. Building Facades

i. Principal Building Facades - The building exterior façade design shall include the following architectural features:

1. High albedo or light-colored roof;
2. Parapets;
3. Sound enclosures for each generator;
4. Shrouds for exhaust stacks;
5. Fenestration;
6. Varied building color; and
7. Varied building materials.

ii. Notwithstanding the above, building exterior facades (visible from surrounding roads or properties) will be composed of at least one primary and two secondary building material(s) as outlined below:

1. Primary Building Materials may be:

a. Concrete masonry units (split faced or burnished);
b. Precast concrete;
c. Concrete tilt-wall;
d. Glass (clear);
e. Glass (architectural panels);
f. Metal panels; and/or
g. Secondary materials.

2. Secondary Building Materials will be limited to accents or subordinate elements of the façade. Secondary materials may be:

a. Cement fiber board/cementitious siding;
b. Concrete masonry units (flush/plain, split faced, or burnished);
c. Gypsum reinforced fiber concrete;
d. Metal panels;
e. Pre-cast concrete (for trim elements only);
f. Glass (clear); and/or
g. Glass (architectural panels).

iii. Additional materials and features not listed may be permitted if the Zoning Administrator determines that they are substantially similar in appearance and quality of afore listed features and materials.

b. Fencing - Security fencing shall be provided around the perimeter of the Property, each data center building, or multiple data center buildings. Security fencing shall be at least eight feet (8') in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

c. Roof Design - The roof shall be light colored.

d. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof. In the event Tax Map Parcels 38-125, 38-126, and/or 38-130 are still zoned A-1 and planned for residential uses screening shall address both visual screening and sound attenuation. In addition, generators that are facing the above-mentioned tax map parcels and not screened by buildings shall be screened by a solid wall.

e. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

f. Compliance - Compliance with this Proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area on the Property be less than sixty-three (63) acres. The Applicant shall provide a running tabulation of the total tree preservation areas on the Property on each site plan submitted for the Property (even if the site plan submitted does not contain tree preservation area). Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. Monetary Contribution - The Applicant shall make a monetary contribution to Stafford County Board of Supervisors in the amount of one million five hundred thousand dollars ($1,500,000) to be used for fire and rescue purposes. Said contribution shall be paid at the time of issuance of the building permit for the first data center building on the Property.

13. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

14. Sprinkler System - Any data center building constructed on the Property shall be fully fire sprinklered with floor control valve assemblies on each level. Said sprinklers shall be a NFPA 13 standard or the standard in effect at the time of development of each building.

NOISE

15. Data Center Noise - Notwithstanding and in addition to the applicable Noise Ordinance, Stafford County Code Chapter 16, and as may be amended (the "Stafford County Noise Ordinance") any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most

restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by County government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 16 below.

16. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer 15 above shall be reduced by 3 dBA. The term "prominent discrete tone" shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

    a. 5 dB for center frequencies of 500 Hz and above;

    b. 8 dB for center frequencies between 160 and 400 Hz; or

    c. 15 dB for center frequencies less than or equal to 125 Hz.

17. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 15 or Proffer 16 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

18. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 15 and Proffer 16, six (6) months after a final occupancy permit for each data center building is issued and then annually between the months of June and August. This requirement shall expire five (5) years after the issuance of the final occupancy permit for the final data center building on the Property. Said sound or noise measurements shall be taken at varied locations including those along the north and south property boundaries. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter at the time of any noise measurement. The Acoustical

Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events (for example noise generated from airplanes, traffic, weather, construction, emergency generators). During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer 15 and Proffer 16 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

19. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this Proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 15 and Proffer 16, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

20. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water" and "bridging sewer" for the project as outlined in 20.a. and 20.b. below. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of this rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and

approval of the Water Service Agreement. The Water Service Agreement shall include a capped maximum capacity for bridging water and bridging sewer until reuse water becomes available. The Water Service Agreement shall be approved prior to the issuance of the first occupancy permit (temporary or final) on the Property. For purposes of this Proffer 20 and Proffer 21 "bridging water" shall mean temporary potable water used for data center cooling and "bridging sewer" shall mean the upgrades to the sewer system to support the load from bridging water.

a. Bridging Water Improvements - To allow for public potable water required to be used for industrial cooling in data center buildings prior to and until the Reuse Water System becomes available to the Property (constructed, operational, and located to the Property boundary), the following infrastructure improvements need to be constructed by the Applicant, or others:

    i. Pumping station along Centreport Parkway; and

    ii. Water line connecting from Centreport Parkway to the existing waterline along Richmond Highway.

b. Bridging Sewer Improvements - To allow for sewer required to be used for data center buildings prior and until the Reuse Water System becomes available to the Property (constructed, operational, and located to the Property boundary), the following infrastructure improvements need to be constructed by the Applicant, or others:

    i. Upgrades to the Potomac Creek Sewer Pump Station to increase capacity; and

    ii. Upgrades to the receiving sewer force main exiting from Potomac Creek Sewer Pump.

c. Scope: The scope defining the aforementioned Bridging Water and Bridging Sewer improvements will be defined in the Water Service Agreement and are subject to change at execution or future amendments thereto.

d. Maximum Bridging Water Capacity - The maximum bridging water capacity for the Project shall be limited to the first to occur: (i) the use of a maximum of one million (1,000,000) gallons per day of potable water for industrial cooling of the data center buildings constructed (which includes receipt of a certificate of occupancy permits to operate) on the Property; or (ii) six (6) data center buildings (which includes receipt of a certificate of occupancy permits to operate) that utilize potable water for cooling prior to and until the Reuse Water System becomes

available to the Property (constructed, operational, located to the Property boundary, and connected to the data center buildings). The Water Service Agreement shall further limit the maximum bridging water capacity for the project to five (5) data center buildings. In the event, there is additional capacity the Water Service Agreement may be amended by approval of the Board of Supervisors to allow for six (6) data center buildings.

21. Reuse Water

a. Reuse Water Use: The Applicant agrees that all public water demands required-to be used for industrial cooling for data centers will utilize reuse water as the sole primary water source once the Reuse Water System is completed and extended to the Property boundary. Should the Reuse Water System Project become delayed or unavailable due to necessary repairs or unforeseen disruptions as outlined in the Water Service Agreement, the Applicant must then obtain approval via an amendment of these proffers for any additional Bridging Water and Bridging Sewer needs over the maximum allotted in Proffer 20.d., except as otherwise outlined in Proffer 21.d. below.

b. Reuse Water System: To allow for use of Reuse Water for industrial cooling in data center buildings the following infrastructure improvements ("Reuse Water System" as used throughout this Proffer Statement) shall be completed (constructed, operational, located to the Property boundary, and data center buildings on the Property connected) by the Applicant, or others:

i. Reuse Water and return sewer piping;

ii. Reuse Water storage on the Property;

iii. New Potomac Creek Sewer Pumping Station capable of pumping to the Aquia Waste Water Treatment Facility;

iv. Applicant will contribute funding for necessary upgrades to the capacity of the Aquia Wastewater Treatment Facility that allow to treat flow from the Stafford Technology Campus that are currently outside of the Urban Services Area.

v. Permanent Cooling Water Infrastructure, as defined in the AWS WATER AND WASTEWATER INFRASTRUCTURE AGREEMENT entered into by Amazon Data Services, Inc. and Stafford County, Virginia, and approved by the Board of Supervisors on July 2, 2024, as may be amended; and

vi. Any other improvements outlined and included in the executed Water Service Agreement as may be amended.

c. Timing & Scope: The timing and scope of the above-mentioned improvements shall be outlined in the Water Service Agreement and are subject to change at execution or future amendments thereto. The Applicant shall include language in the Water Service Agreement that assigns phasing of the development on the Property for data centers requiring potable water for cooling systems that is tied to key milestones in the Reuse Water System's construction and progress.

d. In the event the Reuse Water System construction has not commenced prior to December 31, 2028, and the Applicant requires public water for data center cooling, then the Applicant shall undertake reasonable good faith efforts to assume the responsibility of constructing the Reuse Water System through assignment of the obligation from applicable third parties, which shall be approved by Stafford County. Notwithstanding Proffer 21.a. above, in the event the responsibility is not assigned or the Reuse Water System is not approved, the Applicant shall either (1) provide a monetary contribution to Stafford County for improvements that would provide for sufficient potable water capacity upgrades to Stafford County's water infrastructure system that would allow for the use of potable water for permanent data center cooling; or (2) construct improvements that would provide sufficient potable water capacity upgrades to Stafford County's water infrastructure that would allow for the use of potable water for permanent data center cooling. The monetary contribution amount or required upgrades shall be determined and agreed upon at any period prior to December 31, 2032.

22. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

23. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility

Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

24. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

25. Interparcel Connections

    a. Tax Map Parcels 38-125 and 38-130 - In the event Tax Map Parcels 38-125, and 38-130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said parcels with the final location to be determined by the Applicant at final site plan.

    b. Tax Map Parcel 38-126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38-126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

26. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

27. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road: If a suitable design per the VDOT Road Design Manual as of July 11, 2024 is permitted by the County, VDOT and/or other federal, state or local agencies the Applicant shall make the following transportation improvements on the Connector Road:

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy-six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the

first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall make the following improvements:

1. Construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary between the Property's northern boundary to State Shop Road prior to the issuance of the 2,113th VPD on the Property;

2. Construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary along the Property's Eskimo Hill Road frontage prior to the issuance of the 991st VPD on the Property

3. Subject to available right-of-way and Proffer 28 below, construct an additional westbound lane on Eskimo Hill Road at its intersection with Richmond Highway prior to the issuance of the 2,113th VPD on the Property;

4. Subject to available right-of-way and Proffer 28 below, restripe the westbound Eskimo Hill Road approach at its intersection with Richmond Highway and modify the traffic signal and pavement markings prior to the issuance of the 2,113th VPD on the Property;

5. Install a dedicated southbound right turn lane on Eskimo Hill Road at the northernmost driveway prior to the issuance of an occupancy permit for the first data center building served by that access;

6. Subject to available right-of-way and Proffer 28 below, install a dedicated right turn lane on Eskimo Hill Road at the Vandegrift Road/Big Spring Lane intersection prior to the issuance of the occupancy permit for the 991st VPD on the Property;

7. Subject to available right-of-way and Proffer 28 below, construct a westbound right turn lane on Eskimo Hill Road at the State Shop Road intersection prior to the issuance of an occupancy permit for the 2,113th VPD on the Property;

8. Construct the access road to the western portion of the Property as a two-lane roadway with an auxiliary westbound right turn lane at the intersection of Richmond Highway prior to the issuance of an occupancy permit for the first data center building served by that access; and

9. Construct a southbound left turn lane and northbound right turn lane on Richmond Highway consistent with Proffer 27.e.iii.1 and 27.e.iii.3. below.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard or the roadway geometric design standard required by the VDOT Road Design Manual and VDOT Road and Bridge standards for a local roadway at the time of design approval, whichever one is more stringent, between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii. The location of said driveways shall be subject to the Minimum Spacing Standards for Commercial Accesses by the VDOT Access Management Regulations for collector roadways at the time of design approval.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway:

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan in the event the Connector Road is approved.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane, extending from Sage Lane to connect to the existing right turn lane at Black Jack Road, prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for 2,113th VPD and 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT in the event the Connector Road is approved. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

28. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 27 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's sole expense. Applicant's request shall be in writing and shall comply in all respects with state, federal, and local laws, and the County's eminent domain practices. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney's Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

29. Construction

a. Construction Mitigation Plan - Prior to final site plan approval for each phase of development of the Property, a construction mitigation plan will be drafted by the Applicant ("Construction Mitigation Plan") and submitted for review and concurrence to the County's Director of Development Services and Director of Capital Projects. The Construction Mitigation Plan will address, at minimum, construction traffic control measures, including any mitigation measures to be implemented during weekday AM and PM peak travel hours and school bus travel times along shared construction truck routes to and from the Property, access points, and dust control.

b. Delivery Notification - The Applicant agrees to provide the County's Director of Development Services & Community Development and Director of Capital Projects with at least forty-eight (48) hours written notice prior to any expected large or oversized deliveries to Property and/or any significant, heavy construction presence on the Property.

c. Public Liaison - The Applicant agrees to designate at least one public liaison and publicize a toll-free phone number and email address during construction on the Property. At minimum, the information must be published on the Applicant's website and provided to the County's Public Information Officer for publication on the County's website and other social media. The liaison must act as a point of contact between citizens and construction crews. The liaison must be available in person and by phone during active construction hours and must respond to any questions related to the project or Property. The liaison role will commence prior to issuance of a land-disturbing permit and must remain a minimum of six (6) months following the issuance of the final certificate of occupancy for each building constructed on the Property.

d. Joint Construction Traffic Reaction Team - If requested by the County, the Applicant must participate in a Joint Construction Traffic Reaction Team, which may include members of County staff and VDOT, the County Sheriff's Office, County Fire and Rescue Department, and the Virginia State Police to identify and expeditiously resolve or mitigate traffic issues that may arise during the construction on the Property. The Applicant agrees to assist in resolving and implementing solutions to traffic issues.

e. Pavement Damage - At the Applicant's expense, damage to pavement on the roads, including shoulders and aprons, attributable to construction on the Property must be repaired by the Applicant within one hundred and twenty (120) days of the issuance of the final certificate of occupancy for a building on the Property. However, if the Applicant receives notice from the County's Transportation Planner or VDOT staff stating that the damage to roads, including shoulders and

aprons, has made a road unsafe, the Applicant will initiate the process of said repairs within forty-eight (48) hours of written notice from the County and/or VDOT.

f. Land Clearing - The Applicant commits to clearing the Property in phases based on development of each campus in accordance with applicable County Code requirements and will not mass grade the entire Property at one time.

30. Applicant Point of Contact - Prior to the first certificate of occupancy permit issued for the Property, the Applicant will provide the County a community point of contact(s) through its "STACK- Public Affairs" department and any other appropriate contact person as determined by the Applicant.

31. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

32. General Development Schedule - The Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the Property for the next thirty-six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 32 shall expire upon the full development of the Property.

33. Third Party Contractors - Should the County determine, in its sole discretion, that the size and scope of the proposal associated with data center buildings requires the County to rely upon contracted, or to other contract with, third parties to meet its obligations as they relate to reviewing, permitting and enforcing any aspect of the Project, the Applicant, after approving the costs for said contractors, will reimburse the County's incurred, reasonable costs or fund the County's reasonable estimates for the said third party contractors as set out in the County Code or other requirements. The Applicant will not unreasonably withhold approval of the costs. The Applicant will fund or reimburse the County's reasonable costs through (1) providing funds to the County upfront based on the County's reasonable estimates prior to the third party work and thereafter supplementing the estimated amounts paid, if necessary, by funding the actual, reasonable costs upon completion of the work; or (2) by reimbursing the County after the County has expended funds for the third party work, either, both, or a combination thereof, all as determined by the County. In the alternative, the County (after review and verification) may direct its contractors, vendors, and other third parties providing services in support of the County to

present to the Applicant with their invoices directly, which the Applicant will review and approve, and thereafter pay on behalf of the County within thirty (30) days of its receipt. The Applicant will not unreasonably withhold approval of the invoices. Any late fees or costs accrued based upon the Applicant's failure to pay invoices timely presented to it by the County will be the responsibility of the Applicant. The third-party costs paid by the Applicant hereunder will not be refunded under any circumstance, except in the event if the County unreasonably refuses to commence, or complete, once begun, the third-party work on the Property for which the third parties were contracted. This Proffer pertains to the initial development of the data centers building on the Property and construction activities on the Property and shall expire after final bonds for the last data center building constructed on the Property have been released.

34. Generator Testing - The testing of data center building generators shall be limited to weekdays between the hours of 7AM and 6PM.

35. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

SIGNATURE APPEARS ON FOLLOWING PAGES

APPLICANT / OWNER ACKNOWLEDGEMENT AND CONSENT

Stafford Technology LC
a Virginia limited liability company

By: _____
Name: TAYLOR D. CRESS
Title: Authorized Signature

COMMONWEALTH OF VIRGINIA
COUNTY OF FAIRFAX, to wit:

Subscribed and sworn to before me this 16th day of September, 2024, in my county and state aforesaid, by the aforenamed principal.

Kearsley Rosalind Robin Rand
NOTARY PUBLIC

My Commission Expires: 7/31/2028

Kearsley Rosalind Robin Rand
NOTARY PUBLIC
REGISTRATION # 7806864
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES July 31st, 2028

PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: September ~~9~~13, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 Zoning District (including accessory uses) shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Fleet Parking;

d. Machinery sales and service;

e. Motor Vehicle Rental;

f. Parking and storage of tractor trailers;

g. Public parking lot;

h. Railroad sidings;

i. Recycling facilities;

j. Truck/freight terminals;

k. Truck wash;

l. Adult business;

m. Automobile salvage yard or operations

n. Drive-through;

o. Dwelling for watchman or caretaker on-premises;

p. Feed lots;

q. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district;

r. Junkyard.

s. Sale of motor vehicles of a gross weight greater than five (5) tons or with a capacity to carry more than sixteen (16) passengers;

t. Slaughter and animal product processing.

u. Solar facility other than what is used to provide energy to the buildings or structures on the Property;

v. Truck stop; and

w. Vehicle fuel sales.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 26 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Height shall be measured based on the existing definition of height in the Zoning Ordinance in effect at the time of approval of this rezoning. Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. A maximum of (6) electric substations shall be permitted on the Property without requiring any further conditional use permit(s). In the event seven or more substations are needed on the Property, each additional substation over six (6) shall require a conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) shall provide written notice to the Zoning Administrator of its

intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety-five feet (95') in height. Transmission structures may be taller than ninety-five feet (95').

c. Location - Substations on the Property shall be located adjacent to the new connector Road or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP. In the event a substation is located to the south of the new Connector Road, or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP, the substation may not be located within five hundred and fifty feet (550') from Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. In the event the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

a. Building Facades

i. Principal Building Facades - The building exterior façade design shall include the following architectural features:

1. High albedo or light-colored roof;
2. Parapets;
3. Sound enclosures for each generator;
4. Shrouds for exhaust stacks;
5. Fenestration;
6. Varied building color; and
7. Varied building materials.

ii. Notwithstanding the above, building exterior facades (visible from surrounding roads or properties) will be composed of at least one primary and two secondary building material(s) as outlined below:

1. Primary Building Materials may be:

a. Concrete masonry units (split faced or burnished);
b. Precast concrete;
c. Concrete tilt-wall;
d. Glass (clear);
e. Glass (architectural panels);
f. Metal panels; and/or
g. Secondary materials.

2. Secondary Building Materials will be limited to accents or subordinate elements of the façade. Secondary materials may be:

a. Cement fiber board/cementitious siding;
b. Concrete masonry units (flush/plain, split faced, or burnished);
c. Gypsum reinforced fiber concrete;
d. Metal panels;
e. Pre-cast concrete (for trim elements only);
f. Glass (clear); and/or
g. Glass (architectural panels).

iii. Additional materials and features not listed may be permitted if the Zoning Administrator determines that they are substantially similar in appearance and quality of afore listed features and materials.

b. Fencing - Security fencing shall be provided around the perimeter of the Property, each data center building, or multiple data center buildings. Security fencing shall be at least eight feet (8') in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

c. Roof Design - The roof shall be light colored.

d. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof. In the event Tax Map Parcels 38-125, 38-126, and/or 38-130 are still zoned A-1 and planned for residential uses screening shall address both visual screening and sound attenuation. In addition, generators that are facing the above-mentioned tax map parcels and not screened by buildings shall be screened by a solid wall.

e. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

f. Compliance - Compliance with this Proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area on the Property be less than sixty-three (63) acres. The Applicant shall provide a running tabulation of the total tree preservation areas on the Property on each site plan submitted for the Property (even if the site plan submitted does not contain tree preservation area). Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. Monetary Contribution - The Applicant shall make a monetary contribution to Stafford County Board of Supervisors in the amount of one million five hundred thousand dollars ($1,500,000) to be used for fire and rescue purposes. Said contribution shall be paid at the time of issuance of the building permit for the first data center building on the Property.

13. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

14. Sprinkler System - Any data center building constructed on the Property shall be fully fire sprinklered with floor control valve assemblies on each level. Said sprinklers shall be a NFPA 13 standard or the standard in effect at the time of development of each building.

NOISE

15. Data Center Noise - Notwithstanding and in addition to the applicable Noise Ordinance, Stafford County Code Chapter 16, and as may be amended (the "Stafford County Noise Ordinance") any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most

restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by County government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 16 below.

16. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer 15 above shall be reduced by 3 dBA. The term "prominent discrete tone" shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

    a. 5 dB for center frequencies of 500 Hz and above;

    b. 8 dB for center frequencies between 160 and 400 Hz; or

    c. 15 dB for center frequencies less than or equal to 125 Hz.

17. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 15 or Proffer 16 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

18. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 15 and Proffer 16, six (6) months after a final occupancy permit for each data center building is issued and then annually between the months of June and August. This requirement shall expire five (5) years after the issuance of the final occupancy permit for the final data center building on the Property. Said sound or noise measurements shall be taken at varied locations including those along the north and south property boundaries. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter at the time of any noise measurement. The Acoustical

Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events (for example noise generated from airplanes, traffic, weather, construction, emergency generators). During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer 15 and Proffer 16 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

19. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this Proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 15 and Proffer 16, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

20. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water" and "bridging sewer" for the project as outlined in 20.a. and 20.b. below. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of this rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and

approval of the Water Service Agreement. The Water Service Agreement shall include a capped maximum capacity for bridging water and bridging sewer until reuse water becomes available. The Water Service Agreement shall be approved prior to the issuance of the first occupancy permit (temporary or final) on the Property. For purposes of this Proffer 20 and Proffer 21 "bridging water" shall mean temporary potable water used for data center cooling and "bridging sewer" shall mean the upgrades to the sewer system to support the load from bridging water.

a. Bridging Water Improvements - To allow for public potable water required to be used for industrial cooling in data center buildings prior to and until the Reuse Water System becomes available to the Property (constructed, operational, and located to the Property boundary), the following infrastructure improvements need to be constructed by the Applicant, or others:

    i. Pumping station along Centreport Parkway; and

    ii. Water line connecting from Centreport Parkway to the existing waterline along Richmond Highway.

b. Bridging Sewer Improvements - To allow for sewer required to be used for data center buildings prior and until the Reuse Water System becomes available to the Property (constructed, operational, and located to the Property boundary), the following infrastructure improvements need to be constructed by the Applicant, or others:

    i. Upgrades to the Potomac Creek Sewer Pump Station to increase capacity; and

    ii. Upgrades to the receiving sewer force main exiting from Potomac Creek Sewer Pump.

c. Scope: The scope defining the aforementioned Bridging Water and Bridging Sewer improvements will be defined in the Water Service Agreement and are subject to change at execution or future amendments thereto.

d. Maximum Bridging Water Capacity - The maximum bridging water capacity for the Project shall be limited to the first to occur: (i) the use of a maximum of one million (1,000,000) gallons per day of potable water for industrial cooling of the data center buildings constructed (which includes receipt of a certificate of occupancy permits to operate) on the Property; or (ii) six (6) data center buildings (which includes receipt of a certificate of occupancy permits to operate) that utilize potable water for cooling prior to and until the Reuse Water System becomes

available to the Property (constructed, operational, located to the Property boundary, and connected to the data center buildings). The Water Service Agreement shall further limit the maximum bridging water capacity for the project to five (5) data center buildings. In the event, there is additional capacity the Water Service Agreement may be amended by approval of the Board of Supervisors to allow for six (6) data center buildings.

21. Reuse Water

a. Reuse Water Use: The Applicant agrees that all public water demands required to be used for industrial cooling for data centers will utilize reuse water as the sole primary water source once the Reuse Water System is completed and extended to the Property boundary. Should the Reuse Water System Project become delayed or unavailable due to necessary repairs or unforeseen disruptions as outlined in the Water Service Agreement, the Applicant must then obtain approval via an amendment of these proffers for any additional Bridging Water and Bridging Sewer needs over the maximum allotted in Proffer 20.d., except as otherwise outlined in Proffer 21.d. below.

b. Reuse Water System: To allow for use of Reuse Water for industrial cooling in data center buildings the following infrastructure improvements ("Reuse Water System" as used throughout this Proffer Statement) shall be completed (constructed, operational, located to the Property boundary, and data center buildings on the Property connected) by the Applicant, or others:

i. Reuse Water and return sewer piping;

ii. Reuse Water storage on the Property;

iii. New Potomac Creek Sewer Pumping Station capable of pumping to the Aquia Waste Water Treatment Facility;

iv. Applicant will contribute funding for necessary upgrades to the capacity of the Aquia Wastewater Treatment Facility that allow to treat flow from the Stafford Technology Campus that are currently outside of the Urban Services Area.

v. ~~iv.~~Permanent Cooling Water Infrastructure, as defined in the AWS WATER AND WASTEWATER INFRASTRUCTURE AGREEMENT entered into by Amazon Data Services, Inc. and Stafford County, Virginia, and approved by the Board of Supervisors on July 2, 2024, as may be amended; and

vi. ~~v.~~Any other improvements outlined and included in the executed Water Service Agreement as may be amended.

c. Timing & Scope: The timing and scope of the above-mentioned improvements shall be outlined in the Water Service Agreement and are subject to change at execution or future amendments thereto. The Applicant shall include language in the Water Service Agreement that assigns phasing of the development on the Property for data centers requiring potable water for cooling systems that is tied to key milestones in the Reuse Water System's construction and progress.

d. In the event the Reuse Water System construction has not commenced prior to December 31, 2028, and the Applicant requires public water for data center cooling, then the Applicant shall undertake reasonable good faith efforts to assume the responsibility of constructing the Reuse Water System through assignment of the obligation from applicable third parties, which shall be approved by Stafford County. Notwithstanding Proffer 21.a. above, in the event the responsibility is not assigned or the Reuse Water System is not approved, the Applicant shall either (1) provide a monetary contribution to Stafford County for improvements that would provide for sufficient potable water capacity upgrades to Stafford County's water infrastructure system that would allow for the use of potable water for permanent data center cooling; or (2) construct improvements that would provide sufficient potable water capacity upgrades to Stafford County's water infrastructure that would allow for the use of potable water for permanent data center cooling. The monetary contribution amount or required upgrades shall be determined and agreed upon at any period prior to December 31, 2032.

22. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

23. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility

Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

24. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

25. Interparcel Connections

    a. Tax Map Parcels 38-125 and 38-130 - In the event Tax Map Parcels 38-125, and 38-130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said parcels with the final location to be determined by the Applicant at final site plan.

    b. Tax Map Parcel 38-126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38-126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

26. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

27. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road: If a suitable design per the VDOT Road Design Manual as of July 11, 2024 is permitted by the County, VDOT and/or other federal, state or local agencies the Applicant shall make the following transportation improvements on the Connector Road:

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy-six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the

first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall make the following improvements:

1. Construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary between the Property's northern boundary to State Shop Road prior to the issuance of the 2,113th VPD on the Property;

2. Construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary along the Property's Eskimo Hill Road frontage prior to the issuance of the 991st VPD on the Property

3. Subject to available right-of-way and Proffer 28 below, construct an additional westbound lane on Eskimo Hill Road at its intersection with Richmond Highway prior to the issuance of the 2,113th VPD on the Property;

4. Subject to available right-of-way and Proffer 28 below, restripe the westbound Eskimo Hill Road approach at its intersection with Richmond Highway and modify the traffic signal and pavement markings prior to the issuance of the 2,113th VPD on the Property;

5. Install a dedicated southbound right turn lane on Eskimo Hill Road at the northernmost driveway prior to the issuance of an occupancy permit for the first data center building served by that access;

6. Subject to available right-of-way and Proffer 28 below, install a dedicated right turn lane on Eskimo Hill Road at the Vandegrift Road/Big Spring Lane intersection prior to the issuance of the occupancy permit for the 991st VPD on the Property;

7. Subject to available right-of-way and Proffer 28 below, construct a westbound right turn lane on Eskimo Hill Road at the State Shop Road intersection prior to the issuance of an occupancy permit for the 2,113th VPD on the Property;

8. Construct the access road to the western portion of the Property as a two-lane roadway with an auxiliary westbound right turn lane at the intersection of Richmond Highway prior to the issuance of an occupancy permit for the first data center building served by that access; and

9. Construct a southbound left turn lane and northbound right turn lane on Richmond Highway consistent with Proffer 27.e.iii.1 and 27.e.iii.3. below.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard or the roadway geometric design standard required by the VDOT Road Design Manual and VDOT Road and Bridge standards for a local roadway at the time of design approval, whichever one is more stringent, between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii. The location of said driveways shall be subject to the Minimum Spacing Standards for Commercial Accesses by the VDOT Access Management Regulations for collector roadways at the time of design approval.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway:

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan in the event the Connector Road is approved.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane, extending from Sage Lane to connect to the existing right turn lane at Black Jack Road, prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for 2,113th VPD and 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT in the event the Connector Road is approved. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

28. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 27 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's sole expense. Applicant's request shall be in writing and shall comply in all respects with state, federal, and local laws, and the County's eminent domain practices. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

   i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

   ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney’s Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

29. Construction

a. Construction Mitigation Plan - Prior to final site plan approval for each phase of development of the Property, a construction mitigation plan will be drafted by the Applicant ("Construction Mitigation Plan") and submitted for review and concurrence to the County's Director of Development Services and Director of Capital Projects. The Construction Mitigation Plan will address, at minimum, construction traffic control measures, including any mitigation measures to be implemented during weekday AM and PM peak travel hours and school bus travel times along shared construction truck routes to and from the Property, access points, and dust control.

b. Delivery Notification - The Applicant agrees to provide the County's Director of Development Services & Community Development and Director of Capital Projects with at least forty-eight (48) hours written notice prior to any expected large or oversized deliveries to Property and/or any significant, heavy construction presence on the Property.

c. Public Liaison - The Applicant agrees to designate at least one public liaison and publicize a toll-free phone number and email address during construction on the Property. At minimum, the information must be published on the Applicant's website and provided to the County's Public Information Officer for publication on the County's website and other social media. The liaison must act as a point of contact between citizens and construction crews. The liaison must be available in person and by phone during active construction hours and must respond to any questions related to the project or Property. The liaison role will commence prior to issuance of a land-disturbing permit and must remain a minimum of six (6) months following the issuance of the final certificate of occupancy for each building constructed on the Property.

d. Joint Construction Traffic Reaction Team - If requested by the County, the Applicant must participate in a Joint Construction Traffic Reaction Team, which may include members of County staff and VDOT, the County Sheriff's Office, County Fire and Rescue Department, and the Virginia State Police to identify and expeditiously resolve or mitigate traffic issues that may arise during the construction on the Property. The Applicant agrees to assist in resolving and implementing solutions to traffic issues.

e. Pavement Damage - At the Applicant's expense, damage to pavement on the roads, including shoulders and aprons, attributable to construction on the Property must

be repaired by the Applicant within one hundred and twenty (120) days of the issuance of the final certificate of occupancy for a building on the Property. However, if the Applicant receives notice from the County's Transportation Planner or VDOT staff stating that the damage to roads, including shoulders and aprons, has made a road unsafe, the Applicant will initiate the process of said repairs within forty-eight (48) hours of written notice from the County and/or VDOT.

f. Land Clearing - The Applicant commits to clearing the Property in phases based on development of each campus in accordance with applicable County Code requirements and will not mass grade the entire Property at one time.

30. Applicant Point of Contact - Prior to the first certificate of occupancy permit issued for the Property, the Applicant will provide the County a community point of contact(s) through its "STACK- Public Affairs" department and any other appropriate contact person as determined by the Applicant.

31. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

32. General Development Schedule - The Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the Property for the next thirty-six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 32 shall expire upon the full development of the Property.

33. Third Party Contractors - Should the County determine, in its sole discretion, that the size and scope of the proposal associated with data center buildings requires the County to rely upon contracted, or to other contract with, third parties to meet its obligations as they relate to reviewing, permitting and enforcing any aspect of the Project, the Applicant, after approving the costs for said contractors, will reimburse the County's incurred, reasonable costs or fund the County's reasonable estimates for the said third party contractors as set out in the County Code or other requirements. The Applicant will not unreasonably withhold approval of the costs. The Applicant will fund or reimburse the County's reasonable costs through (1) providing funds to the County upfront based on the County's reasonable estimates prior to the third party work and thereafter supplementing the estimated amounts paid, if necessary, by funding the actual, reasonable costs upon

completion of the work; or (2) by reimbursing the County after the County has expended funds for the third party work, either, both, or a combination thereof, all as determined by the County. In the alternative, the County (after review and verification) may direct its contractors, vendors, and other third parties providing services in support of the County to present to the Applicant with their invoices directly, which the Applicant will review and approve, and thereafter pay on behalf of the County within thirty (30) days of its receipt. The Applicant will not unreasonably withhold approval of the invoices. Any late fees or costs accrued based upon the Applicant's failure to pay invoices timely presented to it by the County will be the responsibility of the Applicant. The third-party costs paid by the Applicant hereunder will not be refunded under any circumstance, except in the event if the County unreasonably refuses to commence, or complete, once begun, the third-party work on the Property for which the third parties were contracted. This Proffer pertains to the initial development of the data centers building on the Property and construction activities on the Property and shall expire after final bonds for the last data center building constructed on the Property have been released.

34. Generator Testing - The testing of data center building generators shall be limited to weekdays between the hours of 7AM and 6PM.

35. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

SIGNATURE APPEARS ON FOLLOWING PAGES

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
WORK SESSION ITEMS

Subject:	
CAPITAL PROJECTS TRANSPORTATION; TRANSPORTATION FUNDING AND ENGINEERING UPDATES	
Recommended Action:	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
Overview:	
Discussion and updates on several transportation projects, SMART SCALE Round 6, and future transportation grants for the fall of 2024.	
Discussion/Analysis:	
Attachments:	
1. Attachment 1.cap.proj.tran Funding and Engineering Updates 11x17	
Summary/Conclusion:	
Strategic Priorities:	
Develop a Multimodal Infrastructure and Transportation System	
Reviewed By:	
Rysheda McClendon, County Attorney (Legal Review Only) Craig Meadows, Interim County Administrator	

Transportation Engineering Updates

General CIP Project Updates

CN

Berea Church Road

- Project is currently under construction and on schedule

Pre-CN

Route 1 and Telegraph Road / Woodstock Lane

- Project CN approval is under review by VDOT. Once approved we expect bids in FY25.

Pre-CN

Route 1 and Courthouse Road

- Project CN approval is under view by VDOT. Once approved we expect bids in FY25.

RW

Staffordboro Blvd

- The Right-of-Way phase is underway and on schedule. Once RW is cleared, we will submit 100% plans, construction expected in 2025.

PE: 60%

Brooke Road

- Working with the County Attorney's office on grant agreement

PE: 60%

Route 1 and Enon Road (Bond)

- Project has reached 60% design, and Public Hearing was held in March 2024. Currently working with VDOT to close out scoping. RAISE application unsuccessful.

PE: 60%

Onville Road (Bond)

- Project has reached 60% design, and Public Hearing was held in March 2024. Currently working with VDOT to close out scoping. Projects has a funding shortfall.

PE: 60%

US-17 Business at RV Pkwy (VDOT Led project)

- VDOT project held a Public Hearing on August 6th. Paired with a new Park and Ride Lot. Slightly over budget, looking at the Commuter Choice grant.

PE: 30%

Shelton Shop Road (Bond) (VDOT Led project)

- VDOT project has been redesigned to accommodate increased costs. Removal of shared-use path and roundabouts at Winding Creek Rd and Courthouse Rd.

PE: 30%

Stefaniga Road and Mountain View Road Roundabout

- Project has reached 30% design, increase in cost, but is covered by previously acquired CDS funding, and looking to acquire more CDS funding.

PE: 1%

Leeland Road (Bond) (VDOT Led project)

- Project design started in August 2024, paired with sidewalk and shared-use path projects along Leeland Road.

PE: 1%

Starting Engineering on:

- Poplar Rd and Truslow Rd Turn Lanes, anticipate RevShare application in 2025
- Mine Rd and Greenspring Dr Sidewalks, anticipate RevShare/TAP applications in 2025
- Chatham Heights Rd and Kings Hwy Sidewalks, anticipate RevShare/TAP applications in 2025

PE: 0%

Route 1 and Layhill Road (Bond)

- Must start work in FY25 to meet Bond deadlines, working with VDOT to start project but no current indications of timeline.

PE: 0%

Garrisonville Road Widening Phase 1 and 2 (Bond)

- Must start work in FY25 to meet Bond deadlines
- Phase 1 applied for in SS Round 6 ($72m), Phase 2 ($30m) for RevShare/ SS Round 7

Transportation Engineering Status

VDOT On-Time Performance Dashboard

X

Route 1 and Courthouse Road

Deadline: Solicit Bids - 9/1/2020

***Project bids anticipated FY25**

X

Berea Church Road

Deadline: Solicit Bids - 4/9/2021 - Actual 1/29/2024

***Project under construction; will stay red until removed from dashboard**

X

Route 1 and Telegraph/Woodstock

Deadline: Solicit Bids - 4/1/2022

***Project bids anticipated FY25**

Flatford Road

Deadline: Start Construction – 3/7/2022

***Project complete**

Staffordboro Blvd

Deadline: Purchase ROW – 12/10/2024

***Project currently on schedule**

Route 1 and Enon Road

Deadline: Determine Scoping – 10/27/2022

***Project in progress, closing of scoping in progress**

Onville Road

Deadline: Determine Scoping – 4/20/2023

***Project in progress, closing of scoping in progress**

Stefaniga and Mountain View Rd

Deadline: Determine Requirements – 1/15/2025

***Project currently on schedule**

On-Time Performance

63%

5 of 8 On-Time

Status	Active		Completed		Total	
On-Time	Count	Budget	Count	Budget	Count	Budget
X	3	$52M	0	$0	3	$52M
✓	4	$59M	1	$1M	5	$60M
Total	7	$111M	1	$1M	8	$112M

County staff have worked with VDOT on a Performance Development Improvement Plan, which has been agreed upon between the County and VDOT

Transportation Funding Updates

Received Funding On:

CDS
$2,350,000

- Onville Road Widening
- Stefaniga Road/Mountain View Road Roundabout
- Route 1 and Courthouse Road Turn Lanes

PROTECT
$10,251,613

- Brooke Road Reconstruction
  - Working with the County Attorney's office on grant agreement

RevShare
$6,880,000

- Onville Road Widening
- Garrisonville Road Widening

CMAQ/STBG
$1,645,682

- Mine Road and Greenspring Drive Sidewalk
- Route 1 and Coachman Circle
- Transportation Master Plan Update

SS4A Planning
$520,000

- Comprehensive Safety Action Plan & Bicycle and Pedestrian Plan Update
  - Working with the County Attorney's office on grant agreement

Did Not Receive Funding On:

RAISE
$8,488,161

- Route 1 and Enon Road
  - Working to schedule a debrief with USDOT

SS4A Construction
$1,464,480

- Truslow Road
- Poplar Road
- Joshua Road

Applied for Funding On:

CDS
$2,000,000

- Stefaniga Road/Mountain View Road Roundabout

ATIIP
$1,000,000

- Belmont-Ferry Farm Trail Engineering and Design

Upcoming Transportation Funding

Upcoming Funding Grants:

Commuter Choice

Fall 2024

- US-17 at RV Pkwy Intersection Improvements – VDOT-led project but in the County CIP. Needs $1m in additional funding, applications due by fall 2024
- Leeland VRE and Brooke VRE platform extensions are also underfunded

CRISI/RCE

Fall 2024

- Discussion on Brooke Road/Andrew Chapel Road underpass and Mount Hope Church Road railroad crossing
  - Could apply for Planning and/or Construction grant
  - Out year project but should start planning

RAISE

Fall 2024

- Enon Road and Route 1 was not funded, what projects should the County look at for the next round

CDS

Winter 2024/2025

- Awaiting results of FY24 application for Stefaniga/Mountain View Road

SS4A

Spring 2025

- What project(s) should the County look at for the next round (spring 2025)

DCIP

Spring 2025

- Onville Road Widening – need additional funding if eligible

CMAQ/CR /STBG

Spring 2025

- Now a two-year program – next opportunity in 2025 for FY32 & FY33 funding
  - FAMPO discussion on scoring methodology (population or traffic counts, rather than scores)

TAP

Spring 2025

- Engineering starting on Mine Road/Greenspring Dr and on Chatham Heights/Kings Hwy to reach 60% by summer 2025 in advance of TAP applications in summer 2025
- Route 17 Business Sidewalk and Garrisonville/Mine Intersection

Revenue Sharing

Spring 2025

- Engineering starting on Poplar/Truslow Turn Lanes in advance of the summer 2025 application deadline.
- Also apply for Mine Road/Greenspring Dr, Chatham Heights/Kings Hwy, Garrisonville Road Phase 2, and Onville Road

SMART SCALE

Fall 2025

- Projects submitted for SMART SCALE Round 6.
  - Total project cost: $385m, with local funding and existing grants, the County requested $341m
- Already planning for SMART SCALE Round 7

SMART SCALE Updates

Application Status and Round 7

Round 6 SMART SCALE Applications – Results expected in January 2025

Applicant	Project	Project Cost	Funding on Project	
			Local Funding	Grant Funding
Stafford	Garrisonville Road Widening Phase 1	$71,574,672	$21,505,218	$10,728,188
Stafford	Route 1 at I-95 and Coachman Circle Improvements	$39,825,016	$3,000,000	$491,601
Stafford	Route 1 at Potomac Hills and Corridor Safety	$16,201,266		
Stafford	Route 1 at Foreston Woods Dr and Coal Landing Rd Improvements	$21,901,719	$3,000,000	
FAMPO	Butler Road Widening	$87,652,757		
GWRC	I-95/Exit 136 Interchange and Centreport Parkway/Route 1	$86,424,343		
GWRC	Warrenton Road Widening	$29,660,773		
GWRC	Enon Road/Centreport Parkway Connector	$32,518,925	$6,000,000	
	Total Project Costs (July 2024)	**$385,759,471**	**$33,505,218**	**$11,219,789**
	SMART SCALE Request	**$341,034,464**		

Other Locality Request (based on available public information):
- Fairfax: 1.0 billion Prince William: $460m Spotsylvania: ~$350m Chesterfield: $350m

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Historical SMART SCALE Submission by Round

SMART SCALE Round	Total Cost	Actual Requested and Local Funding		Additional Funding Needed to be 100% Successful for Each Project	
	Total Project Cost	SMART SCALE Request	Local Funding	Additional Local Funding Needed	Total Local Funding Needed
Round 5	$ 138,187,232	$ 75,760,600	$ 62,426,632	$ 15,211,278	$ 77,637,910
Round 4	$ 187,343,315	$ 134,519,102	$ 52,824,213	$ 61,195,277	$ 114,019,490
Round 3	$ 91,350,000	$ 75,135,422	$ 16,214,578	$ 54,250,013	$ 70,464,591
Round 2	$ 64,520,000	$ 59,077,702	$ 5,442,298	$ 41,896,724	$ 47,339,022
Round 1	$ 33,599,546	$ 23,175,963	$ 10,423,583	$ 9,572,671	$ 19,996,254
	$ 515,000,093	$ 367,668,789	$ 147,331,304	$ 182,125,963	$ 329,457,267

For past rounds, we had allocated $147 million in funding (Rounds 1-5), but not all of those projects were successful

- The math suggests that if we wanted to be 100% successful, we would have needed $329 million in leveraged funding, just over 60% of total project costs.

In Round 6, we leveraged 11.5% of total project costs; however, in past rounds, our leveraged funding has averaged 29%

Staff are already looking ahead at Round 7 with a focus on the Transportation Master Plan expectations and funding needs for projects, as well as additional studies. The goal is to have project decisions by the Fall of 2025 to allow ample time for application development.

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
WORK SESSION ITEMS

Subject:	
CAPITAL PROJECTS PUBLIC CONSTRUCTION; LAND ACQUISITION FOR UTILITIES AND CENTRAL SERVICES COMPLEX UPDATE	
Recommended Action:	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
Overview:	
Follow-up presentation and discussion to the June 26, 2024, Board of Supervisors work session contemplating options for land acquisition for a Utilities department facility or a multiple department central service facility.	
Discussion/Analysis:	
Attachments:	
1. Attachment 1.cap.proj.pubconst Services Complex Study Update	
Summary/Conclusion:	
Strategic Priorities:	
Growth Management for Community Sustainability	
Reviewed By:	
Rysheda McClendon, County Attorney (Legal Review Only) Craig Meadows, Interim County Administrator	

Government Central Services Complex Concept Development Update

September 17, 2024

Central Services Complex

- Project Summary
  - The service complex concept was initiated from the requirement for Utilities field operations to relocate from their existing location at Coal Landing Road due to the immediate expansion needs of the Aquia Wastewater Treatment Plant to support a wastewater reuse system.
  - A needs assessment was performed to quantify analogous space types needed by several departments. The study resulted in the recommendation to consider the development of a centrally located facility to provide operational support space for six departments: Utilities, Capital Projects, Sheriff's Office, Fire and Rescue, Parks, Recreation, Facilities and Tourism and Schools (specifically Fleet Services).

- Two options identified to move forward:
  1. Acquire approximately 25-acres of property for the relocation of Utilities field operations
  2. Acquire minimum of 80-acres of property for relocation of Utilities field operations and future development of a multi-department service complex.

Both options should be located centrally to the urban services area and the county and provide adjacent access to arterial roadways to support efficiency.

- Based on Assessed Value:
  1. Potential properties appropriate for Utilities field operations facility range from $420,000 to $728,000
  2. Potential properties appropriate for a co-located services complex range from $1,704,000 to $2,406,000

Based on the current real-estate market we anticipate competition from developers of data centers, logistics facilities, and similar in demand property uses seeking similarly sized property. This is expected to elevate the cost of the acquisition of such property significantly for the foreseeable future.

Government Services Complex

- Staff recommendation - acquire property for both the immediate Utilities' field operation relocation and a future multiple department services complex.

- Staff seeks Board direction for property acquisition.

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
WORK SESSION ITEMS

Subject:	
UTILITIES; SEPTAGE POLICY AND RATE UPDATES	
Recommended Action:	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
Overview:	
The discussion on septage policy will include related County code changes, and updating septage rates.	
Discussion/Analysis:	
Septage is hauled wastewater pumped from septic tanks. The septage policy was approved by the Board of Supervisors in 1993 and sets the rates for hauled wastewater by septic haulers in Stafford County. Septage rates have not been updated since they were adopted in 1993. The current rates do not cover the cost to treat the additional wastewater and are below industry standards. The discussion on septage policy will include related County code changes, and updating septage rates. These changes include disallowing hauled wastewater from outside Stafford County, codifying authorization required by VDH, and tying septage rates to sewer rates.	
Attachments:	
1. Attachment 1.util Septage Policy Updates 2. Attachment 2.util O93-39 - AN ORDINANCE WHICH ADDS ARTICLE IX TO CHAPTER 25 OF THE STAFFORD COUNTY CODE RELATING TO DIS 3. Attachment 3.util O97-23 - TO AMEND CH 25 OF THE CNTY CODE BY AMENDING SECT 25-26 25-2725-2825-33 25-34 AND 25-80 RELAT 4. Attachment 4.util O97-55 - AN ORDINANCE TO AMEND AND READOPT THE FEES PROVIDING PUBLIC WATER AND SEWER SERVICE - 10_7_1	

Summary/Conclusion:
Staff is not asking for action to be taken at this time. After a public hearing with the Utilities Commission in October, staff will bring this item back to the Board for a public hearing in November.
Strategic Priorities:
Growth Management for Community Sustainability
Reviewed By:
Rysheda McClendon, County Attorney (Legal Review Only) Craig Meadows, Interim County Administrator

Septage Policy and Rate Changes

Work Session Presentation

September 17, 2024

Septage in Stafford County

- Septage is the concentrated waste pumped out from septic tanks
- Septic Tanks must be serviced at least every 5 years
  (Chesapeake Bay Requirement)
- About 30,000 Stafford residents on septic systems
- Septage waste is high in solids and hard to treat at WWTP
  (5 years of waste)
- No other jurisdictions accept septage from outside their area if at all
- 60% of septage received at LFR is from outside Stafford
  (25% at Aquia)
- Ave home has a 1250gal tank and pays $400/ svc with $22 coming to Stafford
  (Ave W/S customer pays $733.20/ yr for sewer)

Upcoming Projects Require Changes

- Little Falls Run – Multiple system upgrades (2025 – 2028)
- Aquia – Reuse expansion, then upgrades (2025 – 2032?)

Issues:

- Safety: Trucks entering work-zones
- Compliance: Reduces plant capacity, could violate permits
- Short Term: Must reduce the incoming volume and number of trucks per day during construction
- Long Term: Reduces life expectancy of WWTP, increases operations cost

Proposed policy change to not allow outside county septage moving forward.

Septage Rates

- **<u>Have not been adjusted since originally established in 1993.</u>**
- Currently $18/ 1000 gal from inside Stafford
- Proposed rate of $25

  (1% annual increase for 30 years from $18 is $24.26)
- Increase septage rate on same schedule as sewer rates.

Next Steps

- Resolution to change rates
  - Public Hearing with UC and BOS
- Ordinance with Code changes
    - Disallow hauled waste from outside Stafford
    - Codify Authorization requirement (VDH)
    - Tie Septage rates to Sewer rates
  - Public Hearing with UC and BOS

O93-39

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

ORDINANCE

At a regular meeting of the Stafford County Board of Supervisors held in the Board Chambers, Stafford County Administration Center, Stafford, Virginia, on the 12th day of October, 1993:

MEMBERS:	VOTE:
Lyle Ray Smith, Chairman	Yes
E. C. "Bill" Williams, Jr., Vice Chairman	Yes
Alvin Y. Bandy	Yes
Ferris M. Belman, Sr.	Yes
Lindbergh A. Fritter	Yes
Robert C. Gibbons	Yes
Linda V. Musselman	Yes

On motion of Mr. Gibbons, seconded by Mr. Williams, which carried by a vote of 7 to 0, the following was adopted:

AN ORDINANCE WHICH ADDS ARTICLE IX TO CHAPTER 25 OF THE STAFFORD COUNTY CODE RELATING TO DISPOSAL OF SEPTAGE

WHEREAS, the Board of Supervisors desires to implement provisions for the disposal of septage; and

WHEREAS, the Stafford County Code must be amended to include these provisions;

NOW, THEREFORE, BE IT ORDAINED by the Stafford County Board of Supervisors on this the 12th day of October, 1993, that the Stafford County Code be and the following section is hereby added, as follows:

ARTICLE IX. DISPOSAL OF SEPTAGE

Sec. 25-190. Violation

Any person violating a provision of this article shall be guilty of a Class 1 Misdemeanor. Each separate occurrence of the violation of the article shall constitute a separate offense.

Sec. 25-191. Unauthorized Discharge

It shall be unlawful for any person to discharge septage, or other material into County manholes or to use any other means of access to the County's sewer system other than the Little Falls Run Wastewater Treatment Facility or the Aquia Wastewater Treatment Facility.

Sec. 25-192. Unlawful to Discharge Sewage to Surface

It is unlawful for any person to permit or allow the discharge of any septage to a stream, ditch, or ground surface, except as provided for in the Code of Virginia, Title 62.1, Chapter 3.1, as amended.

Sec. 25-193. Fees

A fee of $18.00/1,000 gallons shall be charged for septage from residences and businesses located within Stafford County which is discharged at a County wastewater treatment facility. The above fee shall be $36.00/1,000 gallons for septage hauled from outside of the County.

This Ordinance is effective as of November 1, 1993.

A Copy, teste:

C. M. Williams, Jr.
County Administrator

CMWJr:REB:sbm

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

ORDINANCE

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, Stafford County Administration Center, Stafford, Virginia, on the 22nd day of July, 1997:

MEMBERS:	VOTE:
Linda V. Musselman, Chairman	Yes
Kenneth T. Mitchell, Vice Chairman	Yes
Alvin Y. Bandy	Yes
Ferris M. Belman, Sr.	Yes
Lindbergh A. Fritter	Yes
Robert C. Gibbons	Absent
Lyle Ray Smith	Yes

On motion of Mr. Bandy, seconded by Mr. Fritter, which carried by a vote of 6 to 0, the following was adopted:

AN ORDINANCE TO AMEND CHAPTER 25 OF THE COUNTY CODE BY AMENDING SECTIONS 25-26, 25-27, 25-28, 25-33, 25-34, AND 25-80 RELATING TO THE PAYMENT OF AVAILABILITY AND CONSTRUCTION CHARGES AND SECTIONS 25-96, 25-98, 25-101, 25-105, 25-108, 25-109, 25-110, 25-169, AND 25-193 RELATING TO THE PAYMENT OF WATER AND 25-169, AND 25-193 RELATING TO THE PAYMENT OF WATER AND SEWER SERVICE CHARGES.

WHEREAS, the Board desires to amend Sections 25-26, 25-27, 25-28, 25-33, 25-34, 25-80, 25-96, 25-98, 25-101, 25-105, 25-108, 25-109, 25-110, 25-169, AND 25-193 of the County Code; and

WHEREAS, the Board has authorized a Water and Wastewater Rate Study conducted by the firm of Reznick, Fedder and Silverman; and

WHEREAS, the Board has carefully considered the recommendations of the staff, the Utilities Commission, and testimony received at the public hearing;

NOW, THEREFORE, BE IT ORDAINED by the Stafford County Board of Supervisors on this the 22nd day of July, 1997, that the County Code Sections 25-26, 25-27, 25-28, 25-33, 25-34, 25-80, 25-96, 25-98, 25-101, 25-105, 25-108, 25-109, 25-110, 25-169, and 25-193 be and they hereby are amended as follows:

Sec. 25-26. Account fee for new service.

~~A ten dollar~~ There shall be an account fee ~~will be~~ charged each time a new water service is established and each time a new sewer service is established. Such fees shall not be refundable.

Sec. 25-27. Water availability charges.

(a) An application for water service shall be made for connection to the public water distribution system. The application shall be made prior to the issuance of a building or plumbing permit. The amount of the availability charge shall be based upon the class of user, estimated water consumption, and the rates in effect at the time of payment. The availability charge shall be payable prior to the issuance of an occupancy permit for new structures or before issuance of a plumbing permit for existing structures.

The requirement for payment of a water availability charge ~~for~~ by an ~~industry~~ industrial user which ~~exceeds two hundred fifty thousand dollars ($250,000.00)~~ requires a meter larger than four (4) inches may, at the option of the administrator, be satisfied by the execution and recordation of a water availability charge agreement between the industrial user and Stafford County. Each such proposed agreement shall be a separate matter and shall be approved by the board of supervisors.

(b) ~~The~~ There shall be an availability charge for new single-family residences and existing single-family residences already having well systems. ~~shall be three thousand five hundred dollars ($3,500.00)~~ The above availability charge shall be reduced by one-half (1/2) for existing single-family residences owned and occupied by persons who qualify for tax relief under section 23-57 of the Stafford County Code.

~~(c) The availability charge for new single-family residences shall be three thousand five hundred dollars ($3,500.00).~~

(c) ~~(d) The~~ There shall be an availability charge for multi-family dwelling units (apartments, mobile home parks, etc.). The fee shall be for each dwelling unit.

~~(e) The availability charge for motels, hotels, tourist cabins, and lodging houses shall be four hundred dollars ($400.00) per unit.~~

~~(f) The availability charges for those applicants who desire to connect to certain sewer mains as described by section 25-33(a) of the Stafford County Code shall be two thousand dollars ($2,000.00).~~

(d) ~~(g)~~ The availability charge for all other applicants shall be based upon ~~the estimated water consumption. Water consumption will be equated to the number of household equivalent units required by the service. Each household unit is equivalent to three hundred fifty (350) gallons of water per unit per day. The minimum charge for the first equivalent unit of any service will be~~ the meter size. ~~in accordance with the following schedule:~~

~~Size Meter~~	~~Cost~~
~~5/8" single residence~~	~~$2,000.00~~
~~3/4"~~	~~2,000.00~~
~~1"~~	~~2,025.00~~
~~1 1/4"~~	~~2,100.00~~
~~1 1/2"~~	~~2,200.00~~
~~2"~~	~~2,400.00~~
~~3"~~	~~2,800.00~~
~~4"~~	~~2,900.00~~
~~5"~~	~~4,000.00~~
~~6"~~	~~4,800.00~~

~~In addition to the above schedule, there will be a seven hundred dollar ($700.00) charge for each additional equivalent household unit.~~

~~The estimated number of household equivalent units for each service will be based on the following schedule of the water demands for each type service:~~

~~Type Service~~	~~Unit~~	~~Consumption Per Unit Per Day~~
~~Colleges~~	~~per student~~	~~100~~
~~Day schools (nurseries)~~	~~per student~~	~~10~~
~~Hospitals~~	~~per bed~~	~~200~~
~~Industry or office building~~	~~per employee~~	~~25~~
~~Laundromats~~	~~per machine~~	~~200~~
~~Nursing homes~~	~~per bed~~	~~100~~

~~Restaurants:~~
~~Ordinary restaurant~~
~~(Not 24-hour) per seat 35~~
~~24-hour per seat 50~~
~~Tavern per seat 20~~
~~Banquet room per seat 5~~

~~Schools: Elementary and High per student 30~~
~~Service stations (full service) per station 500~~
~~Shopping centers per 1,000 sq. ft. of floor space 500~~
~~Theaters per seat~~

~~Travel trailer parks:~~
~~Campgrounds; pump station for trailers and campers per trailer or space 150~~

~~Example: Industry, 110 employees, 1 1/2" meter~~
~~110 employees x 25 gal./employee/day = 2,750 gal./day~~
~~2,750 gal./day ÷ 350 per household/day = 7.8 equiv. household units~~

~~First unit $2,200.00~~
~~6.8 Additional Units @ $700 4,760.00~~
~~7.8 Units $6,960.00 Water availability fee~~

~~(e)~~ ~~(h)~~ Subsequent changes, modifications, or alterations of existing services that increase the ~~water demand for type of service~~ size of the water meter are subject to additional availability charges on the basis of ~~additional consumption.~~ the larger meter. No building permit or certificate of occupancy shall be valid unless all additional charges shall have been paid. There will be no refund of charges where demand is decreased.

~~(f)~~ ~~(i) Where the foregoing schedule of availability charges is not applicable to an application for water service, the amount of water consumption of the proposed service shall be investigated by the director, who, upon investigation, shall impose a fair and equitable availability charge to be assessed to the applicant.~~ The sizes of all water meters are subject to the review and approval of the director of utilities. The applicant may be required to supply a detailed analysis supporting the water demand.

~~(g)~~ ~~(j)~~ The requirement for payment of the water availability, connection, and construction charges for an existing structure, or for an addition to an existing structure

presently connected at the time of the application, or for a new residence constructed by an individual (or a builder hired by such individual) who owns the property upon which the residence is being built and who intends to reside therein may, at the option of the county administrator, be satisfied by the execution and recordation of a water availability charge agreement between the property owner and the county administrator, to be prepared by the director. The agreement shall provide for payment of the water availability charge by monthly installments during a term not to exceed thirty-six (36) months, and shall contain appropriate provisions for acceleration upon the sale or transfer of the property, or upon a breach of terms of the agreement and for termination of service upon a breach of the terms. Where an applicant has made a prior application for wastewater service in accordance with section 25-28(g) of the Stafford County Code, the above thirty-six (36) months' installment term shall commence the next month following the termination of the thirty-six (36) months' installment period for the wastewater service. Payments made pursuant to this section shall also include an administrative fee ~~of one hundred dollars ($100.00)~~ which shall be payable at the time of application. A ten percent (10%) penalty shall be paid for late payments.

(h) ~~(k)~~ The appropriate minimum monthly water service fee shall be paid, commencing within ninety (90) days after the availability charge is paid regardless of whether the property, including vacant property, is connected or not.

(i) A ~~The~~ deposit shall be required when agreeing to connect to a proposed water main constructed in accordance with the neighborhood water and sewer line extension policy. ~~shall be five hundred dollars ($500.00).~~ Should the water main not be constructed, the deposit shall be returned without interest.

Sec. 25-28. Wastewater disposal availability charges.

(a) An application for sewer service shall be made for connection to the public wastewater disposal system. The application shall be made prior to the issuance of a building or plumbing permit. The amount of the availability charge shall be based upon the class of user, estimated water consumption, and the rates in effect at the time of payment. The availability charge shall be payable prior to the issuance of an occupancy permit for new structures or before issuance of a plumbing permit for existing structures.

The requirement for payment of a sewer availability charge for an ~~industry~~ industrial user requiring ~~which exceeds two hundred fifty thousand dollars ($250,000.00)~~ a meter larger than four (4) inches may, at the option of the administrator, be satisfied by the execution and recordation of a sewer availability charge agreement between the industrial user and Stafford County. Each such proposed agreement shall be a separate matter and shall be approved by the board of supervisors.

(b) ~~The~~ There shall be an availability charge for new single-family residences and existing single-family residences already having on-site systems. ~~shall be three thousand dollars($3,000.00).~~ The above availability charge shall be reduced by one-half (1/2) for existing single-family residences owned and occupied by persons who qualify for tax relief under section 23-57 of the Stafford County Code.

~~(c) The availability charge for new single-family residences shall be three thousand dollars ($3,000.00).~~

(c) ~~(d)~~ ~~The~~ There shall be an availability charge for multi-family dwelling units (apartments, mobile home parks, etc.) ~~shall be three~~ four ~~thousand dollars ($3,000.00) ($4,000.00) per dwelling unit.~~ The fee shall be charged for each dwelling unit.

~~(e) The availability charge for motels, hotels, tourist cabins, and lodging houses shall be three hundred fifty dollars ($350.00) per unit.~~

~~(f) The availability charges for those applicants who desire to connect to certain sewer mains as described by section 25-33(a) of the Stafford County Code shall be one thousand five hundred dollars ($1,500.00).~~

(d) ~~(g)~~ The availability charge for all other applicants shall be based upon ~~the estimated water consumption. Water consumption will be equated to the number of household equivalent units required by the service. Each household unit is equivalent to three hundred fifty (350) gallons of water per unit per day. The minimum charge for the first equivalent unit of any service will be~~ the meter size. ~~in accordance with the following schedule:~~

~~Size Meter~~	~~Cost~~
~~5/8"~~	~~$1,500.00~~
~~3/4"~~	~~1,500.00~~
~~1"~~	~~1,525.00~~
~~1 1/4"~~	~~1,600.00~~
~~1 1/2"~~	~~1,700.00~~
~~2"~~	~~1,900.00~~
~~3"~~	~~2,300.00~~
~~4"~~	~~2,400.00~~
~~5"~~	~~3,500.00~~
~~6"~~	~~4,300.00~~

~~In addition to the above schedule, there will be a seven hundred dollar ($700.00) charge for each additional equivalent household unit.~~

~~The estimated number of household equivalent units for each service will be based on the following schedule of the water demands for each type service:~~

~~(Refer to section 25-27(g).~~

(e) ~~(h)~~ Subsequent changes, modifications, or alterations of existing services that increase the size of the water meter ~~water demand for type of service~~ are subject to additional availability charges on the basis of ~~additional consumption.~~ the larger meter. No building permit or certificate of occupancy shall be valid unless all additional charges have been paid. There will be no refund of charges where demand is decreased.

(f) ~~(i) Where the foregoing schedule of availability charges is not applicable to an application for wastewater service, the amount of water consumption of the proposed service shall be investigated by the director, who, upon investigation, shall impose a fair and equitable availability charge to be assessed to the applicant.~~ The size of all water meters are subject to review and approval by the director.

(g) ~~(j)~~ The requirement for payment of the wastewater availability, connection, and construction charges for an existing structure, or for an addition to an existing structure presently connected at the time of the application, or for a new residence constructed by an individual (or a builder hired by such individual) who owns the property upon which the residence is being built and who intends to reside therein may, at the option of the county administrator, be satisfied by the execution and recordation of a wastewater availability charge agreement between the property owner and the county administrator, to be prepared by the director. The agreement shall provide for payment of the wastewater availability charge by monthly installments during a term not to exceed thirty-six (36) months, and shall contain appropriate provisions for acceleration upon the sale or transfer of the property or upon a breach of terms of the agreement, and for termination of service upon a breach of terms. Where an applicant has made a prior application for water service in accordance with section 25-27(g) of the Stafford County Code, the above thirty-six (36) months' installment term shall commence the next month following the termination of the thirty-six (36) installment period for the water service. Payments made pursuant to this section shall also include an administrative fee ~~of one hundred dollars ($100.00)~~ which shall be payable at time of application. A ten (10) percent penalty shall be paid for late payments.

(h) ~~(k)~~ The appropriate minimum monthly wastewater service fee shall be paid commencing within ninety (90) days after the availability charge is paid regardless of whether the property, including vacant property, is connected or not.

(i) A deposit shall be required when agreeing to connect to a proposed sewer main constructed in accordance with the neighborhood water and sewer line extension policy. ~~shall be five hundred dollars ($500.00).~~ Should the sewer main not be constructed, the deposit shall be returned without interest.

Sec 25-33. Water and wastewater construction charges.

~~(a) In the portion of Argyle Heights Subdivision where sewer service will be provided by connecting the sewer house connections directly to certain sewer mains installed by special projects described in Appendix A to this Ordinance No. 082-60(R), and which cannot be provided by other available sewer mains, there will be a sewer construction charge of three thousand three hundred dollars ($3,300.00) per connection.~~

(a) ~~(b)~~ ~~The~~ There shall be a water and sewer construction charges for connecting to mains constructed in accordance with the neighborhood water and sewer line extension policy outside of the growth area, excluding transitional areas. ~~is one thousand five hundred dollars ($1,500.00).~~

(b) ~~(c)~~ ~~The~~ There shall be a construction charge for the installation of a grinder pump for a county-installed low pressure sewer system. ~~is one thousand five hundred dollars ($1,500.00).~~

Sec. 25-34. Water and sewer connection procedures and charges.

(b) The county shall install water and sewer house connections on county-built mains as required to provide service to the property line, except where required by subsection (a) hereof. ~~The~~ There shall be a charge for ~~the~~ each water and sewer house connection ~~is five hundred dollars ($500.00) each for water and for sewer~~. This charge is applicable to all county-installed water and sewer house connections.

Sec. 25-80. Periodic inspection of work.

During the progress of work governed by this article, the director or his duly authorized engineers, inspectors or others who are directly concerned with the work shall have access to the locations of construction for the purpose of establishing, to their satisfaction, that the projects are being constructed to county requirements and in accordance with approved plans and specifications. There shall be an inspection fee charged for these inspections.

ARTICLE V. WATER AND SEWER SERVICE CHARGES

Sec. 25-96. Water charges generally.

(a) The billing year shall be divided into two (2) six-month periods: Seasonal (May through October) and nonseasonal (November through April). A nonseasonal average will be computed based upon the monthly water consumption during the nonseasonal period. For customers who do not have a six-month nonseasonal average, an average of six thousand (6,000) gallons will be established until the customer achieves a full six- month nonseasonal average.

(b) ~~The~~ There shall be a consumption charge for each 1,000 gallons of water furnished by the county. ~~shall be as follows:~~

~~(1) For the twelve-month period beginning October 1, 1993:~~

~~Water Consumption (Gallons)~~	~~Nonseasonal Consumption Charge (Per 1,000 Gal.)~~	~~Seasonal Consumption Charge up to the Nonseasonal Average + 20% (Per 1,000 Gal.)~~	~~Seasonal Consumption Charge above the Nonseasonal Average + 20% (Per 1,000 Gal.)~~
~~0-10,000~~	~~$ 1.99~~	~~$ 1.99~~	~~$ 3.98~~
~~10,0001-50,000~~	~~1.75~~	~~1.75~~	~~3.98~~
~~All over 50,000~~	~~1.63~~	~~1.63~~	~~3.98~~

~~(2) Effective October 1, 1994, and thereafter:~~

~~Water Consumption (Gallons)~~	~~Nonseasonal Consumption Charge (Per 1,000 Gal.)~~	~~Seasonal Consumption Charge up to the Nonseasonal Average + 20% (Per 1,000 Gal.)~~	~~Seasonal Consumption Charge up to the Nonseasonal Average + 20% (Per 1,000 Gal.)~~
~~0-10,000~~	~~$2.12~~	~~$2.12~~	~~$4.24~~
~~10,001-50,000~~	~~1.85~~	~~1.85~~	~~4.24~~
~~All over 50,000~~	~~1.71~~	~~1.71~~	~~4 .24~~

(c) Each ~~metered water service~~ water customer shall be charged a monthly customer service charge for costs of administration. ~~of one dollar and twenty-five cents ($1.25). one dollar and fifty-one cents ($1.51).~~

(d) Each ~~metered water service~~ water customer shall be charged a monthly demand charge, based on customer equivalent meter size, to recover a portion of capital costs. The five-eighths-inch meter is considered one meter equivalent, and each customer is charged based on the number of equivalent meters being serviced. ~~The charge for each meter equivalent is:one dollar and thirty-seven cents ($1.37).~~

~~(1) One dollar and ten cents ($1.10) for the twelve-month period beginning October 1, 1993.~~

~~(2) One dollar and twelve cents ($1.12) effective October 1, 1994, and thereafter.~~

The following meter size equivalents apply:

Meter Size	Number of Meter Equivalents
5/8"	1
3/4"	2
1"	3.34
1 1/2"	6.66
2"	10.67
3"	26.67
4"	46.67
6"	106.67

(e) ~~The~~ There shall be a bulk water rate, which includes the consumption charge, customer service charge and demand charge for water furnished by the county~~. shall as follows: be two dollars and seventy-five cents ($2.70) per one thousand (1,000) gallons.~~

(1) ~~Two dollars and fifty-five cents ($2.55) per one thousand (1,000) gallons for the twelve-month period beginning October 1, 1993.~~

(2) ~~Two dollars and seventy cents ($2.70) per one thousand (1,000) gallons effective October 1, 1994, and thereafter.~~

~~The minimum monthly bill for bulk water shall be based on ten thousand (10,000) gallons.~~

(f) The minimum monthly water service fee required by Section 25-27(h) shall include the monthly service charge required by Section 25-96(c) and the monthly demand charge required by Section 25-96(d).

Sec. 25-98. Sewer charges generally.

(a) The billing year shall be divided into two (2) six-month periods: Seasonal (May through October) and nonseasonal (November through April). A nonseasonal average will be computed based upon the monthly water consumption during the nonseasonal period. For customers who do not have a six-month nonseasonal average, an average of six thousand (6,000) gallons will be established until the customer achieves a full six-month nonseasonal average.

(b) During the seasonal billing period the charge for sewer service shall be limited to the lower of the actual usage or the nonseasonal average plus twenty (20) percent.

(c) ~~All~~ Sewer customers shall pay charges ~~fees the following sewer charges: dollars and sixteen cents ($3.16) per one thousand (1,000) gallons,~~ based on water consumption.

~~(1) Two dollars and ninety-eight cents (2.98) per one thousand (1,000) gallons, based on water consumption, for the twelve-month period beginning October 1, 1003.~~

~~(2) Three dollars and sixteen cents ($3.16) per one thousand (1,000) gallons, based on water consumption, effective October 1, 1994, and thereafter.~~

(d) All sewer customers shall pay a monthly service charge for costs of administration. ~~of eighty-nine cents ($0.89).~~

(e) All sewer customers shall pay a monthly demand charge, based on customer water meter size, to recover a portion of capital costs. The five-eights-inch meter is considered one meter equivalent, and each customer is charged based on the number of equivalent meters being serviced. ~~The charge for one meter equivalent is two dollars and eighty-three cents ($2.83).~~ The meter equivalents contained in Section 25-96(d) apply.

~~(1) Two dollars and fifty-eight cents ($2.58) for the twelve-month period beginning October 1, 1993.~~

~~(2) Two dollars and eight-three cents ($2.83) effective October 1, 1994, and thereafter.~~

(f) The minimum monthly wastewater service fee required by Section 25-28~~(k)~~ (h) shall include the monthly service charge required by Section 25-98(d) and the monthly demand charge required by Section 25-98(e).

(g) Customers who are provided sewer service only shall be charged based on two thousand (2,000) gallons per month per full time resident in the dwelling, or the customer, at his expense, can install a water meter on his private water system, after which sewer charges shall be based on water consumption as registered by the water meter.

Sec. 25-101. Advance payment when account is established.

~~(a) A sixty dollar ($60.00) advance payment is required each time a service account is established for water and sewer service. If the account is for water only or sewer only, there will be a thirty dollar ($30.00) advance payment.~~

(a) ~~The~~ There shall be an ~~following~~ advance payment ~~amounts shall apply~~ for each account established. Upon termination of service, the advance payment will be credited to the balance of the final bill.

(b) At the option of the county administrator, a customer whose account has been current during the past twelve (12) months and who desires to transfer the advance payment from one address to another within the county's utility service area, may be permitted if the request is in writing, to transfer the advance payment to the new address. It is also agreed that the balance due the County after the generation of a final bill on the discontinued account will be transferred to the new account.

Sec. 25-105. Discontinuance of service for failure to pay.

Water and sewer service shall be discontinued fifteen (15) days after a bill rendered under this article becomes delinquent. When such services are so discontinued, they shall not be reinstated until the reconnection charge ~~of thirty dollars ($30.00) for each service~~ has been paid, together with all delinquent bills, including penalties. Such reconnection charge shall not be refundable.

Sec. 25-108. ~~Advance payment.~~ Fees for use of Fire Hydrant Meters

(a) ~~A two hundred dollar ($200.00)~~ An advance payment is required from all customers who desire to use ~~a 5/8 inch~~ fire hydrant meters for the purchase of bulk water. A seven hundred dollar ($700.00) advance payment is required for all customers who desire to use a 2 1/2 inch fire hydrant meter for the purchase of bulk water.

(b) There shall be a monthly rental fee for any portion of a month that the meter is used by the customer

(c) Water used shall be billed at the bulk rate in accordance with Sec. 25-96(e).

Sec. 25-109. Fees for Use of Construction Meters

(a) At the option of the director, construction meters may be issued to builders of new homes to facilitate their construction.

(b) An advance payment is required from all customers who desire to use a 5/8-inch domestic water meter during construction of new homes.

(c) There shall be a monthly rental fee for any portion of a month that the meter is used by the customer.

(d) Water used shall be billed at the bulk rate in accordance with Sec. 25-96(e).

Sec. 25-110. Miscellaneous Charges.

(a) Customers requesting delinquent service reconnection or new account turn-on after normal working hours shall be charged an "After Hours" fee.

(b) Customers requesting that their meter be re-read shall be charged a fee.

(c) Customers requesting that their meter be tested for accuracy shall be required to pay a "Meter Testing" deposit. This deposit will be refunded if the meter is inaccurate.

(d) A return check fee will be charged and shall not be refunded.

Sec. 25-120. Reserved

Sec. 25-169. On-site well and septic system application fee.

In addition to the fee established by state statute for health department approval, there shall be an additional application fee for the construction of on-site well and septic systems. ~~as follows:~~

~~Septic system:~~	~~$125.00~~
~~Well:~~	~~50.00~~

Those individuals whose incomes are less than one hundred (100%) percent of the established federal poverty guidelines as determined by the health department shall be exempt from the payment of fees. Individuals with failing wells or septic systems shall be exempt from the payment of these fees for the establishment of a new well or septic system at the same site.

Sec. 25-193. ~~Fees~~ Septage Hauling

~~A fee of eighteen dollars per one thousand (1,000) gallons~~ Charges shall be ~~charged~~ assessed for septage from residences and businesses located within Stafford County and from outside Stafford County which is discharged at a county wastewater treatment facility. ~~The above fee shall be thirty-six dollars ($36.00) per one thousand (1,000) gallons for septage hauled from outside of the county.~~

BE IT FURTHER ORDAINED that this Ordinance be and it shall become effective on October 1, 1997.

A Copy, teste:

C. M. Williams, Jr.
County Administrator

CMWJr:REB:sbm

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

ORDINANCE

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, Stafford County Administration Center, Stafford, Virginia, on the 7th day of October, 1997:

MEMBERS:	VOTE:
Linda V. Musselman, Chairman	Yes
Kenneth T. Mitchell, Vice Chairman	No
Alvin Y. Bandy	Yes
Ferris M. Belman, Sr.	Yes
Lindbergh A. Fritter	Yes
Robert C. Gibbons	Yes
Lyle Ray Smith	Yes

On motion of Mr. Bandy, seconded by Mr. Fritter, which carried by a vote of 7 to 0, the following was adopted:

AN ORDINANCE TO AMEND AND READOPT THE FEES PROVIDING PUBLIC WATER AND SEWER SERVICE

WHEREAS, the Board is authorized to set reasonable fees and charges for public water and sewer service; and

WHEREAS, such authority can be found in §15.1-292.2, 15.1-320, and 15.1-321 of the Code of Virginia (1950), as amended; and

WHEREAS, the Board desires to set the fees for these services commensurate with the services provided by the County; and

WHEREAS, Chapter 25 of the County Code authorizes the establishment of fees; and

WHEREAS, the Board has carefully considered the recommendation of the Utilities Commission and staff and the testimony at the public hearing;

NOW, THEREFORE, BE IT ORDAINED by the Stafford County Board of Supervisors on this the 7th day of October, 1997, that the fees for providing public water and sewer service be and are hereby amended and readopted as follows:

Service	Water Fees	Sewer Fees	Code Section
Availability; Single Family	$ 3,600.00	$ 3,500.00	25-27(b) & 25-28(b)
Availability; Multi-Family	3,600.00	3,500.00	25-27(c) & 25-28(c)
(Per Dwelling Unit)			
Availability; All Other			25-27(d) & 25-28(d)
Size of Meter			
5/8 Inch	3,600.00	3,500.00	
3/4 Inch	7,200.00	7,000.00	
1 Inch	12,024.00	11,690.00	
11/2 Inch	23,976.00	23,310.00	
2 Inch	38,412.00	37,345.00	
3 Inch	96,012.00	93,345.00	
4 Inch	168,012.00	163,345.00	
6 Inch	384,012.00	373,345.00	
Administrative (Time Payments)	100.00	100.00	25-27(g) & 25-28(g)
Agreement Deposit			
Neighborhood Projects	500.00	500.00	25-27(i) & 25-28(i)
Construction Charge; Neighborhood			
Projects Outside of Growth Area	1,500.00	1,500.00	25-33(a)
Construction Charge; Grinder			
Pumps (County Installed LPSS)		1,500.00	25-33(b)
Connection Charge	500.00	500.00	25-34(b)
Pro Rata Charge (Per Gallon)			
Pressure Zone			25-72.1 & R91-125(R-5)
342/320	2.00		
503	0.99		
503A	2.84		
370	2.84		
310	1.80		
310A	3.85		
433	2.03		
Drainage Area			25-72.2 & R91-125(R-5)
Falls Run		4.28	
Claiborne Run		1.57	
Little Fall Run		3.00	
Austin Run		2.92	
Aquia Creek		1.61	
Horsepen/Rocky Pen Run		6.57	

Service	Water Fees	Sewer Fees	Code Section
Potomac Creek		5.95	
Accokeek Creek		5.54	
Widewater		2.61	
Inspection Fees (Per Foot)			25-80
Water Main 3" & Above	0.75		
Sewer Main 8" & Above		1.25	
TV Sewer Main		1.00	
Monthly Service Charges (Consumption per 1,000 Gallons)			25-96(b) & 25-98(c)
0 - 10,000 Non-Seasonal	1.75	3.16	
Seasonal Average +20%	$ 1.75	$ 3.16	
Seasonal Average Over 20%	4.50	3.16	
10,000 - 50,000 Non-Seasonal	2.25	3.16	
Seasonal Average +20%	2.25	3.16	
Seasonal Average Over 20%	4.50	3.16	
All Over 50,000 Non-Seasonal	1.75	3.16	
Seasonal Average +20%	1.75	3.16	
Seasonal Average Over 20%	4.50	3.16	
Monthly Customer Service Charge	1.51	0.89	25-96(c) & 25-98(d)
Monthly Demand Charge			
Per Meter Equivalent	1.37	4.61	25-96(d) & 25-98(e)
Bulk Water (Per 1,000 gal.)	2.70		25-96(e)
Account Service	10.00	10.00	25-26
Advance Payment			
5/8" & 3/4" Meter	30.00	30.00	25-101(a)
1" Meter & Larger	75.00	75.00	
Fire Hydrant Meters			
Deposits			25-108(a)
5/8" Meter	200.00		
2 1/2" Meter	700.00		
Monthly Rental	50.00		25-108(b)
Construction Meters			
Deposits	500.00		25-109(b)
Monthly Rentals	50.00		25-109(c)
Miscellaneous Charges (Per Account)			
Delinquency Reconnection Charge	30.00		25-105
After Hours Turn-on			
Delinquents	25.00		25-110(a)
New Accounts	25.00		25-100(a)

Service	Water Fees	Sewer Fees	Code Section
Meter Re-read	10.00		25-110(b)
Meter Testing	30.00		25-110(c)
Returned Check Fee	20.00		25-110(d)
On-site Application Fee			
Septic System		125.00	
Well	50.00		
Septic Discharges (Per 1,000 Gal.)			25-193
From Within Stafford County		18.00	
From Outside Stafford County		36.00	
Pretreatment Permit Fee			25-260
Issuance & Reissuance		1,400.00	
Annual Fee		2,500.00	

BE IT FURTHER ORDAINED that this Ordinance shall be effective immediately.

A Copy, teste:

C. M. Williams, Jr.
County Administrator

CMWJr:REB:sbm

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
PRESENTATIONS/REPORTS BY DEPARTMENTS

Subject:	
BUDGET AND MANAGEMENT: YEAR END (UNAUDITED) FINANCIAL REPORT	
Recommended Action:	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
Overview:	
Discussion/Analysis:	
The Year End Financial results presentation is meant to provide the Board and interested parties with a preliminary look at the year end financial results. These are not audited results. Our external auditors are currently conducting a year end audit that will result in an Annual Comprehensive Financial Report.	
Attachments:	
1. Attachment 1.bud YE Presentation	
Summary/Conclusion:	
Strategic Priorities:	
Reviewed By:	
Craig Meadows, Interim County Administrator	

FY2024 Year End Unaudited Financial Results

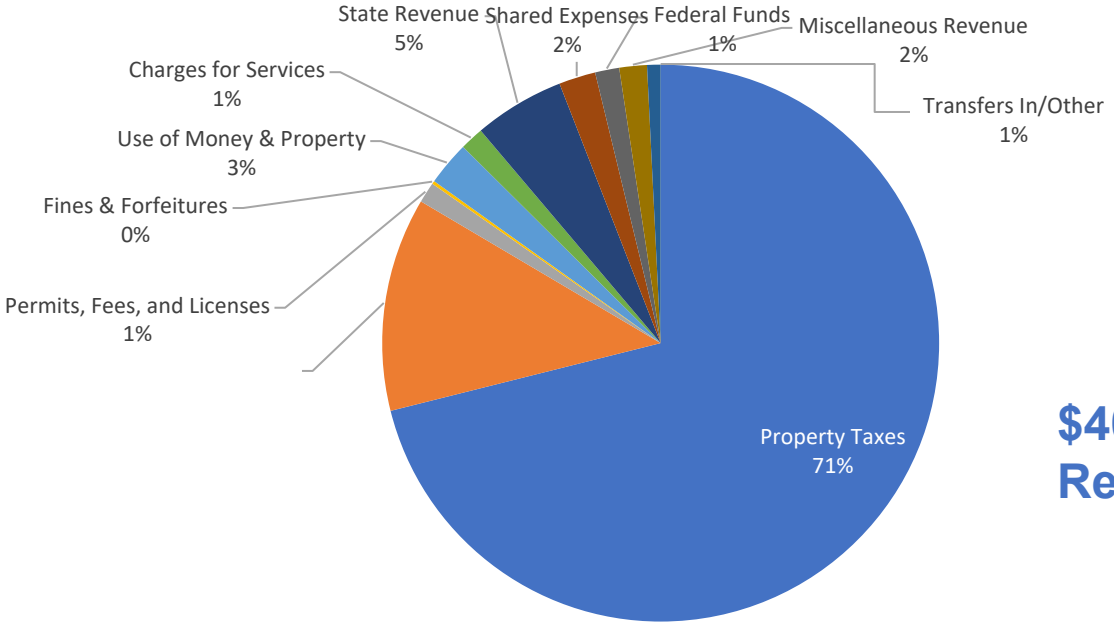
September 17, 2024

Andrea Light, Chief Director of Financial Services

FY2024 Year End Unaudited Financial Results

- General Fund Revenue, Expenditures and Changes in Fund Balance
- Other Funds

General Fund Revenues Categories % of Total



$404.4M in Revenue

Real Estate Taxes

CY2024 Tax Rate

- The CY2024 rate increase was anticipated to bring approximately **$7.6M** in increase in revenue
- Tax Relief came in significantly over budget

FY2025 Impact

- Anticipate Real Estate Revenue to be short by $7M
- Staff recommends a temporary increase in Revenue Stabilization Reserves of $5M to help offset any shortfall

General Fund Expenditures



4.5% savings



$7.6M increase vacancy savings



$1.3M over budget for health insurance (all funds)



Volunteer Fire and Rescue savings $269K

Changes to Fund Balance

Available for Projects $20M

Unassigned Fund Balance ~13% - $56.4M

Revenue Stabilization $13.9M

Volunteer F&R $269K

All Financial Policy Requirements for Fund Balance are anticipated to be met

Other Funds



Fire & Emergency Services Levy

Real Estate revenues were approximately $13K under budget, 0.04%



Transportation

Anticipating receiving final payment for fuels tax



Utilities

Water and Sewer revenue slightly above budget

Summary

- School year-end is being finalized
- All the results are provided unaudited
- General Fund has year-end savings that support all policy-required fund balances
- Transportation, Fire Levy and Utilities funds are anticipated to have positive results in operations

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
PRESENTATIONS/REPORTS BY DEPARTMENTS

Subject:	
CAPITAL PROJECTS TRANSPORTATION; CONSIDER SUPPORTING CREATION OF A REGIONAL TRANSPORTATION AUTHORITY (RTA) PROPOSED RESOLUTION R24-286 **BACKGROUND SUMMARY:** BOARD CONSIDERATION TO SUPPORT AN RTA AND ADD TO LEGISLATIVE PROGRAM.	
Recommended Action:	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
Overview:	
Discussion/Analysis:	
The Fredericksburg Area Metropolitan Planning Organization (FAMPO) began discussions about creating a potential Regional Transportation Authority for Planning District 16 in late 2023. These discussions came in response to an unsuccessful legislative attempt to create an RTA during the 2023 session of the Virginia General Assembly. A FAMPO subcommittee comprised of representatives from each of the five localities of Planning District 16 was formed to research structural and funding options for a potential RTA in an attempt to help draft RTA legislation, should it be supported by the region. To date, King George and Spotsylvania Counties have gone on record opposing the creation of an RTA. The Board is asked whether it wishes to support an RTA and introduce legislation creating a RTA during the 2025 session of the Virginia General Assembly. The support of one additional contiguous locality is needed in order to draft this legislation. Should the Board wish to support an RTA, staff has prepared Proposed Resolution R24-268 (Attachment 1). Proposed Resolution R24-268 expresses the Board's support and directs staff to update the Board's adopted 2025 General Assembly Legislative Program.	
Attachments:	

1. R24-286 Attachment 1.cap.proj.tran Proposed Resolution R24-286 2. R24-286 Attachment 2.cap.proj.tran FAMPO RTA Stafford June 3. R24-286 Attachment 3.cap.proj.tran FAMPO RTA Stafford September
Summary/Conclusion:
If the Board wishes to support an RTA, then staff will update the Board's adopted 2025 General Assembly Legislative Program.
Strategic Priorities:
Develop a Multimodal Infrastructure and Transportation System
Reviewed By:
Rysheda McClendon, County Attorney (Legal Review Only) Craig Meadows, Interim County Administrator

R24-286

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of September 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION PROVIDING THE BOARD'S SUPPORT FOR THE CREATION OF A REGIONAL TRANSPORTATION AUTHORITY (RTA) FOR STAFFORD COUNTY AND AMENDING THE 2025 LEGISLATIVE PROGRAM

WHEREAS, the Board is seeking enabling legislation and amendments to the Virginia Code to accomplish Stafford County's legislative initiatives for the 2025 General Assembly session; and

WHEREAS, the Board recognizes that Virginia and its local governments are partners in providing many services to our citizens; and

WHEREAS, the Board supports the creation of a Regional Transportation Authority (RTA) to include Stafford County through legislative action by the Virginia General Assembly; and

WHEREAS, Virginia Code § 33.2-1903 allows for the creation of transportation districts comprised of at least two or more contiguous localities; and

WHEREAS, action by the General Assembly is required to create a transportation district; and

WHERAS, the Board wishes to amend its adopted 2025 General Assembly Legislative Program to include support for a Regional Transportation Authority to include Stafford;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that it be and hereby does support the creation of a Regional Transportation Authority for Stafford County; and

BE IT FURTHER RESOLVED that the County Administrator, or his designee, will update the Board's adopted 2025 General Assembly Legislative Program to effectuate the will of the Board adopted in this Resolution and provide a copy of this Resolution and the 2025 Legislative Program to each member of the General Assembly delegation representing any portion of Stafford County.

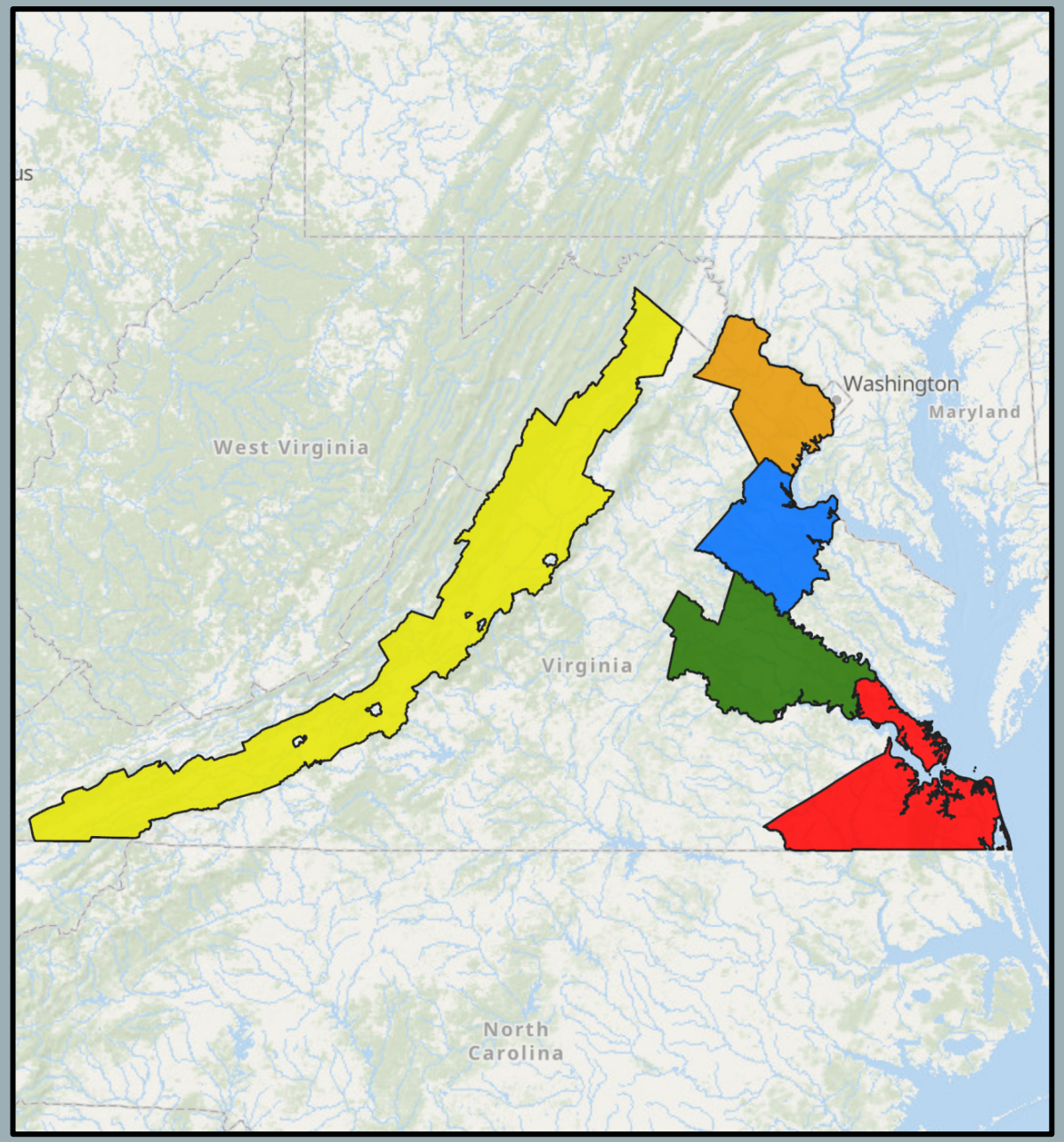
WHA:adt

RAPPAHANNOCK AREA TRANSPORTATION AUTHORITY

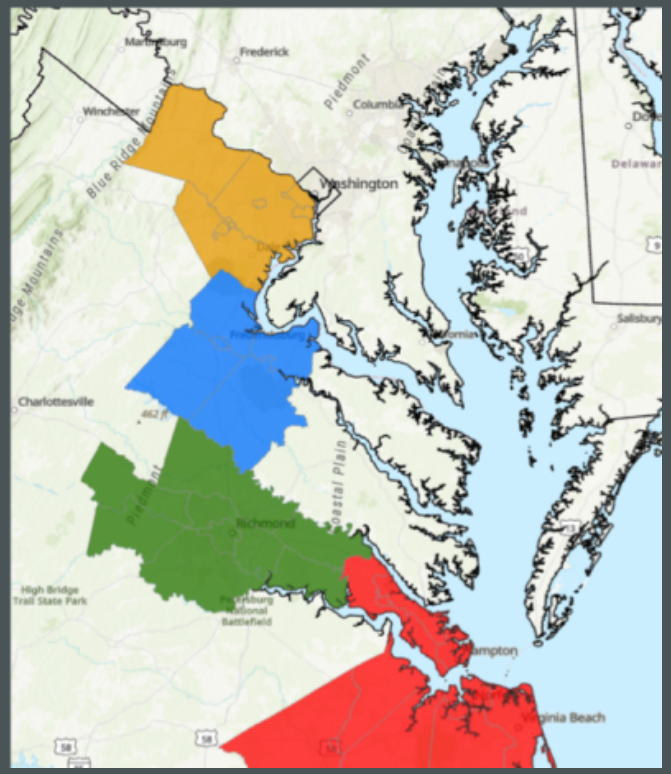
Proposed FAMPO RTA

Stafford County Work Session

June 26, 2024

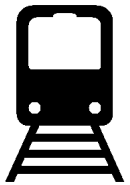


PRESENTATION 2.

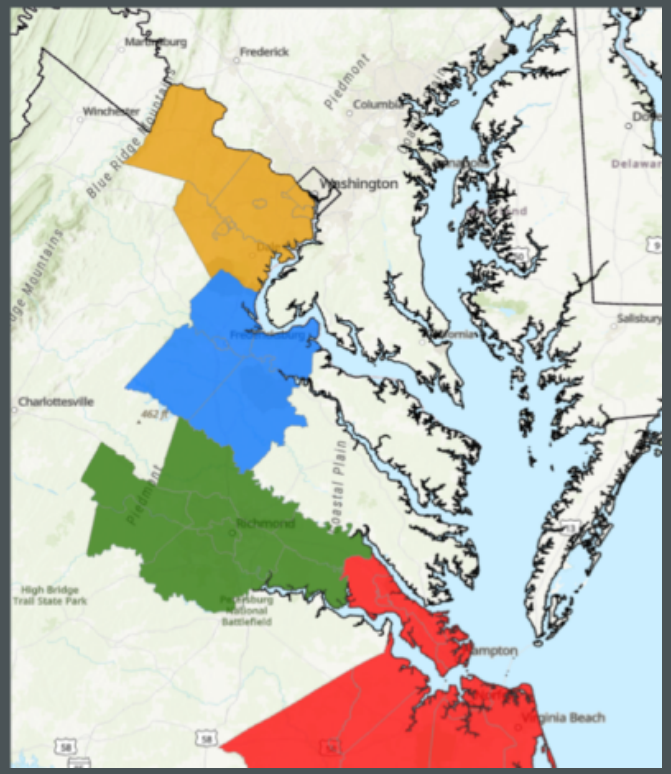


- Projects
- Funding
- Allocations

- Note: Please note that all numbers in this presentation are based on funding models designed to estimate future funding. These serve as illustrative of what could be achieved only.

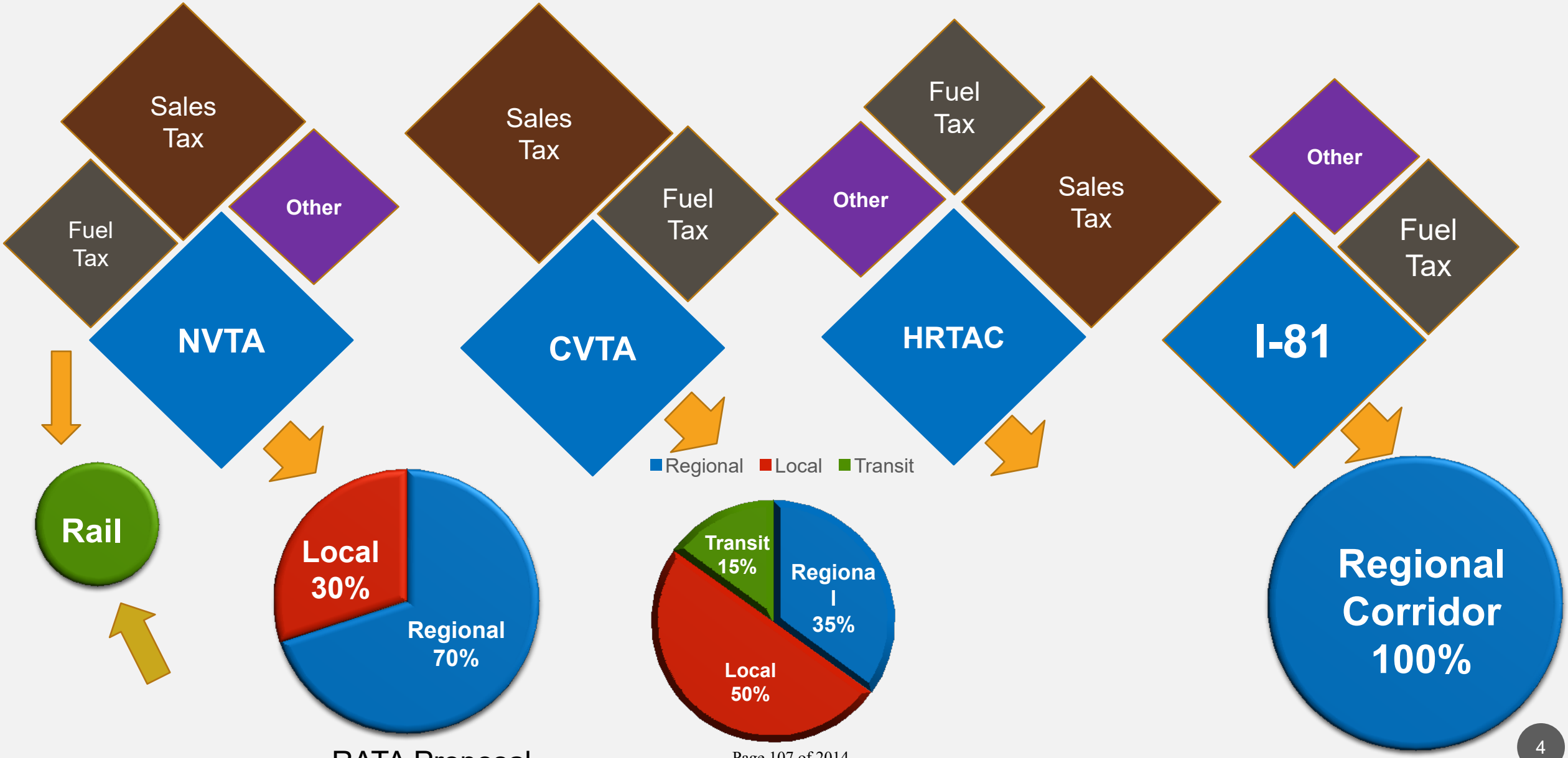

DISCUSSIONS



- The General Assembly would approve legislation to create the Rappahannock Area Transportation Authority (RATA)
- Funding would be raised by a combination of a state contribution* and a group of taxes.
- A RATA Fund would be created to hold the funding
- The funding would be split between local jurisdictions and the authority fund.
- The RATA board would select and prioritize funding for regional projects using an approved methodology

* This is in lieu of the grantors tax which was redirected

All Transportation Authorities are different

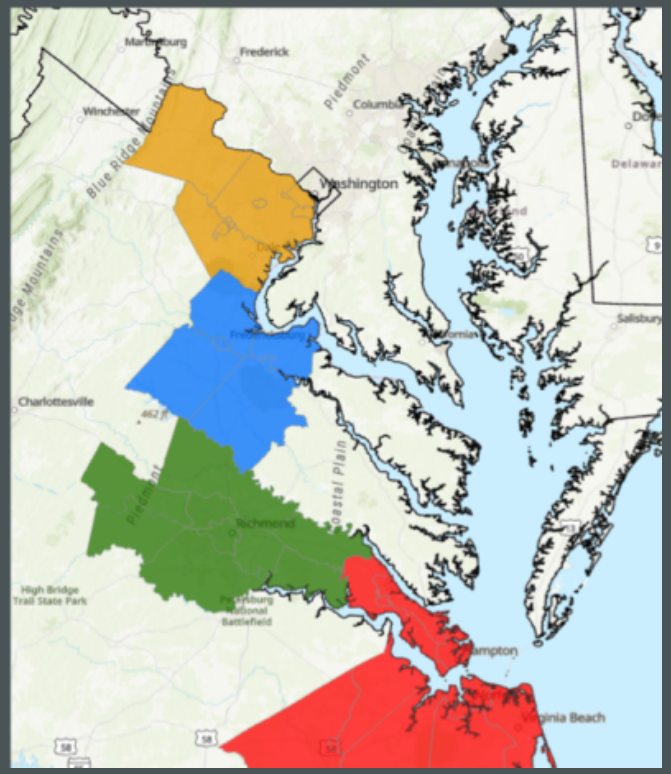


EXAMPLE PROJECT SELECTION – IF 5 JURISDICTIONS PARTICIPATE

	Project	Jurisdiction	Type	Total Cost Estimated	33.3% Leverage Mark	Percentage
1	Harrison Road Interchange including Harrison Rd East Widening	Spotsylvania	Highway	$141,620,000	$47,207,611	33.3%
2	I-95 Additional lanes (1. North, 1. South)	Spotsylvania/ Fredericksburg	Highway	$135,000,000	$45,000,900	33.3%
3	River Crossing Parkway	Stafford/ Fredericksburg	Highway	$220,000,000	$ 73,334,800	33.3%
4	Ladysmith Bridge Widening & Interchange Upgrade	Caroline	Highway	$41,000,000	$13,666,940	33.3%
5	301-206-3 Study	King George	Study	$500,000	$ 500,000	100.0%
6	Indiantown Rd and 206 Intersection	King George	Highway	$4,200,000	$ 1,400,028	33.3%
			Total	$542,320,000	$181,110,279	

To fund the projects above, the RTA regional intake requires **$30,185,000** per

DISCUSSIONS



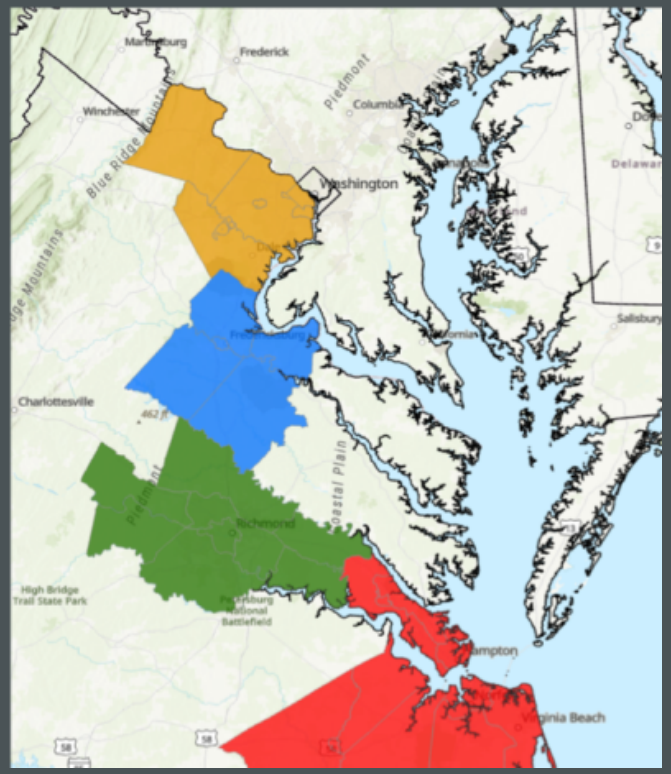
- The proposal is that the RTA does not necessarily need to fully fund a project

- The region could use the RTA funds to:
  - leverage larger Federal Grants (20% match is required)
  - or additional Smart Scale Funding by providing a substantial local match

EXAMPLE FUNDING SCHEDULE

	Project	Jurisdiction	FY 1	FY 2	FY 3	FY 4	FY 5	FY 6	Total
1	Harrison Road Interchange including Harrison East Widening	Spotsylvania	$ 29,685,000	$17,522,611					$ 47,207,611
2	I-95 Additional lanes (1. North, 1. South)	Spotsylvania/ Fredericksburg		$ 12,662,389	$ 15,118,032	$ 17,220,479			$ 45,000,900
3	River Crossing Parkway	Fredericksburg/ Stafford				$ 12,964,800	$ 30,185,000	$30,185,000	$ 73,334,800
4	Ladysmith Bridge Widening & Interchange Upgrade	Caroline			$ 13,666,940				$ 13,666,940
5	301-206-3 Study	King George	$ 500,000						$ 500,000
6	Indiantown Rd and 206 Intersection	King George			$ 1,400,028				$ 1,400,028
	Partial Funding	Match Funded	$ 30,185,000	$ 30,185,000	$ 30,185,000	$ 30,185,279	$ 30,185,000	$ 30,185,000	$ 181,110,279

DISCUSSIONS



If only Fredericksburg and Stafford join the RTA:

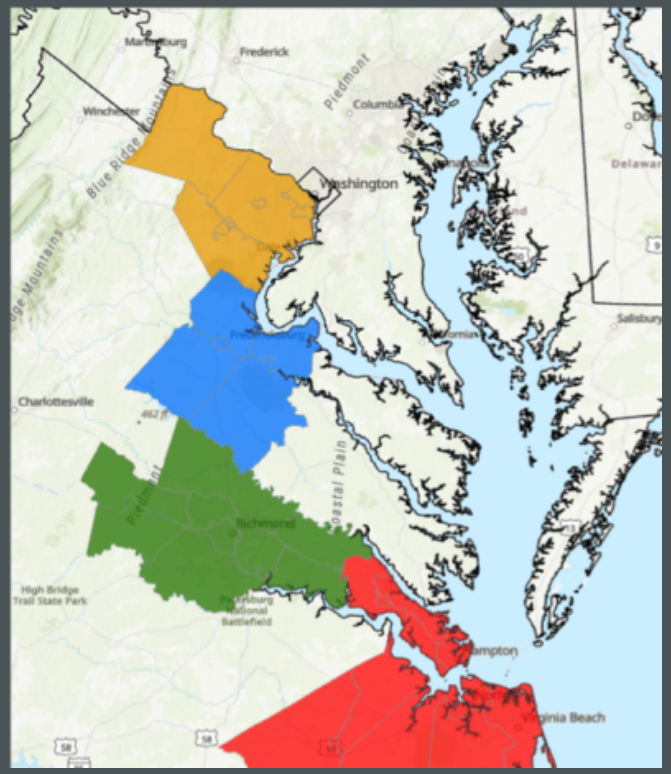
The funding would be less, but the other jurisdictions' projects would be removed and not funded.

One Example - The two jurisdictions could fund over time:

1. The Enon Road Connector – Stafford
2. Phase II Garrisonville Road Widening – Stafford
3. The River Crossing Parkway & Bridge – Stafford & Fredericksburg
4. Gateway Boulevard Extension – Fredericksburg

If Caroline also joins:
5. Ladysmith I-95 Bridge & interchange widening.

FUNDING



What funding could we realize over time?

- The next page (10) shows a 70/30 split which was the preferred split in a poll of the FAMPO subcommittee members
- Page 11 shows the 70/30 split for Stafford and the City only

- Page 12 illustrates how we would get to the annual $31 Million to fund all regional projects to 33.3% of budget

- Large format tables will be printed for the work session to allow for easier reading.



TOTAL Collection & Distribution 70/30 with $15 Million Allocation Distributed by Population Share

2025	Population	Local Total	State Allocation	Transient Occupancy (1%)	Recordation ($0.06/$100)	Retail Tax (0.005% half-cent)	Existing Fuel Tax
Caroline County	34,042	$2,683,081	$360,920	$9,825	$44,320	$504,723	$1,763,293
City of Fredericksburg	30,350	$2,040,196	$321,768	$47,428	$59,102	$1,611,897	$0
King George County	29,359	$2,142,273	$311,266	$17,625	$38,083	$574,834	$1,200,465
Spotsylvania County	153,924	$6,257,731	$1,631,905	$55,054	$249,984	$4,320,788	$0
Stafford County	176,772	$4,898,311	$1,874,140	$44,010	$447,802	$2,532,359	$0
Regional Authority	424,446	$35,134,949	$10,500,000	$405,865	$1,958,347	$22,270,736	$0

2026	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Caroline County	34,334	$2,699,882	$357,805	$9,909	$44,701	$509,052	$1,778,415
City of Fredericksburg	30,804	$2,065,168	$321,014	$48,138	$59,987	$1,636,029	$0
King George County	29,786	$2,168,050	$310,407	$17,882	$38,637	$583,196	$1,217,929
Spotsylvania County	156,278	$6,325,195	$1,628,603	$55,896	$253,808	$4,386,887	$0
Stafford County	180,610	$4,972,016	$1,882,171	$44,966	$457,527	$2,587,352	$0
Regional Authority	431,813	$35,545,923	$10,500,000	$412,512	$1,994,205	$22,639,206	$0

2027	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Caroline County	34,629	$2,716,874	$354,711	$9,994	$45,084	$513,418	$1,793,667
City of Fredericksburg	31,265	$2,090,522	$320,256	$48,859	$60,885	$1,660,522	$0
King George County	30,219	$2,212,187	$309,545	$18,142	$39,199	$591,680	$1,253,621
Spotsylvania County	158,669	$6,393,722	$1,625,282	$56,752	$257,691	$4,453,998	$0
Stafford County	184,533	$5,047,151	$1,890,206	$45,942	$467,462	$2,643,540	$0
Regional Authority	439,315	$35,964,057	$10,500,000	$419,272	$2,030,750	$23,014,034	$0

2028	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Caroline County	34,926	$2,734,060	$351,639	$10,080	$45,471	$517,821	$1,809,050
City of Fredericksburg	31,733	$2,121,819	$325,050	$49,590	$61,797	$1,685,382	$0
King George County	30,659	$2,244,368	$314,048	$18,406	$39,770	$600,287	$1,271,858
Spotsylvania County	161,096	$6,491,533	$1,650,145	$57,620	$261,633	$4,522,135	$0
Stafford County	188,540	$5,156,756	$1,931,255	$46,940	$477,614	$2,700,948	$0
Regional Authority	446,955	$36,557,799	$10,500,000	$426,149	$2,067,995	$23,395,337	$0

2029	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Caroline County	35,225	$2,751,440	$348,587	$10,166	$45,861	$522,262	$1,824,565
City of Fredericksburg	32,208	$2,142,399	$318,730	$50,333	$62,722	$1,710,614	$0
King George County	31,105	$2,624,578	$307,813	$18,673	$40,348	$609,020	$1,290,360
Spotsylvania County	163,561	$6,534,033	$1,618,581	$58,501	$265,635	$4,591,315	$0
Stafford County	192,634	$5,201,835	$1,906,288	$47,959	$487,986	$2,759,602	$0
Regional Authority	454,734	$36,822,325	$10,500,000	$433,143	$2,105,954	$23,783,229	$0

2030	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Caroline County	35,528	$2,769,017	$345,556	$10,253	$46,254	$526,741	$1,840,213
City of Fredericksburg	32,691	$2,168,934	$317,963	$51,086	$63,661	$1,736,224	$0
King George County	31,558	$2,275,063	$306,943	$18,945	$40,935	$617,879	$1,290,360
Spotsylvania County	166,063	$6,605,851	$1,615,203	$59,396	$269,699	$4,661,553	$0
Stafford County	196,818	$5,281,448	$1,914,335	$49,001	$498,583	$2,819,530	$0
Regional Authority	462,656	$37,262,726	$10,500,000	$440,257	$2,144,641	$24,177,829	$0

2025-2030		Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Caroline County		$16,354,354	$2,119,218	$60,228	$271,690	$3,094,017	$10,809,202
City of Fredericksburg		$12,629,037	$1,924,781	$295,434	$368,154	$10,040,668	$0
King George County	N/A	$13,666,520	$1,860,022	$109,673	$236,972	$3,576,895	$7,524,594
Spotsylvania County		$38,608,064	$9,769,720	$343,219	$1,558,449	$26,936,676	$0
Stafford County		$30,557,517	$11,398,396	$278,817	$2,836,974	$16,043,331	$0
Regional Authority		$217,287,778	$63,000,000	$2,437,198	$12,301,892	$139,280,370	$0

TOTAL Collection & Distribution 70/30 with $15 Million Allocation Distributed by Population Share (2023)

	Population	Local Total	State Allocation	Transient Occupancy (1%)	Recordation ($0.06/$100)	Retail Tax (half-cent)	Existing Fuel Tax
2025							
City of Fredericksburg	30,350	$3,118,937	$659,389	$47,428	$59,102	$2,353,018	$0
Stafford County	176,772	$8,216,486	$3,840,611	$44,010	$447,802	$3,884,063	$0
Regional Authority	207,121	$11,335,423	$10,500,000	$213,355.12	$1,182,776.84	$14,553,189.38	$0
2026	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
City of Fredericksburg	30,804	$3,152,041	$655,670	$48,138	$59,987	$2,388,246	$0
Stafford County	180,610	$8,315,232	$3,844,330	$44,966	$457,527	$3,968,410	$0
Regional Authority	211,414	$11,467,273	$10,500,000	$217,241.93	$1,207,532.07	$14,832,196.23	$0
2027	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
City of Fredericksburg	31,265	$3,185,713	$651,968	$48,859	$60,885	$2,424,000	$0
Stafford County	184,533	$8,416,025	$3,848,032	$45,942	$467,462	$4,054,589	$0
Regional Authority	215,798	$11,601,737	$10,500,000	$221,201.98	$1,232,810.96	$15,116,707.62	$0
2028	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
City of Fredericksburg	31,733	$3,219,962	$648,284	$49,590	$61,797	$2,460,290	$0
Stafford County	188,540	$8,518,908	$3,851,716	$46,940	$477,614	$4,142,639	$0
Regional Authority	220,273	$11,738,870	$10,500,000	$225,236.68	$1,258,624.68	$15,406,834.80	$0
2029	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
City of Fredericksburg	32,208	$3,254,796	$644,618	$50,333	$62,722	$2,497,124	$0
Stafford County	192,634	$8,623,929	$3,855,382	$47,959	$487,986	$4,232,601	$0
Regional Authority	224,843	$11,878,724	$10,500,000	$229,347.48	$1,284,984.63	$15,702,691.27	$0
2030	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
City of Fredericksburg	32,691	$3,290,224	$640,968	$51,086	$63,661	$2,534,508	$0
Stafford County	196,818	$8,731,133	$3,859,032	$49,001	$498,583	$4,324,517	$0
Regional Authority	229,508	$12,021,356	$10,500,000	$233,535.88	$1,311,902.46	$16,004,392.93	$0
2025-2030		Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
City of Fredericksburg	N/A	$19,221,671	$3,900,897	$295,434	$368,154	$14,657,186	$0
Stafford County		$50,821,713	$23,099,103	$278,817	$2,836,974	$24,606,819	$0
Regional Authority		$163,434,563	$63,000,000	$1,339,919	$7,478,632	$91,616,012	$0

EXAMPLE FUNDING INCOME

Half Cent Retail - 50% Distribution with $15 Million Allocation Distributed by Population Share/Region Only

2025	Region Total	State Allocation	Transient Occupancy (1%)	Recordation ($0.06/$100)	Retail Tax (0.005% half-cent)
Allocation & Retail Only	*$23,670,861*	*$7,500,000*	*$0*	*$0*	*$16,170,861*
Allocation , Recordation, & Retail	*$25,095,293*	*$7,500,000*	*$0*	*$1,424,432*	*$16,170,861*
Allocation, Occupancy, & Retail	*$23,965,512*	*$7,500,000*	*$294,651*	*$0*	*$16,170,861*
Allocation , Recordation, TOC & Retail	*$25,389,945*	*$7,500,000*	*$294,651*	*$1,424,432*	*$16,170,861*
***$15M State Allocation to RTA* + Retail**	**$31,170,861**	**$15,000,000**	**$0**	**$0**	**$16,170,861**
***$15M State Allocation to RTA* + Everything**	**$32,889,945**	**$15,000,000**	**$294,651**	**$1,424,432**	**$16,170,861**

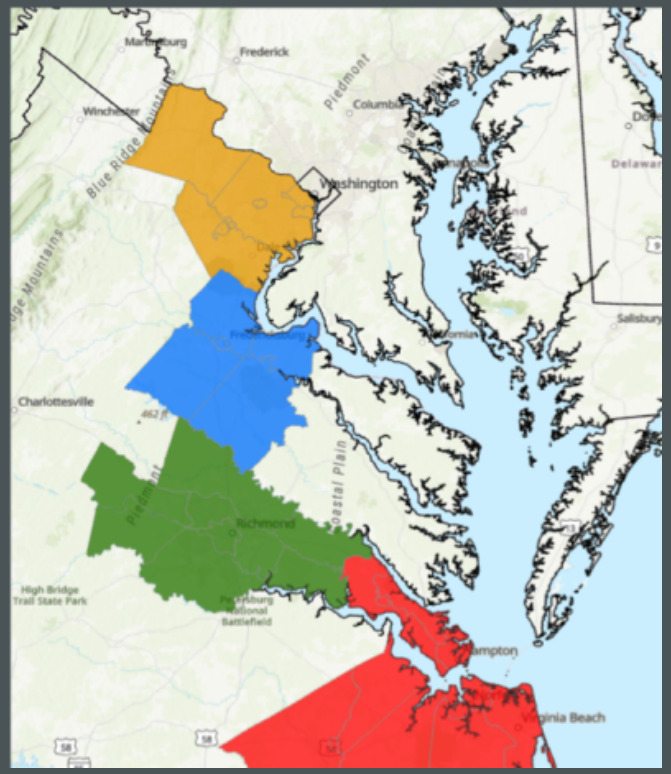
Half Cent Retail - 60% Distribution with $15 Million Allocation Distributed by Population Share/Region Only

2025	Region Total	State Allocation	Transient Occupancy (1%)	Recordation ($0.06/$100)	Retail Tax (0.005% half-cent)
Allocation & Retail Only	*$28,089,202*	*$9,000,000*	*$0*	*$0*	*$19,089,202*
Allocation , Recordation, & Retail	*$29,767,786*	*$9,000,000*	*$0*	*$1,678,583*	*$19,089,202*
Allocation, Occupancy, & Retail	*$28,437,087*	*$9,000,000*	*$347,884*	*$0*	*$19,089,202*
Allocation , Recordation, TOC & Retail	**$30,115,670**	**$9,000,000**	**$347,884**	**$1,678,583**	**$19,089,202**
***$15M State Allocation to RTA* + Retail**	**$34,089,202**	**$15,000,000**	**$0**	**$0**	**$19,089,202**
***$15M State Allocation to RTA* + Everything**	**$36,115,670**	**$15,000,000**	**$347,884**	**$1,678,583**	**$19,089,202**

Half Cent Retail - 70% Distribution with $15 Million Allocation Distributed by Population Share/Region Only

2025	Region Total	State Allocation	Transient Occupancy (1%)	Recordation ($0.06/$100)	Retail Tax (0.005% half-cent)
Allocation & Retail Only	**$32,770,736**	**$10,500,000**	**$0**	**$0**	**$22,270,736**
Allocation , Recordation, & Retail	**$34,729,083**	**$10,500,000**	**$0**	**$1,958,347**	**$22,270,736**
Allocation, Occupancy, & Retail	**$33,176,601**	**$10,500,000**	**$405,865**	**$0**	**$22,270,736**
Allocation , Recordation, TOC & Retail	**$35,134,949**	**$10,500,000**	**$405,865**	**$1,958,347**	**$22,270,736**
***$15M State Allocation to RTA* +Retail**	**$37,270,736**	**$15,000,000**	**$0**	**$0**	**$22,270,736**
***$15M State Allocation to RTA*+ Everything**	**$39,634,949**	**$15,000,000**	**$405,865**	**$1,958,347**	**$22,270,736**

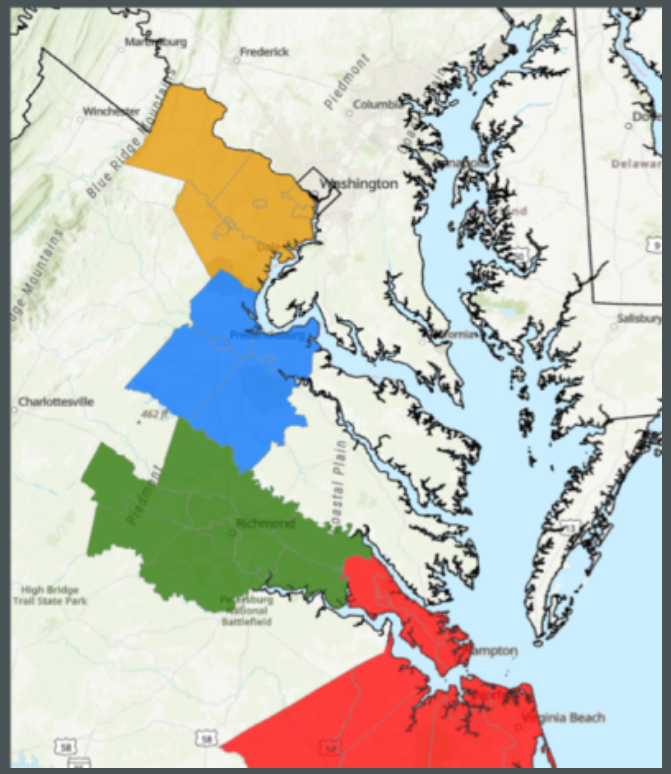
DISCUSSIONS



Funding Example for Fredericksburg and Stafford

- If the River Crossing Bridge Costs $220 Million, we could fund the Federal Match in the first two years of the RTA
- Years 3 to 6 you could fund a much bigger match for the Enon Connector, and Gateway Boulevard extension
- **Simultaneously** local funds would be paid over:
  - $50 Million local funds would come to Stafford
  - $19 million to the City of Fredericksburg
- Local funds may be used for local transportation projects, Roadways, Transit, Side walks, Bike paths or staffing costs.
- You may be able to free up local transportation funds from local taxes for other purposes, providing all accounting processes etc. are adhered to

PRESENTATIO N 2.



- We are aiming to respond to members of the General assembly with a resolution or letter indicating our direction

- It is up to each jurisdiction to discuss the options and to decide whether they would be interested in supporting an RTA or not if the general assembly were to implement such an authority

- **We could respond either**:

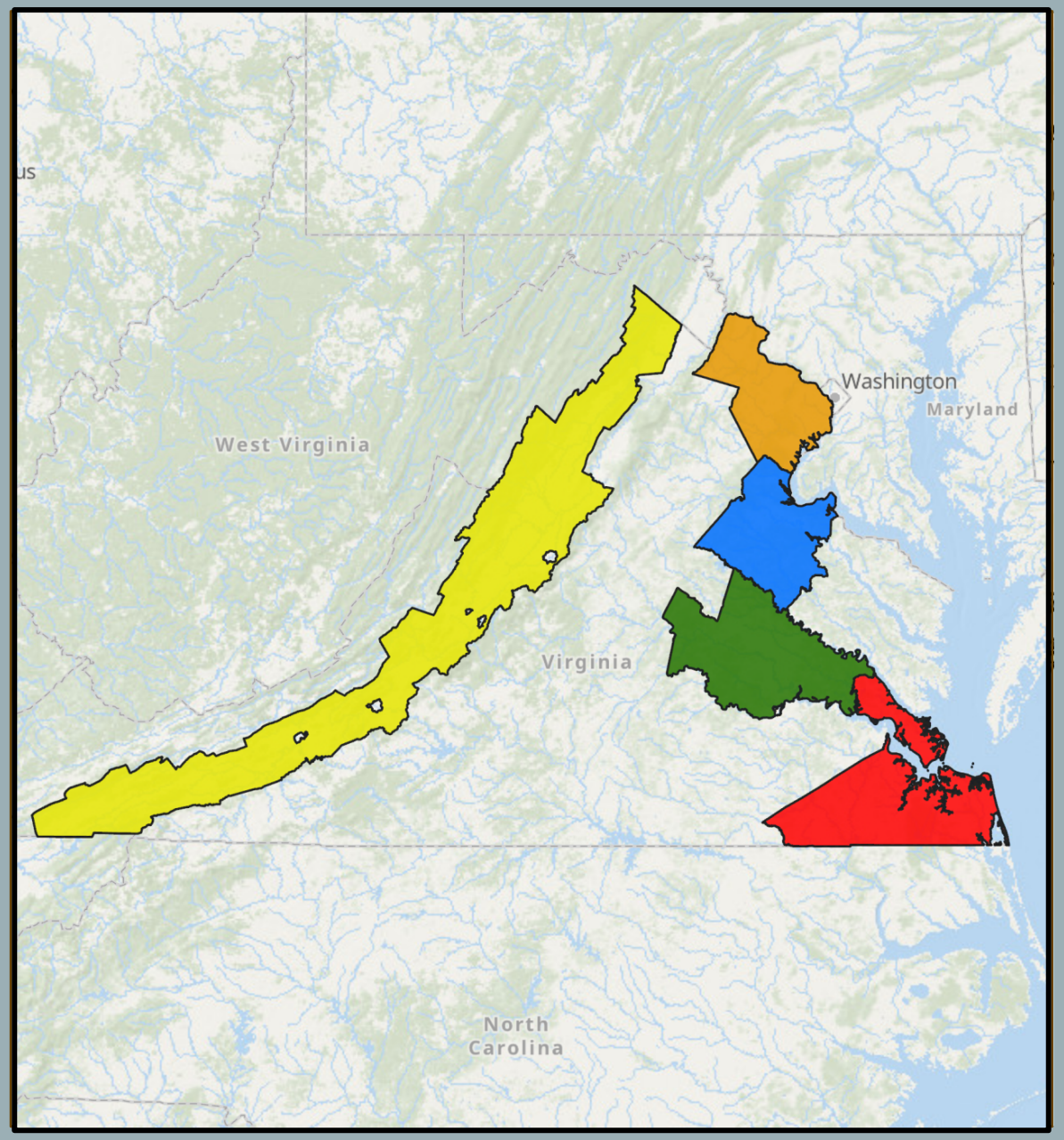
- No jurisdictions are interested and we oppose an RTA

- Some jurisdictions are interested and others are not

- All jurisdictions are in favor

- The decision will ultimately rest with the general assembly

QUESTIONS/DISCUSSION

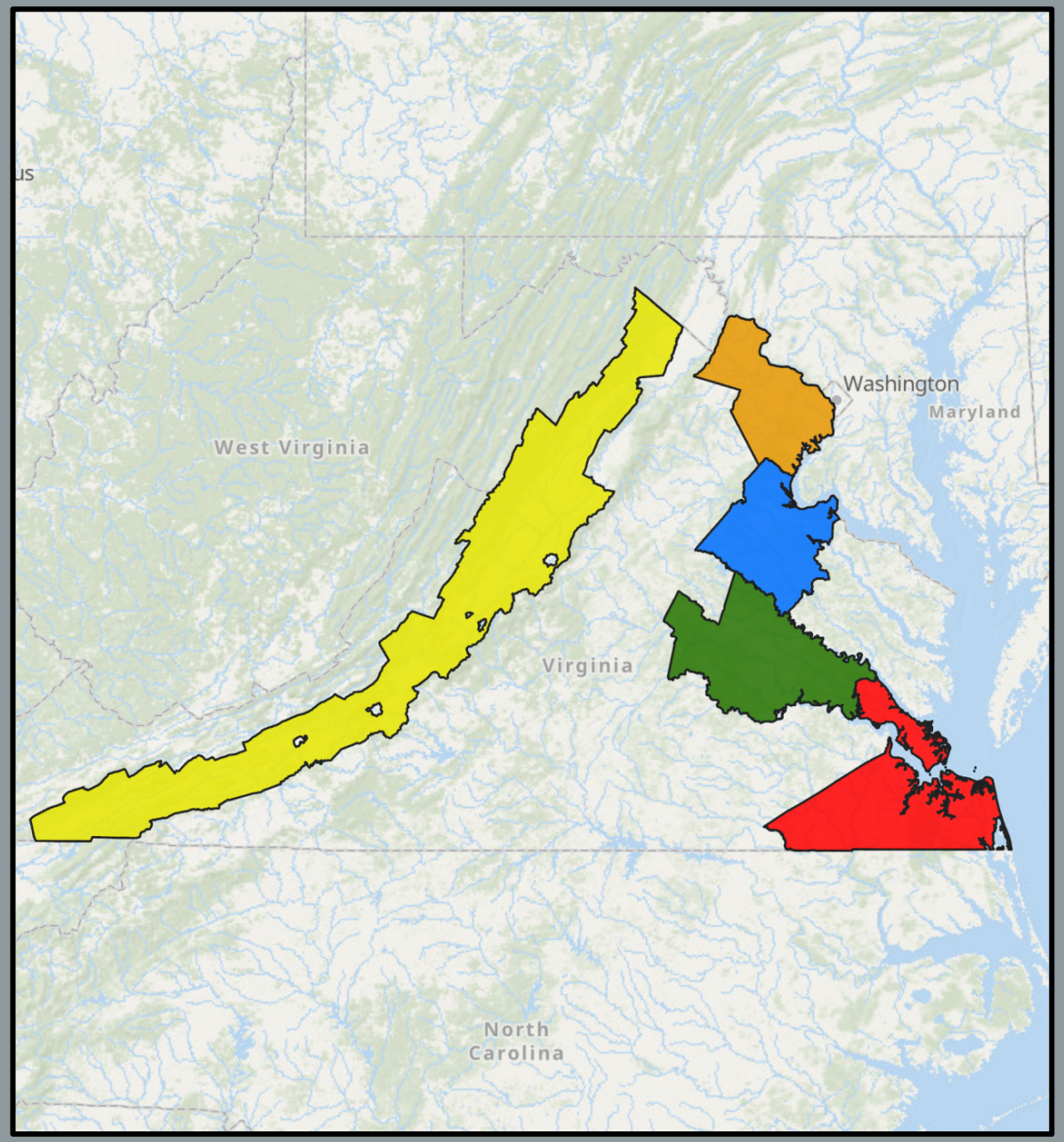


RAPPAHANNOCK AREA TRANSPORTATION AUTHORITY

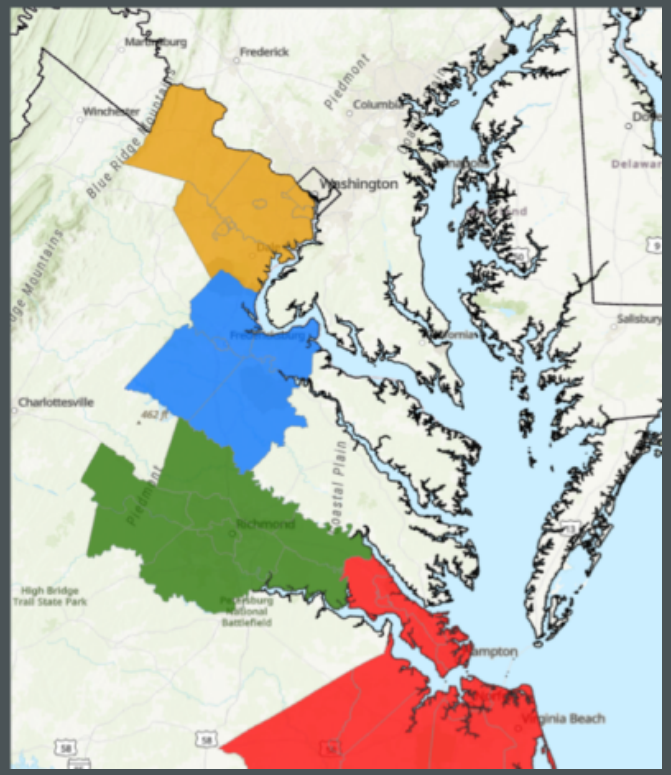
Proposed new RTA

Stafford County Board of Supervisors

September 3rd, 2024



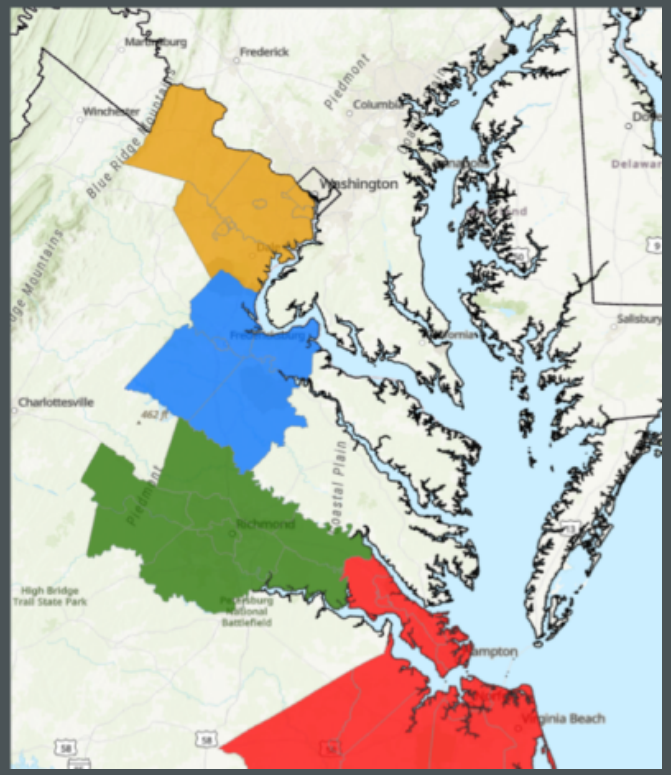
DISCUSSION



- The General Assembly would approve legislation to create the Rappahannock Area Transportation Authority (RATA)
- Funding would be raised by a combination of a state contribution* and a group of taxes.
- A RATA Fund would be created to hold the funding
- The funding would be split between local jurisdictions and the authority fund.
- The RATA board would select and prioritize funding for regional projects using an approved methodology

*This is in lieu of the grantors tax which was redirected

FAMPO SUBCOMMITTEE

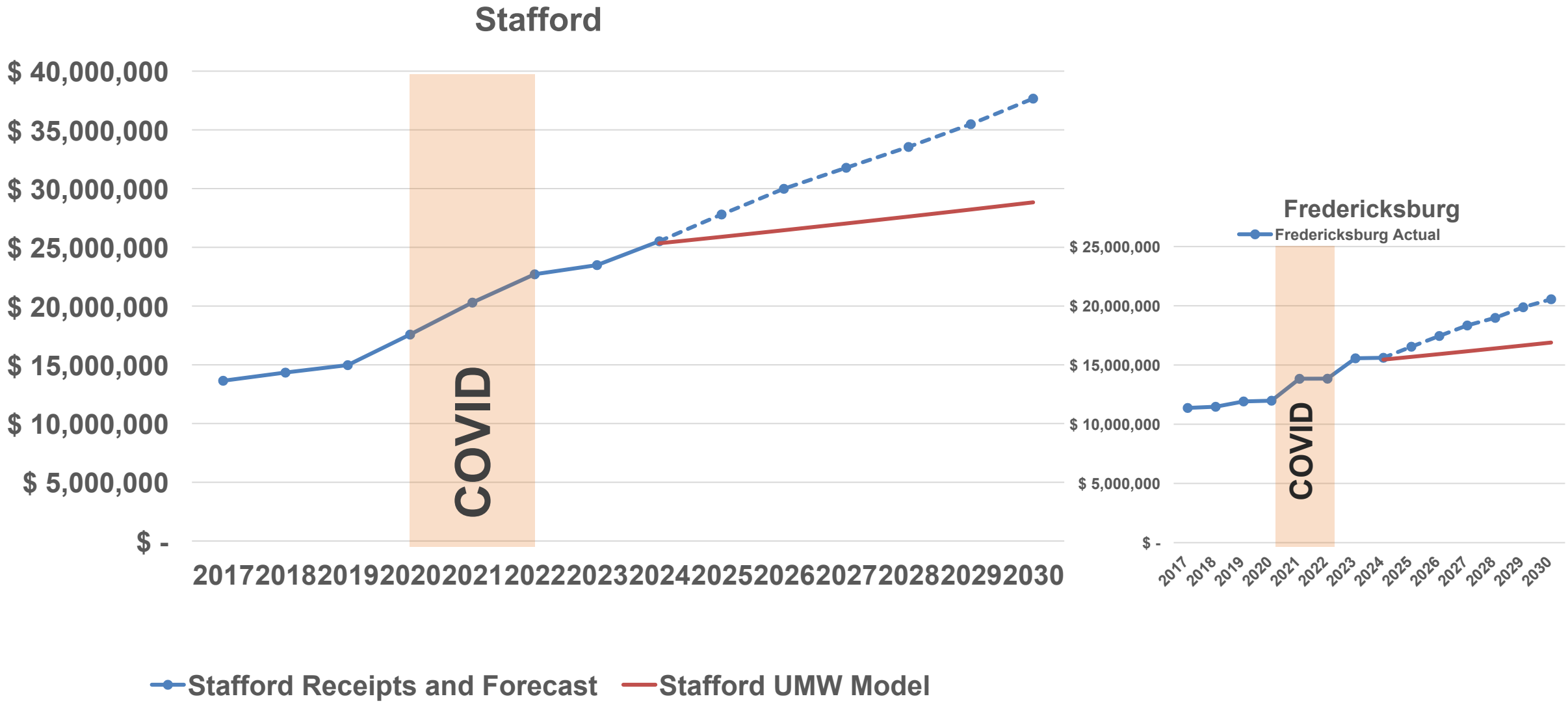


RATA Subcommittee Straw Poll preferred

- 70%/30% split of funding between the RTA and the Localities
  - Retail Tax 0.005% – “Half cent” per dollar
  - $15 Million in State Allocation
  - Transient Occupancy (1%),
  - Recordation ($0.06/$100)

FAMPO Staff reported using the UMW *Conservative* Model Estimates calibrated on jurisdiction actual reported revenue.

Model Review with Jurisdiction Sales Tax Data & Post-Covid Forecast

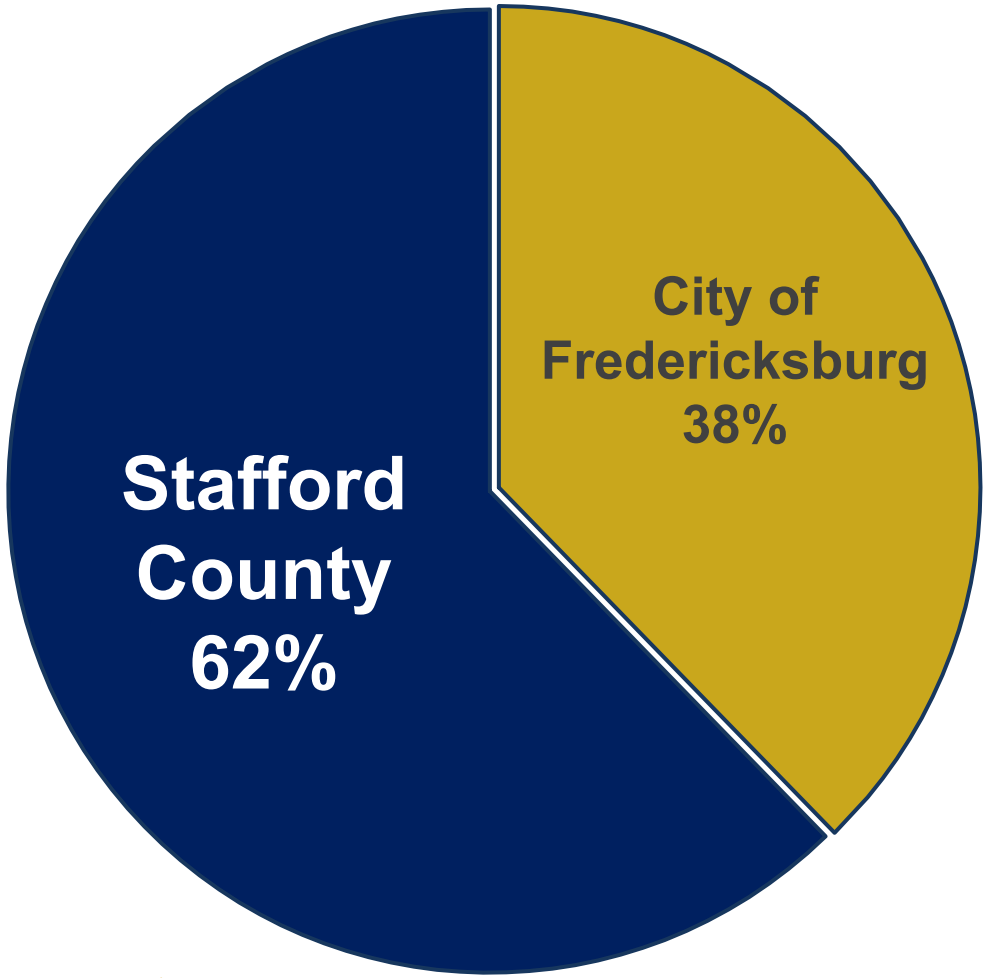


TOTAL Collection & Distribution 70/30 with $15 Million Allocation Distributed by Population Share (2023)

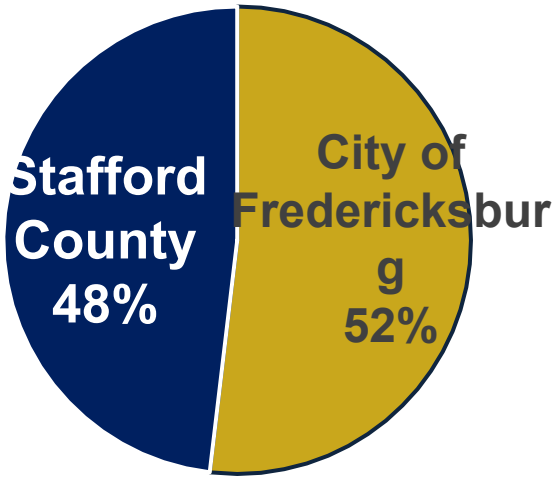
2025	Population	Local Total	State Allocation	Transient Occupancy (1%)	Recordation ($0.06/$100)	Retail Tax (half-cent)	Existing Fuel Tax
Fredericksburg	30,350	$3,118,937	$659,389	$47,428	$59,102	$2,353,018	$0
Stafford County	176,772	$8,216,486	$3,840,611	$44,010	$447,802	$3,884,063	$0
Regional Authority	207,121	$11,335,423	$10,500,000	$213,355.12	$1,182,776.84	$14,553,189.38	$0
2026	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Fredericksburg	30,804	$3,152,041	$655,670	$48,138	$59,987	$2,388,246	$0
Stafford County	180,610	$8,315,232	$3,844,330	$44,966	$457,527	$3,968,410	$0
Regional Authority	211,414	$11,467,273	$10,500,000	$217,241.93	$1,207,532.07	$14,832,196.23	$0
2027	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Fredericksburg	31,265	$3,185,713	$651,968	$48,859	$60,885	$2,424,000	$0
Stafford County	184,533	$8,416,025	$3,848,032	$45,942	$467,462	$4,054,589	$0
Regional Authority	215,798	$11,601,737	$10,500,000	$221,201.98	$1,232,810.96	$15,116,707.62	$0
2028	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Fredericksburg	31,733	$3,219,962	$648,284	$49,590	$61,797	$2,460,290	$0
Stafford County	188,540	$8,518,908	$3,851,716	$46,940	$477,614	$4,142,639	$0
Regional Authority	220,273	$11,738,870	$10,500,000	$225,236.68	$1,258,624.68	$15,406,834.80	$0
2029	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Fredericksburg	32,208	$3,254,796	$644,618	$50,333	$62,722	$2,497,124	$0
Stafford County	192,634	$8,623,929	$3,855,382	$47,959	$487,986	$4,232,601	$0
Regional Authority	224,843	$11,878,724	$10,500,000	$229,347.48	$1,284,984.63	$15,702,691.27	$0
2030	Population	Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Fredericksburg	32,691	$3,290,224	$640,968	$51,086	$63,661	$2,534,508	$0
Stafford County	196,818	$8,731,133	$3,859,032	$49,001	$498,583	$4,324,517	$0
Regional Authority	229,508	$12,021,356	$10,500,000	$233,535.88	$1,311,902.46	$16,004,392.93	$0
2025-2030		Local Total	State Allocation	Transient Occupancy	Recordation	Retail Tax (half-cent)	Existing Fuel Tax
Fredericksburg		$19,221,671	$3,900,897	$295,434	$368,154	$14,657,186	$0
Stafford County		$50,821,713	$23,099,103	$278,817	$2,836,974	$24,606,819	$0
Regional Authority		$163,434,563	$63,000,000	$1,339,919	$7,478,632	$91,616,012	$0

Contribution into the RTA by locality

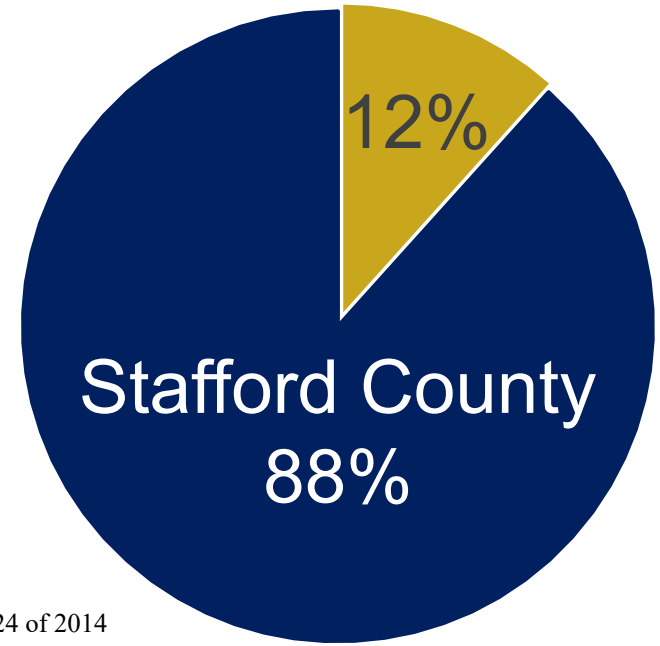
Retail Tax $20,790,271



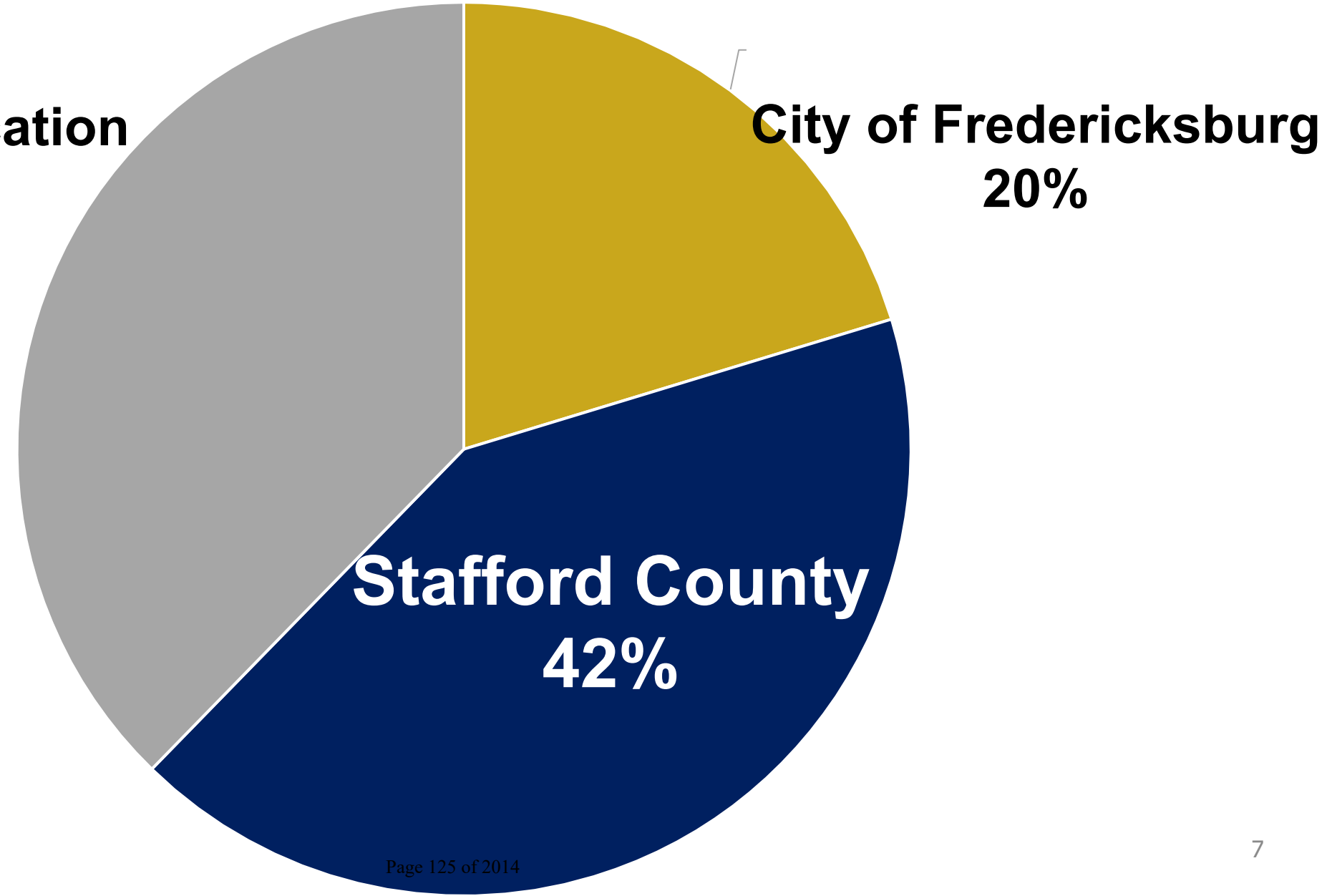
Transient Occupancy $304,793



Recordation $1,689,681



Contribution into the RTA by locality including state allocation



FAMPO
Fredericksburg Area Metropolitan Planning Organization

Questions ?

TOTAL Distribution 70/30 Split with $15 Million Allocation Distributed by Population Share (2023)	
Year: 2025	**Total**
Fredericksburg	$3,118,937
Stafford County	$8,216,486
Rappahannock Area Regional Authority	$26,449,321
Total	**$37,784,745**

$37million in match can leverage $113,354,00 additional per year

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
PRESENTATIONS/REPORTS BY DEPARTMENTS

Subject:	
CAPITAL PROJECTS TRANSPORTATION; CONSIDER A REQUEST FROM THE TRANSPORTATION IMPACT FEE ADVISORY COMMITTEE TO EXTEND ITS RECOMMENDATION DEADLINE PROPOSED RESOLUTION R24-299 **BACKGROUND SUMMARY**: APPROVES EXTENSION.	
Recommended Action:	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
Overview:	
The Transportation Impact Fee Advisory Committee has requested an extension of 106 days from September 22nd to January 6th. The Board previously approved a deadline of September 22nd to receive a recommendation from the Transportation Impact Fee Advisory Committee on the proposed ordinance.	
Discussion/Analysis:	
The deadline is requested to be extended to meet the deadline for the January 21st Board of Supervisors Meeting. The additional time will allow the committee to deliver more thorough, accurate and specific recommendations to the Board. The Committee voted 4–1 in favor of the extension to January 6th, 2025, with one vote for a 60-day extension only. It will also: • Provide adequate time for staff to prepare additional information at the committee's request; • Allow adequate time to gather, interpret, and coalesce input from the residential and commercial development community; and • Allow adequate time to verify the data utilized to create the fees.	
Attachments:	

1. R24-299 Attachment 1.cap.proj.tran Proposed Resolution R24-299 2. R24-299 Attachment 2.cap.proj.tran Committee Requests 3. R24-299 Attachment 3.cap.proj.tran Resolution R24-208
Summary/Conclusion:
In consideration of the Transportation Impact Fee Advisory Committee's request, the Board has the following options: **Option 1. Approve proposed Resolution R24-299 (as drafted)**, if the Board desires to grant the Committee's request. **Option 2. Approve proposed Resolution R24-299 with a different date**, if the Board desires to give the Committee more time, but less time than the Committee requested. **Option 3. Take no action**, if the Board does not desire to consider or vote on the Committee's request.
Strategic Priorities:
Develop a Mulitimodal Infrastructure and Transportation System
Reviewed By:
Rysheda McClendon, County Attorney (Legal Review Only) Craig Meadows, Interim County Administrator

R24-299

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of September, 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO EXTEND THE TRANSPORTATION IMPACT FEE ADVISORY COMMITTEE RECOMMENDATION DEADLINE

WHEREAS, pursuant to Resolution R24-208, the Board referred proposed amendments to Stafford County Code Chapter 13.5, "Impact Fees," pursuant to proposed Ordinance O24-21, to the Transportation Impact Fee Advisory Committee (Committee) for its review and to provide its advice and recommendation to the Board no later than September 22, 2024; and

WHEREAS, the Committee voted (4:1) to request the Board extend the deadline to provide its recommendation by 106 days until January 6, 2025; and

WHEREAS, the Board desires to extend the deadline as provided below;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that the deadline for the Transportation Impact Fee Advisory Committee to provide its recommendation to the Board, pursuant to Resolution R24-208, be and it hereby is extended until January 6, 2025.

WHA:BC

The TIF advisory committee requests an extension of 106 days from September 22nd to January 6th to meet the deadlines for submission to the January 21st Board of Supervisors meeting. The additional time will allow the committee to deliver more thorough, accurate and specific recommendations to the board. It will also:

- *Provide adequate time for staff to prepare additional information at committee's request.*
- *Allow adequate time to gather, interpret, and coalesce input from the residential and commercial development community*
- *Allow adequate time to verify the data utilized to create the fees*

R24-208

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 2nd day of July, 2024:

MEMBERS:	VOTE:
Meg Bohmke, Chairman	Yes
Tinesha O. Allen, Vice Chairman	No
Deuntay T. Diggs	Yes
Darrell E. English	Yes
Monica L. Gary	Yes
Crystal L. Vanuch	Yes
Dr. R. Pamela Yeung	Yes

On motion of Ms. Vanuch, seconded by Ms. Gary, which carried by a vote of 6 to 1, the following was adopted:

A RESOLUTION TO APPOINT MEMBERS TO THE TRANSPORTATION IMPACT FEE ADVISORY COMMITTEE AND REFER TO IT PROPOSED AMENDMENTS TO THE COUNTY'S TRANSPORTATION IMPACT FEE ORDINANCE

WHEREAS, pursuant to Virginia Code § 15.2-2317 *et seq.*, the County has authority to adopt transportation impact fees for new development to pay for all or a part of the cost of reasonable road improvements that benefit the new development; and

WHEREAS, the Stafford County Transportation Impact Fee program has been in place since 2003, with its last update in 2014 and is codified in Stafford County Code Chapter 13.5, "Impact Fees;" and

WHEREAS, a new impact fee study has been completed in conjunction the Transportation Master Plan (TMP) and the Board's approval of the Transportation Impact Fee Roadway Improvement project list, pursuant to Resolution R24-82; and

WHEREAS, the Board desires to consider amending the County Code Chapter 13.5 to incorporate findings of the new impact fee study; and

WHEREAS, the enabling legislation requires the Board to establish a Transportation Impact Fee Advisory Committee (Committee) to assist and advise the Board with regards to the impact fee ordinance, which the Board established pursuant to Resolution R24-85; and

WHEREAS, Virginia Code § 15.2-2319 requires the Committee to consist of five to ten members of which at least 40% must be a representative from the development, building, or real estate industries; and

WHEREAS, the Board desires to appoint the below specified individuals to the Committee; and

WHEREAS, the Board desires to also provide some general guidelines for the Committee and a deadline by which the Board should receive the Committee's recommendation and feedback; and

WHEREAS, the Board desired to refer proposed amendment to the transportation impact fee ordinance pursuant to proposed Ordinance O24-21 to the Committee for its review and to provide its recommendation to the Board;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 2nd day of July, 2024, that the following individuals be and they hereby are appointed as members serving on Stafford County's Transportation Impact Fee Advisory Committee (Committee):

NAME	EXPIRATION
Marcus Simes Development, Building or Real Estate	Pleasure of the Board
Tamar Myers-Moffatt Development, Building or Real Estate	Pleasure of the Board
Wilson Greenlaw Development, Building or Real Estate	Pleasure of the Board
Gene Brown Development, Building or Real Estate	Pleasure of the Board
Joe Brito Member-At-Large	Pleasure of the Board

BE IT FURTHER RESOLVED that Committee members shall serve at the pleasure of the Board, however, their service shall not be required beyond the Board's adoption of amendments to the County's impact fee ordinance, as contemplated herein; and

BE IT FURTHER RESOLVED that the Committee shall select amongst itself a Chairman who will generally keep order in the meeting, ensure the Committee is following its charge, and keep the Committee on track with meeting the deadlines established herein; and

BE IT FURTHER RESOLVED that the Committee, as a whole, will be generally supported in its work of reviewing the County's impact fee ordinance by County staff from the Transportation Division of the Capital Projects Department; and

BE IT STILL FURTHER RESOLVED that proposed amendments to Stafford County Code Chapter 13.5, "Impact Fees," pursuant to proposed Ordinance O24-21, are referred to the Committee for its review and to provide its advice and recommendation to the Board no later than September 22, 2024.

A Copy, teste:

F. Craig Meadows
Interim County Administrator

CM24-25

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION OF CLOSED MEETING

At a special meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of September, 2024:

MEMBERS:	VOTE:
Meg Bohmke, Chairman	
Tinesha O. Allen, Vice Chairman	
Deuntay T. Diggs	
Darrell E. English	
Monica L. Gary	
Crystal L. Vanuch	
Dr. Pamela Yeung	

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO AUTHORIZE CLOSED MEETING

WHEREAS, the Board desires to hold a Closed Meeting for consultation with legal counsel regarding a zoning reclassification request, which is a specific legal matter requiring the provision of legal advice by such counsel; and

WHEREAS, pursuant to Virginia Code § 2.2-3711(A)(8) such discussions may occur in Closed Meeting;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that it be and hereby does authorize discussion of the above matters in Closed Meeting.

A Copy, teste:

_____
William H. Ashton, II
County Administrator

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION OF CERTIFICATION

At a special meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of September, 2024:

MEMBERS:	VOTE:
Meg Bohmke, Chairman	
Tinesha O. Allen, Vice Chairman	
Deuntay T. Diggs	
Darrell E. English	
Monica L. Gary	
Crystal L. Vanuch	
Dr. Pamela Yeung	

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO CERTIFY THE ACTIONS OF THE STAFFORD COUNTY BOARD OF SUPERVISORS IN A CLOSED MEETING ON SEPTEMBER 17, 2024

WHEREAS, the Board has on this the 17th day of September, 2024, adjourned into a Closed Meeting in accordance with a formal vote of the Board and in accordance with the provisions of the Virginia Freedom of Information Act; and

WHEREAS, the Virginia Freedom of Information Act provides for certification that such Closed Meeting was conducted in conformity with the law;

NOW, THEREFORE, BE IT RESOLVED that the Stafford County Board of Supervisors does hereby certify, on this the 17th day of September, 2024, that to the best of each member's knowledge (1) only public business matters lawfully exempted from open meeting requirements under the Virginia Freedom of Information Act, and (2) only such public business matters as were identified in the Motion by which the Closed Meeting was convened, were heard, discussed, or considered by the Board.

A Copy, teste: _____
William H. Ashton, II
County Administrator

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
PUBLIC HEARINGS

Subject:	
PARKS, RECREATION, FACILITIES AND TOURISM; CONSIDER LEASING COUNTY-OWNED PROPERTY AT DUFF MCDUFF GREEN MEMORIAL PARK TO CHARLES L. HENDERSON FARMS, LLC PROPOSED RESOLUTION R24-256 **BACKGROUND SUMMARY**: APPROVES LEASE.	
Recommended Action:	
Authorize leasing of a portion of County-owned property at Duff McDuff Green Memorial Park to Charles L. Henderson Farms, LLC, for farming and agricultural purposes.	
Committee/Commission Recommendation:	
N/A	
Fiscal Impact:	**District:**
Rental revenue of $76.02 per acre ($4252.56) for the first year, which shall increase 3% over the total rental payment for the preceding year for each additional year; and Real Estate taxes of approximately $1000 per year.	George Washington
Overview:	
Authorize leasing County-owned property at Duff McDuff Green Memorial Park to Charles L. Henderson Farms, LLC, for farming and agricultural purposes.	
Discussion/Analysis:	
Duff McDuff Green passed away in 2009, and his will contained a donation of the remaining 125 acres of his property to Stafford County, of which 60.94 acres are farm fields. These fields have been kept and maintained by the practice of farming, which maintains the viability of soil, keeps the fields looking attractive, reduces maintenance by department staff, and generates a modest amount of revenue. The farm property was reduced by five acres in October 2021 due to road construction to the Patawomeck Tribe's leased property.	

Based on a verbal agreement with Mr. Green, Charles L. Henderson Farms, LLC, (Henderson Farms) began farming this acreage in 2003. Because of the long-standing verbal agreement between Mr. Green and Henderson Farms, the County desires to honor Mr. Green's wishes when he originally entrusted the land to Henderson Farms.

Henderson Farms has leased this property from the County since 2011. At a meeting on April 21, 2020, the Board authorized a lease with Henderson Farms. The current lease has expired, and the farmers desire to enter into a new lease with the County to continue farming the land. Henderson Farms has been a good steward of the farm land, there are no definitive plans for funding for land improvements by Stafford County, and staff recommends approval of a new lease.

At a meeting on August 20, 2024, the Board approved Resolution R24-255, which authorized the Interim County Administrator to advertise a public hearing to consider leasing this property.

Attachments:

1. R24-256 Attachment 1.prft Proposed Resolution R24-256
2. R24-256 Attachment 2.prft BOS Minutes 2-24-15
3. R24-256 Attachment 3.prft Duff Green Farm Lease

Summary/Conclusion:

Consider leasing County-owned property at Duff McDuff Green Memorial Park to Charles L. Henderson Farms, LLC, for farming and agricultural purposes.

Strategic Priorities:

Reviewed By:

Rysheda McClendon, County Attorney (Legal Review Only)
Craig Meadows, Interim County Administrator

R24-256

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of September, 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION AUTHORIZING THE LEASE OF COUNTY-OWNED PROPERTY AT DUFF MCDUFF GREEN MEMORIAL PARK TO CHARLES L. HENDERSON FARMS, LLC

WHEREAS, Duff McDuff Green donated Stafford County Tax Map No. 58C-2-6, containing approximately 125 acres of land, to Stafford County in 2009 and 55.94 acres of the donated property consist of farm fields ("Farm Property"); and

WHEREAS, the Farm Property is maintained by continuing the practice of farming, which maintains the viability of soils, keeps the fields looking attractive, reduces maintenance by County staff, and generates a modest amount of revenue; and

WHEREAS, based on a verbal agreement with Mr. Green, Charles L. Henderson Farms, LLC, (Henderson Farms) began farming Farm Property in 2003; and

WHEREAS, because of the long-standing verbal agreement between Mr. Green and Henderson Farms, the County honored Mr. Green's wishes by agreeing to lease the Farm Property to Henderson Farms; and

WHEREAS, Henderson Farms has leased the Farm Property from the County since 2011; and

WHEREAS, Henderson Farms desires to enter into a new lease with the County to continue farming the Farm Property; and

WHEREAS, Henderson Farms has been a good steward of the Farm Property, there are no definitive plans for funding for land improvements by Stafford County, and staff recommends approval of a new lease; and

WHEREAS, pursuant to Virginia Code § 15.2-1800 a public hearing was held by the Board and the Board carefully considered the recommendation of staff and the public testimony, if any, at a public hearing;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that it be and hereby does authorize the lease of 55.94 acres of County-owned property, Stafford County Tax Map No. 58C-2-6, part of the Duff McDuff Green Memorial Park, to Charles L. Henderson Farms, LLC for farming and agricultural purposes, for an initial term of five (5) years, commencing on December 1, 2024 and ending on November 30, 2029 with five (5) optional one (1) year renewal terms; and

BE IT FURTHER RESOLVED that the County Administrator is authorized to execute a lease agreement, substantially in accord with the proposed lease agreement presented at the public hearing, and any other documents that he deems necessary and appropriate to effectuate this resolution.

WHA:BLS:jls

STAFFORD Virginia

Board of Supervisors
Gary F. Snellings, Chairman
Laura A. Sellers, Vice Chairman
Meg Bohmke
Jack R. Cavalier
Paul V. Milde, III
Cord A. Sterling
Robert "Bob" Thomas, Jr.

Anthony J. Romanello, ICMA-CM
County Administrator

Excerpt from the adopted Stafford County Board of Supervisors meeting, 2/24/15

Parks, Recreation and Community Facilities; Consider a Farming Lease on 68 Acres at Duff McDuff Green Park Ms. Jamie Porter, Director of Parks, Recreation and Community Facilities, gave a presentation and answered Board members questions.

Mr. Thomas made the following statement: "After consulting with the County Attorney, I am voluntarily abstaining from any discussion or vote on the farm field lease on Duff McDuff Green Memorial Park, this evening and in the future, because I have a direct relationship with the bidders and/or their direct business associates."

Mr. Sterling asked how much money was spent on preparation and advertisement of the Request for Information (RFI), and said that whatever the amount was it seemed like a lot of trouble and money for land that was currently being farmed by Mr. McDuff's choice of farmers.

Ms. Bohmke asked about the differential between the two proposals related to annual nutrient management plans approved by Tri City-Conty Soil and Water Conservation District. Ms. Porter said that Blysdale Farms reported that they stayed within recommended pH levels. Ms. Bohmke asked what that meant for the County. Ms. Porter said that it meant that they adhered to stated guidelines.

The Chairman opened the public hearing. The following persons desired to speak:

Lindy Henderson
John Gray
Mike Berry
Jessica Hildebrand
Gerald Young
Paul Waldowski

The Chairman closed the public hearing.

Mr. Sterling said there were two individuals with history in the County and intent to farm the property donated by Mr. McDuff until the County chooses to turn it into park land. He said that the Board was not in a position to make a decision or to go against Mr. McDuff's wishes when he entrusted the land to the original farmer, Charles Henderson.

Mr. Sterling motioned, seconded by Ms. Sellers, to lease the land to the current individual, thus following and respecting the intent of the donor. Mr. Milde questioned how anyone could know the intent of the donor.

Ms. Porter said that it was beneficial to keep farming the land until it was ready for park use. Mr. Romanello said that the deed required that it be used, eventually, as park land. Mr. Milde said that it was a hard call; that both farmers were deserving of the lease, and it was impossible to know the intent of Mr. McDuff. He said that he received a lot of calls and he wished to honor staff's recommendation.

Mr. Snellings said that there were two farmers; that farm land in the County was scarce and it was a big deal for both Mr. Henderson and Mr. Young. He suggested that Musselman Park used to be a working farm and asked about the amount of acreage there. Mr. Snellings offered the option that one got the McDuff lease and the other got a farming lease at Musselman Park, adding that he believed that could be a perfect solution.

Mr. Milde asked if a RFI was necessary. Deputy County Attorney, Ms. Rysheda McClendon replied that a RFI was not required. Mr. Milde said that two applied, and that it cost both parties money to put together their response. He said that he felt that "the other guy" never had a chance, and suggested reimbursing Mr. Young for his out-of-pocket expenses, if the lease was given to Mr. Henderson. Mr. Sterling said that he did not agree, that responding to a request for information (or proposal) was part of doing business and respondents that were not chosen were never reimbursed for time and expenses. He said that he liked Mr. Snellings' idea and added that he did not know Mr. McDuff's original intent (or will) but absent a noticeable reason, there was no reason to change. Mr. Milde asked if there was time to bring info on the other land back to the Board. Mr. Snellings said that he was not a farmer but believed timing depended on the crop, the weather, etc. Ms. Bohmke said that the McDuff land was attractive as it was just down the street from the Young's, whereas the Musselman tract was quite a distance away.

Mr. Sterling motioned, seconded by Ms. Sellers, to deny staff's recommendation and return the lease to the original farmer, Mr. Charles Henderson.

The Voting Board tally was:

Yea:	(5)	Bohmke, Cavalier, Sellers, Snellings, Sterling
Nay:	(1)	Milde
Abstain:	(1)	Thomas

Mr. Sterling motioned, seconded by Ms. Sellers, to authorize a lease on 68 acres of farm land at Duff McDuff Green Park to Mr. Charles Henderson.

The Voting Board tally was:

Yea:	(5)	Bohmke, Cavalier, Sellers, Snellings, Sterling
Nay:	(1)	Milde
Abstain:	(1)	Thomas

Marcia C. Hollenberger

Marcia C. Hollenberger,
Chief Deputy Clerk to the Board of Supervisors

STAFFORD COUNTY LEASE AGREEMENT

This Lease Agreement ("Lease") is made this _____ day of _____, 2024, by and between the **STAFFORD COUNTY, VIRGINIA**, a political subdivision of the Commonwealth of Virginia (the "County"), and **CHARLES L. HENDERSON FARMS, LLC** (the "Tenant").

RECITALS

A. The County is the owner of a certain parcel of land identified as Stafford County Tax Map No. 58C-2-6, located at 638 Kings Highway, Fredericksburg, Virginia 22405. The Property is approximately 125.2 acres, more or less, in size and part of Duff McDuff Green Memorial Park ("Park") in the George Washington Election District ("Property").

B. The County desires to lease to the Tenant approximately 55.94 acres within the Property as shown on Exhibit A ("Leased Premises") for farming and agricultural purposes.

C. The County desires to lease the Leased Premises to the Tenant, and the Tenant desires to lease the Leased Premises from County for the term, at the rental rate and upon the covenants, conditions, terms, and provisions set forth in this Lease.

NOW, THEREFORE, in consideration of the mutual covenants and promises contained in this Lease, the County and the Tenant agree as follows:

1. **Recitals**. The foregoing recitals are hereby incorporated into this Agreement as a part hereof as if fully restated herein.

2. **Term**. The County leases the Leased Premises to the Tenant, and the Tenant leases the same from the County, for an "Initial Term" of five (5) years beginning on December 1, 2024 and ending November 30, 2029. The County shall use its best efforts to give the Tenants possession as nearly as possible at the beginning of the Lease term. If the County is unable to timely provide the Leased Premises, rent may be abated for the period of delay. The Tenant shall make no other claim against the County for any such delay.

3. **Option to Extend**. Upon the request of the Tenant and upon the consent of the County, the Lease may be renewed for five (5) additional one (1) year terms, commencing on December 1 and ending on November 30 of each year ("Renewal Term"). Requests to exercise a renewal option shall be made by giving written notice to the County by August 1 of the Initial Term and subsequent Renewal Terms. The written renewal notice shall be sent pursuant to Paragraph 16. The County will notify Tenant by September 1 of the Initial Term and subsequent Renewal

Terms of its intent to renew the Lease. The Renewal Term shall be upon the same covenants, conditions, terms, and provisions as provided in this Lease.

4. **Rent**.

A. For the first year of this Lease, the Tenant shall pay to the County rent in the amount of $76.02 per acre for the Leased Premises. The first-year rental payment shall be due on or postmarked no later than December 1, 2024. Rental payments shall be (i) made at the Parks, Recreation, Facilities and Tourism Department, 1300 Courthouse Road, Stafford, Virginia; (ii) mailed to the Parks, Recreation, Facilities and Tourism Department, P. O. Box 339, Stafford, VA 22555-0339, or (iii) made at or mailed to such other place as designated by the County via written notice to the Tenant pursuant to Paragraph 16.

B. The rental payment for each successive year of the Initial Term and any Renewal Term, as permitted under this Lease, shall increase by three percent (3%) over the rent per acre for the preceding year. Payment shall be due on or postmarked no later than December 1 of each year, rounded to the nearest cent.

Initial Lease Term	Rent per Acre	Annual Payment
December 1, 2024-November 30, 2025	$76.02	$4252.56
December 1, 2025-November 30, 2026	$78.30	$4,380.11
December 1, 2026-November 30, 2027	$80.65	$4,511.57
December 1, 2027-November 30, 2028	$83.07	$4,646.94
December 1, 2028-November 30-2029	$88.14	$4,930.56

5. Lease Management. The Director of the Stafford County Department of Parks, Recreation, Facilities and Tourism or his/her designee (the "Director") will oversee the day-to-day management of this Lease. The Tenant shall comply with the Director's reasonable requests, so long as they are not inconsistent with the provisions of this Lease.

6. **<u>Use and Terms of Use of the Leased Premises</u>**

A. The Leased Premises shall be used solely for the agricultural use of growing and harvesting crops. The Tenant is prohibited from raising or keeping any livestock on the Property.

B. The Tenant assumes all risk for the success of any harvest. The success or failure of any harvest shall not affect the rent due or any other provision of this Lease.

C. The Tenant shall not store any equipment on the Property.

D. The Tenant shall only access the Leased Premises at the gated driveway to the Duff McDuff Green house that is located on the Property.

E. The Tenant shall not use any structures or outbuildings located on the Property.

F. The Tenant shall not erect any temporary or permanent structures on the Leased Premises or elsewhere on the Property without the County's written permission.

G. The Tenant is solely responsible for all farming-related expenses, including, but not limited to seed(s), fertilizer(s), equipment, pest control, and/or labor.

H. The Tenant shall not dump or deposit trash, refuse, etc. on the Leased Premises or elsewhere on the Property.

I. The Tenant shall not place or allow to be placed any abandoned or inoperative motor vehicle, machinery, or equipment on the Leased Premises or elsewhere on the Property.

J. The Tenant shall not hunt nor allow any other person to hunt on the Leased Premises.

K. The Tenant shall neither store nor use sludge on the Leased Premises or elsewhere on the Property without the County's written permission.

L. The Tenant shall maintain the pH level on the Leased Premises, within an industry-recognized acceptable range. The Tenant shall test the soil(s), at its expense, annually. The Tenant shall provide the County with the soil test results no later than May 1 of each year.

M. The Tenant shall not in any way interfere with the use and enjoyment of the Duff McDuff Green house and associated outbuildings located on the Property, including the 16.9 acres surrounding the house, by the County, its officers, employees, agents, and volunteers or a

person(s), group, or entity to whom the County has leased the use of the buildings and surrounding area.

7. **Sublease and Assignment**. The Tenant shall not sublease all or any part of the Leased Premises or assign this Lease, in whole or in part, without the County's written consent.

8. **Maintenance**. During the Lease term (Initial Term or any Renewal Term), the Tenants shall take, at the Tenant's expense, all reasonable and necessary actions to control and/or eradicate weeds and any undesirable vegetation along the Leased Premises' border with King's Highway and at the edge of any fields within the Leased Premises.

9. **Property Taxes.** The Tenant shall be responsible for paying all real estate taxes due and owing pursuant to Virginia Code § 58.1-3203, as amended, or other applicable law, and any personal property taxes with respect to the Tenant's personal property on the Property.

10. **Insurance**.

A. If the Leased Premises or any part of the Property is damaged by fire or other casualty resulting from any act or negligence of the Tenant or any of the Tenant's agents, employees, or invitees, rent shall not be diminished or abated while such damages are under repair, and the Tenant shall be responsible for all repair costs not covered by insurance.

B. The Tenant shall, at its own expense, maintain a policy(s) of comprehensive general liability insurance with respect to its use of and activities on the Leased Premises, with the premium fully paid on or before the due date, issued by and binding upon an insurance company licensed to do business in the Commonwealth of Virginia and approved by the County. This insurance shall afford minimum protection of not less than $2,000,000 combined single limit coverage of bodily injury, property damage, or combination thereof. The Stafford County Board of Supervisors, its officers, employees, agents, and volunteers shall be listed as an additional insured on the Tenant's policy(s) of comprehensive general liability insurance. The Tenant shall provide County with current Certificates of Insurance evidencing the Tenant's compliance with this Paragraph. The Tenant shall notify the County at least thirty (30) days prior when/if its insurance policy is due to expire. The Tenant shall take all necessary measures to ensure insurance policies in accordance with this Paragraph are maintained at all times without a lapse, including during any Renewal Term. The County shall not be required to maintain insurance against thefts on the Property.

11. **Signs**. The Tenant shall not place or allow to be placed any sign(s) on the Leased Premises or elsewhere on the Property. Nothing in this Paragraph shall prevent the County, its officers, employees, agents, or volunteers from placing or allowing to be placed, any signs on the Property, so long as it does not interfere with the Tenant's lawful use of the Leased Premises under this Lease.

12. **Entry**. The County and its officers, employees, agents, and volunteers shall have the right to enter upon the Leased Premises at reasonable hours to inspect the same, provided that the County shall not unreasonably interfere with the Tenant's permitted use of the Leased Premises. The County and its officers, employees, agents, and volunteers are not required to provide any notice prior to entering and inspecting the Leased Premises.

13. **Termination by the Tenant.** The Tenant may terminate the Lease upon giving written notice to the county at least 120 days prior to such date of termination. Such notice shall specifically set forth the effective date of termination.

14. **Termination for Convenience by the County.**

A. The parties agree that the Board of Supervisors may terminate the Lease or any portion thereof, either in whole or in part, whenever the County Administrator of Stafford County determines that such termination is in the best interest of the County.

B. Termination, in whole or in part, shall be effected by delivery of a Notice of Termination signed by the County Administrator or his designee, and specifically set forth the effective date of termination. Such notice shall be provided to the Tenant at least 120 days prior to any such date of termination.

15. **Default**. If at any time the Tenant fails to timely pay rent when due to the County as provided in Paragraph 4, and if such failure continues for fifteen (15) days after the County gives written notice to the Tenant, such failure shall be considered a default under this Lease. If any covenant, condition, term or provision of this Lease is violated and such violation continues for at least thirty (30) days without correction after the County provides written notice to the Tenant of the violation, the violation shall be considered a default under the Lease. When default occurs, the County may terminate the Lease by giving Tenant written notice of such intention. After providing Tenant with a Notice of Termination, the County may re-enter the Leased Premises if the Tenant does not surrender possession within five (5) business days. The County shall have, in addition to the remedy provided above, any other right or remedy available to the County on account of the Tenant's default, either in law or equity.

16. **Condemnation**. If any legally constituted authority condemns the Property, in whole or part, which shall make the Leased Premises unsuitable for the Tenant's use under this Lease, this Lease shall cease when the public authority takes possession, and the County and the Tenant shall account for rent due up to the date of condemnation. This termination shall be without prejudice to the rights of either party to recover compensation from the condemning authority for any loss or damage caused by the condemnation. Neither party shall have any rights in or to any award made to the other by the condemning authority.

17. **Indemnification and Hold Harmless.** The Tenant shall indemnify and hold harmless the Stafford County Board of Supervisors and its officers, employees, agents, and volunteers for any injury or damage to persons or property arising out of the Tenant's use of or activities on the Property.

18. **Notice**. All notices under this Lease shall be in writing. Any notice required or permitted under this Lease concerning a party's default or a party's compliance with a term, provision, or condition of this Lease shall be deemed sufficiently given or served if sent by certified mail, return receipt required to the address below. Any other notice required or permitted under this Lease shall be deemed sufficiently given within three (3) days of sending said notice by first class mail, postage prepaid to the address below.

If to the County:

Brion L. Southall, Director
Department of Parks, Recreation, Facilities and Tourism
P. O. Box 339
Stafford, VA 22555

If to the Tenant:

Charles L. Henderson Farms, LLC
1407 Warrenton Road
Falmouth, VA 22406

If the County or the Tenant changes the place that notice is to be given under this Paragraph, they shall promptly notify the other party, in writing, of the new notice address by first class mail, postage prepaid.

19. **Waiver**. The County and Tenant agree that the failure of one to comply with any provision of this Lease shall not relieve the other of its obligation to comply with this Lease. No waiver of County or Tenant to take any action as a result of any default shall be construed as a

waiver of said default even if such default persists or is repeated. No express waiver shall affect any default other than the default specified in the express waiver, which shall be in writing, and only for the time and to the extent stated therein. One or more waivers by the County or the Tenant shall not be construed as a waiver of a subsequent breach of the same covenant, term, condition, or provision.

20. **Headings**. The headings used in this Lease are for convenience of the parties only and shall not be considered in interpreting the meaning of any provision of this Lease.

21. **Successors**. The provisions of this Lease shall extend to and be binding upon the County and the Tenant and their respective legal representatives, successors, and assigns.

22. **Compliance with Law**. The Tenant's use of the Property shall comply with all federal, state, and local laws, ordinances, regulations and orders, including, but not limited to, any which regulate the use of pesticides, fertilizers, or other chemicals; any related to stormwater runoff; and any related to the agricultural use of the Leased Premises.

23. **Severability.** In the event that any provision shall be adjudged or decreed to be invalid by a court of competent jurisdiction, such ruling shall not invalidate the entire Lease but shall pertain only to the provision in question, and the remaining provisions shall continue to be valid, binding and in full force and effect.

24. **Final Agreement and Modification**. This Lease supersedes all prior understandings or agreements on the subject matter whether oral or written. This Lease may only be modified by a writing that is duly-executed by both parties.

25. **Governing Law**. This Lease shall be governed, construed, and interpreted by, through and under the laws of the Commonwealth of Virginia, without respect to its conflict of laws provision. Any and all disputes, claims, and causes of action arising out of or in any way connected with this Lease must be brought in the applicable court of Stafford County, Virginia, or in the United States District Court for the Eastern District of Virginia, Alexandria Division.

IN WITNESS WHEREOF, the parties have executed this Lease as of the day and year first above written.

COUNTY:

The undersigned is authorized to execute this Lease on behalf of Stafford County, Virginia, as motioned and approved by the Stafford County Board of Supervisors on _____, 2024 pursuant to Resolution R24- _____.

STAFFORD COUNTY, VIRGINIA

By: _____
F. Craig Meadows
Interim County Administrator

APPROVED AS TO FORM:
Virginia Code § 15.2-1803

_____
Stafford County Attorney's Office

Name:_____

Title:_____

TENANT:

By signing below, I, Charles L. Henderson, Jr., attest to having authority to sign for Charles L. Henderson Farms, LLC.

CHARLES L. HENDERSON FARMS, LLC

BY: _____
Charles L. Henderson, Jr.
Managing Member

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
PUBLIC HEARINGS

Subject:	
DEVELOPMENT SERVICES AND PLANNING AND ZONING; CONSIDER REPEALING AND REPLACING THE DEPARTMENTS OF DEVELOPMENT SERVICES AND PLANNING AND ZONING FEE SCHEDULES PROPOSED ORDINANCE O24-16 **BACKGROUND SUMMARY:** APPROVES REPEAL AND REPLACEMENT OF FEES.	
Recommended Action:	
Approval of proposed Ordinance O24-16 to repeal and replace the Development Services and Planning and Zoning Fee Schedules.	
Committee/Commission Recommendation:	
N/A	
Fiscal Impact:	**District:**
N/A	
Overview:	
Fee Schedules for Community Development fees, including Development Services and Planning & Zoning fees (last updated March 21, 2017), have been evaluated as part of the County's Process Review Study and are being proposed for updating to ensure fees remain commensurate with the services provided.	
Discussion/Analysis:	
Recently, and as part of the Process Review Study, the County completed a thorough review of the current Development Services fee schedule and the Planning & Zoning fee schedule (last updated March 21, 2017). The recent fee schedule evaluation was an important part of the Process Review Study in order to confirm that any recommended fees as part of a proposed fee schedule align with overall cost recovery goals for County services. Additionally, beyond capturing costs, there is a recognized need for the fees to be reasonable, transparent, easier to calculate, and easy to understand for residents and businesses. The update aims to streamline fee structures, making them more accessible and understandable. The new proposed fees are provided in Attachment 2, proposed	

Ordinance O24-16. Attachments 3 and 4 provide tables that show the current fees and the proposed fees side-by-side.

A public hearing is required for the Board to consider adopting the new fees. Approval of Resolution R24-154 on July 2, 2024, authorized a public hearing on the repeal and replacement of the fee schedules, as provided in proposed Ordinance O24-16. Should Ordinance O24-16 be approved, the fees will become effective November 1, 2024.

Attachments:

1. O24-16 Attachment 1.pln Proposed Ordinance O24-16 Fee Schedule
2. O24-16 Attachment 2.pln Exhibit A Fee Schedule - Development Services
3. O24-16 Attachment 3.pln Exhibit B Fee Schedule - Planning and Zoning
4. O24-16 Attachment 4.pln R24-154.pln.Advertisement of Fee Schedules
5. O24-16 Attachment 5.pln BOS Staff Presentation

Summary/Conclusion:

Proposed Ordinance O24-16 to repeal and replace the Development Services and Planning and Zoning Fee Schedules is recommended. Changes proposed are a result of the Process Review Study, as well as recommendations from the County's consultant and County staff.

Strategic Priorities:

Economic Diversification
Excellence in Governance with Transformational Leadership

Reviewed By:

Rysheda McClendon, County Attorney (Legal Review Only)
Craig Meadows, Interim County Administrator

O24-16

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

ORDINANCE

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on this the 17th day of September 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

AN ORDINANCE TO REPEAL PRIOR ORDINANCES REGARDING FEES COLLECTED BY THE DEPARTMENTS OF DEVELOPMENT SERVICES AND PLANNING AND ZONING AND TO ADOPT A NEW FEE SCHEDULE FOR SUCH DEPARTMENTS

WHEREAS, the Board is authorized by the Virginia Code to set reasonable fees for building and land development services provided by the Departments of Development Services and Planning and Zoning (Departments); and

WHEREAS, the Board last amended the fee schedules for the Departments pursuant to Ordinance O17-14, adopted on March 21, 2017; and

WHEREAS, the Board desires to set the fees for building and land development services commensurate with the services provided by the County; and

WHEREAS, the Board has considered the recommendations of staff and the testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that public necessity, convenience, general welfare, and good planning, zoning, and development review practices require adoption of this Ordinance to adopt a new schedule of fees as provided herein;

NOW, THEREFORE, BE IT ORDAINED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that the fee schedules established pursuant to Ordinances O17-14, O15-34, O15-29, O15-26, O14-22, O13-29, O13-17, O12-39, O12-19, and O10-52, and any other Ordinance imposing a fee for building and land development review services similar to those provided herein below be and they hereby are repealed; and

BE IT FURTHER ORDAINED that the Planning and Zoning Fee Schedule and the Development Services Fee Schedule, regarding building and land development review services, are established as follows:

PLANNING AND ZONING FEE SCHEDULE

Service	***Fee***
Long Range	
Conditional Use Permit (CUP)	**$11,040**
General Fee > 5 Acres	$210/acre over 5
Fire	$180
Utilities	$270
Transportation	$340
Traffic Impact Analysis <1,000 VPD	$200
Traffic Impact Analysis ≥1,000 VPD	$400
Notifications	$383 (total)
Conditional Use Permit - Minor Amendment	**$7,370**
Notifications	$383 (total)
Conditional Use Permit - Minor Amendment (when submitted with minor proffer amendment)	**$3,095**
Notifications	$383 (total)
Standard Reclassification	
Base Fee < 5.0 acres	**$3,340**
Base Fee ≥ 5.0 acres	**$12,860**
General Fee > 5 Acres	$350/acre over 5
Fire	$180
Utilities	$420
Transportation	$390
Traffic Impact Analysis < 1,000 VPD	$200
Traffic Impact Analysis ≥ 1,000 VPD	$400
Notifications	$383 (total)
Reclassification - Planned Development	**$16,200**
General Fee > 75 Acres	$24/acre over 75
Fire	$180

Utilities	$420
Transportation	$390
Traffic Impact Analysis < 1,000 VPD	$200
Traffic Impact Analysis ≥ 1,000 VPD	$400
Notifications	$383 (total)
Proffer Amendment	**$8,350**
General Fee > 5 Acres	$25/acre over 5
Notifications	$383 (total)
Proffer Amendment - Minor	**$5,740**
Notifications	$383 (total)
Proffer Amendment - Planned Development	**$10,000**
General Fee > 75 Acres	$33/acre over 75
Notifications	$383 (total)
Proffer Amendment - Minor (when submitted with minor conditional use permit)	**$3,095**
Notifications	$383 (total)
Comprehensive Plan Amendment (< 100 acres)	**$1,810**
Comprehensive Plan Amendment (≥ 100 acres)	**$2,770**
Comprehensive Plan Compliance Review	**$1,820**
Development Review	
Cluster Concept Plan	**$2,780**
Per-Lot	$90/lot
E&S/SWM	$460
Utilities	$640
Transportation	$600
Preliminary Subdivision Plan	**$4,820**
Per-Lot	$90/lot
E&S/SWM	$1,500
Utilities	$640
Fire	
1-5 Lots	$120
6-30 Lots	$240
31-100 Lots	$360

101-300 Lots	$480
> 300 Lots	$480 + $1.50 per lot over 300
Mapping & Geographic Information	$30/lot
Transportation	$600
Third and Subsequent Reviews	**$820**
E&S/SWM	$800
Utilities	$240
Fire	$120
Transportation	$120
Preliminary Subdivision Plan - Technical Change	**$1,830**
E&S/SWM	$220
Subdivision Construction Plan	**$4,390**
General	$755/impervious acre
E&S/SWM	$4,760
Utilities	$3,710
Utility Pump Stations	$1,000/pump station
Fire	
Fire Lane	$0
1-5 Lots	$120
6-30 Lots	$240
31-100 Lots	$360
101-300 Lots	$480
> 300 Lots	$600 + $2.50 per lot over 300
Transportation	$600
Mapping & Geographic Information	$30/lot
Third and Subsequent Reviews	**$900**
E&S/SWM	$2,370
Utilities	$910
Fire	$120
Transportation	$120
Subdivision Construction Plan - Revision	**$3,100**
E&S/SWM	$1,200
Utilities	$2,040
Fire	$125
Transportation	$300
Third and Subsequent Reviews	**$850**

E&S/SWM	$1,200
Utilities	$460
Fire	$125
Transportation	$60
Major Site Plan	**$5,600**
General	$755/impervious acre
E&S/SWM	$1,760
Utilities	$3,390
Fire	
Fire Lane	$0
< 1 Disturbed Acre	$120
1-5 Disturbed Acres	$360
> 5 Disturbed Acres	$720 + $60 per disturbed acre over 5
Transportation	$600
Building	$95
Mapping & Geographic Information	$40/lot
Third and Subsequent Reviews	**$1,000**
E&S/SWM	$880
Utilities	$700
Fire	$120
Transportation	$120
Major Site Plan - Major Revision	**$3,620**
E&S/SWM	$830
Utilities	$1,280
Fire	$125
Transportation	$300
Third and Subsequent Reviews	**$850**
E&S/SWM	$410
Utilities	$620
Fire	$125
Transportation	$60
Major Site Plan - Minor Revision	**$2,160**
E&S/SWM	$410
Utilities	$1,280
Fire	$125
Transportation	$300
Third and Subsequent Reviews	**$480**

E&S/SWM	$210
Utilities	$620
Fire	$125
Transportation	$60
Major Site Plan - Building Addition Only	**$0**
E&S/SWM	$0
Utilities	$0
Fire	$0
Transportation	$0
Third and Subsequent Reviews	**$0**
E&S/SWM	$0
Utilities	$0
Fire	$0
Transportation	$0
Infrastructure Plan	**$3,270**
E&S/SWM	$1,310
Utilities	$1,350
Transportation	$600
Third and Subsequent Reviews	**$850**
E&S/SWM	$590
Utilities	$120
Transportation	$120
Major Grading Plan	**$2,680**
E&S/SWM	$1,840
Utilities	$400
Third and Subsequent Reviews	**$570**
E&S/SWM	$880
Utilities	$120
Minor Grading Plan	**$1,350**
E&S/SWM	$1,840
Utilities	$400
Third and Subsequent Reviews	**$440**
E&S/SWM	$880
Utilities	$120
Minor Site Plan	**$2,080**
E&S/SWM	$780

Third and Subsequent Reviews	**$400**
E&S/SWM	$420
Minor Site Plan - Revision	**$1,420**
E&S/SWM	$290
Major Subdivision Plat	**$2,260**
Per-Lot	$90/lot
E&S/SWM	$240
Mapping & Geographic Information	$60/lot
Utilities	$240
Transportation	$440
Commissioner of the Revenue	$130
Third and Subsequent Reviews	**$540**
Per-Lot	$50/lot
E&S/SWM	$120
Utilities	$120
Transportation	$170
Commissioner of the Revenue	$60
Major Subdivision Plat - Revision	**$1,700**
Minor Subdivision Plat	**$1,700**
Per-Lot	$130/lot
E&S/SWM	$240
Mapping & Geographic Information	$40/lot
Utilities	$240
Transportation	$290
Commissioner of the Revenue	$130
Third and Subsequent Reviews	**$520**
Per-Lot	$60/lot
E&S/SWM	$120
Utilities	$120
Transportation	$170
Commissioner of the Revenue	$60
Minor Subdivision Plat - Revision	**$1,320**
Family Subdivision Plat	**$1,620**
E&S/SWM	$240
Utilities Fee	$120
Transportation	$150

Mapping & Geographic Information	$40/lot
Commissioner of the Revenue	$130
Third and Subsequent Reviews	**$300**
E&S/SWM	$120
Utilities Fee	$120
Transportation	$60
Commissioner of the Revenue	$60
Boundary Line Adjustment Plat	**$1,630**
E&S/SWM	$240
Utilities	$120
Transportation	$150
Mapping & Geographic Information	$40/lot
Commissioner of the Revenue	$130
Third and Subsequent Reviews	**$310**
E&S/SWM	$120
Utilities	$120
Transportation	$60
Commissioner of the Revenue	$60
Consolidation Plat	**$1,320**
E&S/SWM	$240
Utilities	$120
Transportation	$150
Dedication Plat	**$1,860**
E&S/SWM	$240
Utilities	$240
Transportation	$170
Third and Subsequent Reviews	**$440**
E&S/SWM	$120
Utilities	$120
Transportation	$110
Vacation Plat	**$150**
Subdivision Ordinance - Waiver	**$1,650**
Per Ordinance Section	$410
Subdivision Ordinance - Appeal to BOS	**$1,650**
Waiver to Board of Supervisors	**$1,650**

Per Ordinance Section	$410
Departure from Design Standards	**$2,610**
Per Departure Section	$380
Alternative Compliance	**$1,000**
Landscaping Administrative Waiver	**$665**
Street Name Change	**$2,140**
Transfer of Development Rights (TDR)	
Determination of Development Rights	$50
Issuance of TDR Certificate & Severance of Development Rights	$180
Ownership Transfer of TDR Certificate	$85
Zoning	
Certificate of Appropriateness	**$600**
BZA Variance	
Individual Residential Property	**$4,740**
Other	**$4,740**
BZA Special Exception	
Individual Residential Property	**$4,740**
Other	**$4,740**
BZA Appeal	
Individual Residential Property	**$5,710**
Other	**$5,710**
Zoning Administrator Written Determination	**$2,800**
Notifications	$383 (total)
Zoning Verification Letter	**$530**
DMV Certification	**$870**
DMV Verification Letter	**$0**
Lighting Administrative Waiver	**$890**

Environmental	
Slip Sheets	**$180**
Stormwater As-Built	**$1,020**
As-Built Reduction Request	**$540**
Stormwater Management Exception Request	**$0**
Floodplain Study	**$3,130**
Wetlands Permit	
No Board Hearing	$250
Board Hearing	$2,080
Perennial Flow Review	
< 20 Acres	$460
≥ 20 Acres	$850
Perennial Flow Evaluation (Family Subdivision)	**$850**
Water Quality Impact Assessment	
Major	$850
Minor	$460
Chesapeake Bay Board Public Hearing	**$2,080**
Sand Dunes Board Public Hearing	**$2,080**
Vegetation Removal	**$260**
CBPA Administrative Waiver	**$460**
Staff RPA Mitigation/Restoration Plan < 5,000 sq ft	**$520**
CBPA Special Exception	
Residential	$260
Other	$520
Development Services	
Right-of-Way Abandonment	**$4,500**

Traffic Safety Request	**$65**
As-Built Review	
Zoning	**$980**
Stormwater	**$1,020**
Utilities	**$1,020**
Reduction Request	
Stormwater	**$540**

DEVELOPMENT SERVICES FEE SCHEDULE

Service	*Fee*
BUILDING	
RESIDENTIAL	
Single-Family Dwellings - New Construction (Use Groups R-3, R-4, and R-5)	
Individual House Plan Review	$0.10/sq. ft.; $200 minimum
Master House Plan Review	$0.20/sq. ft.; $200 minimum
Individual House Plan for Master Plan Approved Designs	$0.04/sq. ft.; $100 minimum
Industrialized/Manufactured Housing Plan	$0.04/sq. ft.; $100 minimum
Architectural Building Review (if applicable)	$100
Building Construction Inspection	$0.14/sq. ft.; $50 minimum
Third and subsequent reviews or Plan Amendments	50% of initial plan review fee
All Trades (i.e., electric, plumbing, etc.)	$60/per trade per system
Supplemental Heating Units (i.e., gas logs, fireplace inserts, space heaters, chimneys, pool heaters, etc.)	$60/unit
Utility Hookups (i.e., electric, water, sewer, etc.)	$60/hookup
Mechanical Lifts (i.e., elevators, wheelchairs)	$60/level
American Society of Mechanical Engineers (ASME) Tanks	$60/unit
Generators	$60/unit
Certificate of Occupancy	$173
Temporary Occupancy	$271
Additions and Alterations (Use Groups R-3, R-4, and R-5)	
Plan Review	$0.10/sq. ft.; $75 minimum

Architectural Building Review (if applicable)	$100
Building Construction Additions	$0.14/sq. ft.; $50 minimum
Building Construction Alterations	$0.10/sq. ft.; $50 minimum
Third and subsequent reviews or Plan Amendments	50% of initial plan review fee
All Trades (i.e., electric, plumbing, etc.)	$60/per trade per system
Supplemental Heating Units (i.e., gas logs, fireplace inserts, space heaters, chimneys, pool heaters, etc.)	$60/unit
Utility Hookups (i.e., electric, water, sewer, etc.)	$60/hookup
Mechanical Lifts (i.e., elevators, wheelchairs)	$60/level
ASME Tanks	$60/unit
Generators	$60/unit
Roof Replacement (structural not shingles) Plan Review	$0.04/sq. ft.; $50 minimum
Roof Replacement (structural not shingles) Inspection	$0.04/sq. ft.; $50 minimum
Multi-Family Dwellings (Use Groups R-1 and R-2)	
Plan Review	$0.10/sq. ft.; $200 minimum
Architectural Building Review (if applicable)	$100
Building Construction	$0.14/sq. ft.; $50 minimum
Third and subsequent reviews or Plan Amendments	50% of initial plan review fee
All Trades (i.e., electric, plumbing, etc.)	$60/per trade per system
Supplemental Heating Units (i.e., gas logs, fireplace inserts, space heaters, chimneys, pool heaters, etc.)	$60/unit
Utility Hookups (i.e., electric, water, sewer, etc.)	$60/hookup
Mechanical Lifts (i.e., elevators, wheelchairs)	$60/level
ASME Tanks	$60/unit
Generators	$60/unit
Certificate of Occupancy	$173
Temporary Occupancy	$271
COMMERCIAL	
Commercial Construction Building Permit - New Construction	
Plan Review	$0.13/sq. ft.; $154 minimum
Architectural Building Review (if applicable)	$229
Plan Amendments Review	50% of initial fee

Fire Prevention Code Plan Review > 10,000 square foot	$0.04/sq. ft.; $180 minimum
Fire Prevention Code Revision or Additional Plan Review	$180
Building Construction Inspection	$0.19/sq. ft.; $119 minimum
Certificate of Occupancy	$173
Temporary Occupancy	$271
Third and Subsequent Reviews	$102.00
Commercial Additions/Alterations	
Plan Review	$0.11/sq. ft.; $154 minimum
Architectural Building Review (if applicable)	$229
Plan Amendments or Alterations	50% of initial review fee
Fire Prevention Code Plan Review > 10,000 square foot	$0.04/sq. ft.; $180 minimum
Fire Prevention Code Plan Review Revision or Additional Plan Review	$180
Building Construction/Alterations Inspection	$0.15/sq. ft.; $119 minimum
Roof Repair or Replacement (shingles only)	$0.11/sq. ft.; $119 minimum
Temporary Business Facility Inspection	$73
Towers Review	$1.00/ft. of ht.; $150 minimum
Certificate of Occupancy Inspection	$173
Temporary Occupancy Inspection	$271
Third and subsequent reviews	$102.00
Pools, hot-tubs, spas, etc. - Commercial and Residential (All Use Groups)	
Pool Review – Residential	$229
Pool Review – Commercial	$290
Pool Inspections – Residential	$222
Pool Inspections – Commercial	$287
Third or subsequent review	50% of initial review fee
Commercial Trades (i.e., electrical, mechanical, plumbing, etc.)	
Plan Review if included with commercial new or alteration plan	$0.07/sq. ft.; $70 minimum
Plan Review if submitted as stand-alone improvement	$0.10/sq. ft.; $70 minimum
Plan or Permit Amendments	50% of initial review fee

Third or subsequent review	50% of initial review fee
General Inspection for Building and Trades	$0.07/sq. ft.; $70 minimum
Mechanical (In Addition to General Fee)	
Appliances or Equipment (i.e., boilers, cooling towers, generators, product dispensers, paint booths, freezers, heaters, fans, air compressors, pumps, kitchen hoods, etc.)	$70/item
Mechanical Lifts (i.e., elevators, escalators, dumbwaiters, wheelchairs, etc.)	$45/level
Electrical (In Addition to General Fee)	
Electric Unit Heaters (all types)	$70/unit
Heat Pumps, Central Air Conditioning	$70/unit
Generators < 100 kilovolt-amps (KVA)	$70/unit
Generators ≥ 100 KVA	$124/unit
Exterior Pole Lighting	$70/1st pole; $16/each add. pole
Exterior Pole Lighting Groundworks	$70
Electric Service Entrance < 600 amps - Permanent	$137
Electric Service Entrance - between 600 and 1,200 amps - Permanent	$157
Electric Service Entrance > 1,200 amps - Permanent	$177
Electric Service Entrance > 600 volts - Permanent	$197
Transformers < 100 KVA	$124
Transformers ≥ 100 KVA	$149
Electric Motors	$70/unit
Low Voltage Wiring (i.e., data, cable TV, telephone, alarm, etc.)	.03/sq. ft.; $70 minimum
Temporary Electrical Service (in lieu of general fee)	$124
Temporary Electrical Wiring (in lieu of general fee)	$124
Electric Sub Panels	$48/unit
Plumbing - (In Addition to General Fee)	
Utility Services - 5 foot Outside Building (water and sewer)	$64/unit
Building Sanitary and Storm Drain Piping	$113/floor
Water Distribution Piping - Within Building	$118/floor
Grease traps, separators, backflows, manholes, chemical treatment devices, food grinders, sewage pumps/ejectors, etc.	$70/Unit
Minor Plumbing Fixtures (includes sinks, showers, tubs, toilets, urinals, bidets, dishwashers, clothes washers, drinking fountains, yard/wall hydrants, backwater devices, roof, floor, and trench drains, etc.) - (unless listed elsewhere in fee schedule)	$9/unit; $70 minimum

Major Plumbing Fixtures (includes emergency eyewash/shower stations, irrigation systems, water treatment units, clinical sinks, macerating toilets, specialized washer systems, water features/fountains and aquariums, ice makers, water heaters, baptisteries, etc.)	$70/unit
Directional Devices, Pressure Reducing Devices, etc.	$37/unit
Fuel Gas - (In Addition to General Fee)	
Base Fee	$124
Per Appliance Hook-up	$16
Regulators	$29/unit
Fuel Tanks (including ASME)	$70/unit
Fuel Tank removal/abandonment	$70/unit
Fuel Pumps/Dispensers	$70/unit
Fire Protection Systems (Department of Fire and Rescue fees charged with Building Permit)	
Plan Review Fees (All Use Groups)	
Sprinkler System Limited Occupancy	$55/system
Sprinkler System Light Hazard Occupancy - Minimum	$136 minimum
1-100 Sprinkler Heads	$2.20/head
101-300 Sprinkler Heads	$2.10/head
301-500 Sprinkler Heads	$1.99/head
> 500 Sprinkler Heads	$1.78/head
Sprinkler Ordinary Hazard and Rack Storage - minimum	$136 minimum
1-100 Sprinkler Heads	$2.20/head
101-300 Sprinkler Heads	$1.99/head
301-500 Sprinkler Heads	$1.57/head
> 500 Sprinkler Heads	$1.26/head
Sprinkler Extra Hazard - minimum	$136 minimum
1-100 Sprinkler Heads	$1.68/head
101-300 Sprinkler Heads	$1.57/head
301-500 Sprinkler Heads	$1.47/head
> 500 Sprinkler Heads	$1.26/head
National Fire Protection Association (NFPA) 13R System - minimum	$136 minimum
1-100 Sprinkler Heads	$2.20/head
101-300 Sprinkler Heads	$2.10/head
301-500 Sprinkler Heads	$1.99/head
> 500 Sprinkler Heads	$1.78/head
NFPA 13D System	$50/system
Dry Pipe System	$52/dry pipe valve
Standpipe System	$100/system
Fire Pump (includes all risers)	$275/fire pump
Fire Alarm System	$5/device; $100 minimum

Underground Fire Service Line	$150/unit
Other Fire/Life Safety System	$200/system
Carbon Dioxide Extinguishing System	$110/system
Clean Agent Extinguishing System	$100/system
Dry Chemical System	$100/system
Wet Chemical System	$100/system
Inspection Fees (All Use Groups)	
Inspection by Building Official	$0.02/sq. ft.; $50 minimum
Inspection of Fire and Life Safety Systems - (800 series in Hansen)	$200/inspection
Re-Inspection of Fire and Life Safety Systems (additional inspections)	$200/re-inspection
Miscellaneous Permits	
Office Trailers Review	$100
Office Trailers Inspection	$100
Demolition Review	$60
Demolition Inspection	$60
Home Business Review	$154
Home Business Inspection	$60
Alternative Energy Systems Review (i.e., solar, wind, geothermal, etc.)	$100
Alternative Energy Systems Inspection	$50
Ramps, Docks, etc. Review	$0.05/sq. ft.; $50 minimum
Ramps, Docks, etc. Inspection	$0.20/sq. ft.; $50 minimum
Retaining Walls and Bulkheads Review	$60
Retaining Walls and Bulkheads Inspections	$0.80/lin. ft.; $50 minimum
Equipment Installation (i.e., generators, pumps etc.)	$60
Zoning - Department of Planning and Zoning - Fee Charged with Permit	
Residential New Zoning Permit	$100
Residential Change Zoning Permit	$70
Commercial Zoning Permit Minor Development	$125
Commercial Zoning Permit Major Development	$250
Sign Permit	$120 + $2/sq. ft.
Administrative Fees (All Use Groups)	
Building Code, Fire Code, Property Maintenance, and Amusement Device Appeals - (non- refundable if withdrawn by applicant, refundable upon applicant's successful appeal)	$500/appeal

Permit Information Changes and Refunds	$25/permit
Administrative	$25/permit
Stop Work Orders and Violation Notices	$200/event
Re-Inspection Fees - per re-inspection per trade (except fire) - one free re-inspection	$98
Approval for Third Party Inspectors (includes access to County IWR)	$250/set-up (non-refundable)
After Hours and Week-End Inspections (in addition to normal fees) - 2 hour minimum	$75/hour; $150 minimum
Record Research, Reports, Documents, Verifications, etc. (estimated total fee payable in advance)	$40/hour (non-refundable)
Mailed or Faxed Documents, Letters, Reports, Occupancy Reports, etc.	$2/page (non-refundable)
Photocopies	$0.25/page
Fees for Amusement Devices shall be in Accordance with State Regulations	State of Virginia Regulations
Fees may be Waived at the Discretion of the Building Official when such work is being performed by a non-profit or governmental organization for other than them	Building Official Discretion
Re-Instatement of Expired or Rescinded Permit	$50
Elevator Certificate Renewal	$50
Extension of Permit	$50
ENVIRONMENTAL - Erosion and Sediment Control, Stormwater Management, and Chesapeake Bay Preservation Area	
Grading Permit	
Erosion and Sediment Control Inspection - per disturbed acre or portion thereof	$600/dist. ac.; $600 minimum; $1000 annual renewal
Stormwater Inspection (construction inspection of Stormwater Management BMP, storm sewers, and stormwater conveyance channels located outside VDOT right-of- way	2% of total approved amount of security for stormwater facilities and stormwater drainage systems
Virginia Stormwater Management Program (VSMP) Permit - *28% Portion of fees listed below must be returned to Department of Environmental Quality in accordance with State Regulations	

Sites > 2,500 Square Feet and < 1 Acre*	$290; $20/modification or transfer; $50/annual maintenance
Sites ≥ 1 Acre and < 5 Acres*	$2,700; $200/modification or transfer; $400/annual maintenance
Sites ≥ 5 Acres and < 10 Acres*	$3,400; $250/modification or transfer; $500/annual maintenance
Sites ≥ 10 Acres and < 50 Acres*	$4,500; $300/modification or transfer; $650/annual maintenance
Sites ≥ 50 Acres and < 100 Acres*	$6,100; $450/modification or transfer; $900/annual maintenance
Sites ≥ 100 Acres*	$9,600; $700/modification or transfer; $1,400/annual maintenance
Building Permit - Environmental Review	
Residential Lot Grading - Plan Review	$300
Residential Lot Grading - Inspection	$300
Residential Lot Inspection - VSMP	$209
Commercial - Landscaping Inspection	$100/building permit
Commercial and Residential - New - Chesapeake Bay Preservation Act (CBPA)	$75/building permit review
Commercial and Residential - Change - CBPA Building Permit Review	$25/building permit review
Stormwater Best Management Practice (BMP) Maintenance Inspection by County Staff - per BMP facility	
Stormwater Ponds (i.e., retention, extension, detention, and detention facilities etc.)	$300

Filtration/Infiltration Facilities (i.e., bioretention, bioinfiltration, infiltration trench, constructed wetlands, sand filter, dry well system, porous and permeable pavement systems, tree box filter, and vegetated roofs etc.)	$75
Level Spreaders, filter strips, vegetated/grassed swales, manufactured facilities, and check damns etc.	$50
On-lot Low Impact Development (LID) Facilities (i.e., rain gardens, rain barrels, and dry wells etc.) Privately owned BMP facilities located on individual residential lots	N/A
County Staff Review of Owner BMP Maintenance Inspection Report prepared by Registered Design Professional	$50
Major Water Quality Impact Review	$500
Resource Protected Area (RPA) Waiver Request	$200
RPA Mitigation/Restoration Plan	$200
Securities - Developer	
Securities Contract Management	$550
Security Reduction	$325
Replacement of Agreement	$500
Substitution of Security	$350
Security Contract Extensions	$300
Security Default Action	$600
Report Requests	$75
Securities - Individual Building Lot Security Fees	
Management	$175/building lot
Substitution	$125
Report Requests	$75
Individual Lot Security (single family home)	$2,500
Individual Lot Security (townhouse)	$500
Utilities - Fee charged with permit	
Water Meter Set	$60.00
Sewer Lateral	$60.00
Permanent Water Meter	$60.00

; and

BE IT FURTHER ORDAINED that the payment for fees established in the Planning and Zoning Fee Schedule and the Development Services Fee Schedule shall be made in advance, and a Technology Fee of two and three-quarter percent (2.75%) shall be assessed in addition to the listed fee. A State Levy of two percent (2.0%) shall be assessed in addition to all building permit fees listed (including Fire Protection Permits); and

BE IT FURTHER ORDAINED that if an application for a Conditional Use Permit, Reclassification, Board of Zoning Appeals (BZA) Variance, BZA Special Exception, or BZA Appeal is withdrawn prior to the advertisement of the first public hearing, fifty percent (50%) of the fees paid for the application will be refunded to the applicant, upon the applicant's written request with the withdrawal. If an application is withdrawn after the advertisement of the first public hearing, the fees paid for the application are non-refundable; and

BE IT FURTHER ORDAINED that if an application for a plan or plat related service is withdrawn prior to the completion of the first review, fifty percent (50%) of the fees paid will be refunded to the applicant, upon the applicant's written request with the withdrawal. If the application is withdrawn after completion of the first review, the fees are non-refundable; and

BE IT FURTHER ORDAINED that if a permit under the Development Services Fee Schedule is voided, refunds will be prorated based on the percentage of inspections completed and provided to the applicant, upon the applicant's written request at the time the permit is voided; and

BE IT STILL FURTHER ORDAINED that this Ordinance shall take effect on November 1, 2024.

WHA:PJS:vss

EXHIBIT A - DEVELOPMENT SERVICES FEE SCHEDULE
EFFECTIVE NOBEMBER 1, 2024

Service	Current Fee	New Fee
BUILDING		
RESIDENTIAL		
Single-Family Dwellings - New Construction (Use Groups R-3, R-4, and R-5)		
Individual House Plan Review	$0.10/sq. ft.; $200 minimum	$0.10/sq. ft.; $200 minimum
Master House Plan Review	$0.20/sq. ft.; $200 minimum	$0.20/sq. ft.; $200 minimum
Individual House Plan for Master Plan Approved Designs	$0.04/sq. ft.; $100 minimum	$0.04/sq. ft.; $100 minimum
Industrialized/Manufactured Housing Plan	$0.04/sq. ft.; $100 minimum	$0.04/sq. ft.; $100 minimum
Architectural Building Review (if applicable)	$100	$100
Building Construction Inspection	$0.14/sq. ft.; $50 minimum	$0.14/sq. ft.; $50 minimum
Third and subsequent reviews or Plan Amendments	$0.04/sq. ft.; $50 minimum	50% of initial plan review fee
All Trades (i.e. electric, plumbing, etc.)	$60/per trade per system	$60/per trade per system
Supplemental Heating Units (i.e. gas logs, fireplace inserts, space heaters, chimneys, pool heaters, etc.)	$60/unit	$60/unit
Utility Hookups (i.e. electric, water, sewer, etc.)	$60/hookup	$60/hookup
Mechanical Lifts (i.e. elevators, wheelchairs)	$60/level	$60/level
American Society of Mechanical Engineers (ASME) Tanks	$60/unit	$60/unit
Generators	$60/unit	$60/unit
Certificate of Occupancy	$60	$173
Temporary Occupancy	$250	$271
Additions and Alterations (Use Groups R-3, R-4, and R-5)		
Plan Review	$0.10/sq. ft.; $75 minimum	$0.10/sq. ft.; $75 minimum
Architectural Building Review (if applicable)	$100	$100
Building Construction Additions	$0.14/sq. ft.; $50 minimum	$0.14/sq. ft.; $50 minimum
Building Construction Alterations	$0.10/sq. ft.; $50 minimum	$0.10/sq. ft.; $50 minimum
Third and subsequent reviews or Plan Amendments	$0.04/sq. ft.; $50 minimum	50% of initial plan review fee
All Trades (i.e. electric, plumbing, etc.)	$60/per trade per system	$60/per trade per system
Supplemental Heating Units (i.e. gas logs, fireplace inserts, space heaters, chimneys, pool heaters, etc.)	$60/unit	$60/unit
Utility Hookups (i.e. electric, water, sewer, etc.)	$60/hookup	$60/hookup
Mechanical Lifts (i.e. elevators, wheelchairs)	$60/level	$60/level
ASME Tanks	$60/unit	$60/unit
Generators	$60/unit	$60/unit
Roof Replacement (structural not shingles) Plan Review	$0.04/sq. ft.; $50 minimum	$0.04/sq. ft.; $50 minimum
Roof Replacement (structural not shingles) Inspection	$0.04/sq. ft.; $50 minimum	$0.04/sq. ft.; $50 minimum
Multi-Family Dwellings (Use Groups R-1 and R-2)		
Plan Review	$0.10/sq. ft.; $200 minimum	$0.10/sq. ft.; $200 minimum
Architectural Building Review (if applicable)	$100	$100
Building Construction	$0.14/sq. ft.; $50 minimum	$0.14/sq. ft.; $50 minimum
Third and subsequent reviews or Plan Amendments	$0.04/sq. ft.; $50 minimum	50% of initial plan review fee
All Trades (i.e. electric, plumbing, etc.)	$60/per trade per system	$60/per trade per system
Supplemental Heating Units (i.e. gas logs, fireplace inserts, space heaters, chimneys, pool heaters, etc.)	$60/unit	$60/unit
Utility Hookups (i.e. electric, water, sewer, etc.)	$60/hookup	$60/hookup
Mechanical Lifts (i.e. elevators, wheelchairs)	$60/level	$60/level
ASME Tanks	$60/unit	$60/unit
Generators	$60/unit	$60/unit
Certificate of Occupancy	$60	$173
Temporary Occupancy	$250	$271
COMMERCIAL		

Service	Current Fee	New Fee
Commercial Construction Building Permit - New Construction		
Plan Review	$0.10/sq. ft.; $200 minimum	$0.13/sq. ft.; $154 minimum
Architectural Building Review (if applicable)	$100	$229
Plan Amendments Review	$0.05/sq. ft.; $50 minimum	50% of initial fee
Fire Prevention Code Plan Review > than 10,000 square foot	$0.04/sq. ft.; $125 minimum	$0.04/sq. ft.; $180 minimum
Fire Prevention Code Revision or Additional Plan Review	$125/review	$180
Building Construction Inspection	$0.14/sq. ft.; $50 minimum	$0.19/sq. ft.; $119 minimum
Certificate of Occupancy	$60	$173
Temporary Occupancy	$250	$271
Third and Subsequent Reviews	New	$102.00
Commercial Additions/Alterations		
Plan Review	$0.10/sq. ft.; $60 minimum	$0.11/sq. ft.; $154 minimum
Architectural Building Review (if applicable)	$100	$229
Plan Amendments or Alterations	$0.05/sq. ft.; $50 minimum	50% of initial review fee
Fire Prevention Code Plan Review > 10,000 square foot	$0.04/sq. ft.; $125 minimum	$0.04/sq. ft.; $180 minimum
Fire Prevention Code Plan Review Revision or Additional Plan Review	$125/review	$180
Building Construction/Alterations Inspection	$0.14/sq. ft.; $50 minimum	$0.15/sq. ft.; $119 minimum
Roof Repair or Replacement (shingles only)	$0.02/sq. ft.; $100 minimum	$0.11/sq. ft.; $119 minimum
Temporary Business Facility Inspection	$60	$73
Towers Review	$1.00/ft. of ht.; $150 minimum	$1.00/ft. of ht.; $150 minimum
Certificate of Occupancy Inspection	$60	$173
Temporary Occupancy Inspection	$250	$271
Third and subsequent reviews	New	$102.00
Pools, hot-tubs, spas, etc. - Commercial and Residential (All Use Groups)		
~~Plan Review~~	~~$0.10/sq. ft.; $100 minimum~~	
~~Pool (i.e. decks, walkways, alterations, etc.)~~	~~$0.20/sq. ft.; $60 minimum~~	
Pool Review – Residential	New	$229
Pool Review – Commercial	New	$290
Pool Inspections - Residential	New	$222
Pool Inspections – Commercial	New	$287
Third or subsequent review	New	50% of initial review fee
Commercial Trades (i.e. electrical, mechanical, plumbing, etc.)		
Plan Review if included with commercial new or alteration plan	No Charge	$0.07/sq. ft.; $70 minimum
Plan Review if submitted as stand-alone improvement	$0.04/sq. ft.; $50 minimum	$0.10/sq. ft.; $70 minimum
Plan or Permit Amendments	$0.04/sq. ft.; $50 minimum	50% of initial review fee
Third or subsequent review	New	50% of initial review fee
General Inspection for Building and Trades	$0.04/sq. ft.; $50 minimum	$0.07/sq. ft.; $70 minimum
Mechanical (In Addition to General Fee)		
Appliances or Equipment (i.e. boilers, cooling towers, generators, product dispensers, paint booths, freezers, heaters, fans, air compressors, pumps, kitchen hoods, etc.)	$60/item	$70/item
Mechanical Lifts (i.e. elevators, escalators, dumbwaiters, wheelchairs, etc.)	$60/level	$45/level
Electrical (In Addition to General Fee)		
Electric Unit Heaters (all types)	$60/unit	$70/unit
Heat Pumps, Central Air Conditioning	$60/unit	$70/unit
Generators < 100 kilovolt-amps (KVA)	$50/unit	$70/unit
Generators > 100 KVA	$100/unit	$124/unit
Exterior Pole Lighting	$60/1st pole $20/ea. add. pole	$70/1st pole; $16/each add. pole

Service	Current Fee	New Fee
Exterior Pole Lighting Groundworks	$50	$70
Electric Service Entrance < 600 amps - Permanent	$60	$137
Electric Service Entrance - between 600 and 1,200 amps - Permanent	$100	$157
Electric Service Entrance > 1,200 amps - Permanent	$200	$177
Electric Service Entrance > 600 volts - Permanent	$250	$197
Transformers < 100 KVA	$60	$124
Transformers > 100 KVA	$100	$149
Electric Motors	$10/unit	$70/unit
Low Voltage Wiring (i.e. data, cable TV, telephone, alarm, etc.)	$0.02/sq. ft.; $50 minimum	.03/sq. ft.; $70 minimum
Temporary Electrical Service (in lieu of general fee)	$50	$124
Temporary Electrical Wiring (in lieu of general fee)	$50	$124
Electric Sub Panels	$15/unit	$48/unit
Plumbing - (In Addition to General Fee)		
Utility Services - 5 foot Outside Building (water and sewer)	$60/unit	$64/unit
Building Sanitary and Storm Drain Piping	$100/floor	$113/floor
Water Distribution Piping - Within Building	$100/floor	$118/floor
Grease traps, separators, backflows, manholes, chemical treatment devices, food grinders, sewage pumps/ejectors, etc.	$60/unit	$70/Unit
Minor Plumbing Fixtures (includes sinks, showers, tubs, toilets, urinals, bidets, dishwashers, clothes washers, drinking fountains, yard/wall hydrants, backwater devices, roof, floor, and trench drains, etc.) - (unless listed elsewhere in fee schedule)	$5/unit; $50 minimum	$9/unit; $70 minimum
Major Plumbing Fixtures (includes emergency eyewash/shower stations, irrigation systems, water treatment units, clinical sinks, macerating toilets, specialized washer systems, water features/fountains and aquariums, ice makers, water heaters, baptisteries, etc.)	$60/unit	$70/unit
Directional Devices, Pressure Reducing Devices, etc.	$15/unit	$37/unit
Fuel Gas - (In Addition to General Fee)		
Base Fee	$60	$124
Per Appliance Hook-up	New	$16
Regulators	$10/unit	$29/unit
Fuel Tanks (including ASME)	$60/unit	$70/unit
Fuel Tank removal/abandonment	$60/unit	$70/unit
Fuel Pumps/Dispensers	$60/unit	$70/unit
Fire Protection Systems (Department of Fire and Rescue fees charged with Building Permit) **Plan Review Fees (All Use Groups)**		
Sprinkler System Limited Occupancy	$55/system	$55/system
Sprinkler System Light Hazard Occupancy - Minimum	$136 minimum	$136 minimum
1-100 Sprinkler Heads	$2.20/head	$2.20/head
101-300 Sprinkler Heads	$2.10/head	$2.10/head
301-500 Sprinkler Heads	$1.99/head	$1.99/head
501 + Sprinkler Heads	$1.78/head	$1.78/head
Sprinkler Ordinary Hazard and Rack Storage - minimum	$136 minimum	$136 minimum
1-100 Sprinkler Heads	$2.20/head	$2.20/head
101-300 Sprinkler Heads	$1.99/head	$1.99/head
301-500 Sprinkler Heads	$1.57/head	$1.57/head
More than 501 Sprinkler Heads	$1.26/head	$1.26/head
Sprinkler Extra Hazard - minimum	$136 minimum	$136 minimum
1-100 Sprinkler Heads	$1.68/head	$1.68/head
101-300 Sprinkler Heads	$1.57/head	$1.57/head

Service	Current Fee	New Fee
301-500 Sprinkler Heads	$1.47/head	$1.47/head
501 + Sprinkler Heads	$1.26/head	$1.26/head
National Fire Protection Association (NFPA) 13R System - minimum	$136 minimum	$136 minimum
1-100 Sprinkler Heads	$2.20/head	$2.20/head
101-300 Sprinkler Heads	$2.10/head	$2.10/head
301-500 Sprinkler Heads	$1.99/head	$1.99/head
501 + Sprinkler Heads	$1.78/head	$1.78/head
NFPA 13D System	$50/system	$50/system
Dry Pipe System	$52/dry pipe valve	$52/dry pipe valve
~~Sprinkler and Standpipe~~	~~$150/standpipe riser~~	Covered under standpipe
Standpipe System	$100/system	$100/system
Fire Pump (includes all risers)	$275/fire pump	$275/fire pump
Fire Alarm System	$5/device; $100 minimum	$5/device; $100 minimum
Underground Fire Service Line	$150/unit	$150/unit
~~Commercial Kitchen Hood Suppression System~~ Other Fire/Life Safety System	$200/system	$200/system
Carbon Dioxide Extinguishing System	$110/system	$110/system
Clean Agent Extinguishing System	$100/system	$100/system
Dry Chemical System	$100/system	$100/system
Wet Chemical System	$100/system	$100/system
~~Paint Spray Booths~~	~~$200/system~~	Covered under Dry Chemical System
Inspection Fees (All Use Groups)		
Inspection by Building Official	$0.02/sq. ft.; $50 minimum	$0.02/sq. ft.; $50 minimum
Inspection of Fire and Life Safety Systems - (800 series in Hansen)	$200/inspection	$200/inspection
Re-Inspection of Fire and Life Safety Systems (additional inspections)	$200/re-inspection	$200/re-inspection
Miscellaneous Permits		
Office Trailers Review	$100	$100
Office Trailers Inspection	$100	$100
~~Tents~~	~~$60~~	
Demolition Review	$60	$60
Demolition Inspection	$60	$60
Home Business Review	$60	$154
Home Business Inspection	$60	$60
Alternative Energy Systems Review (i.e. solar, wind, geothermal, etc.)	$100	$100
Alternative Energy Systems Inspection	$50	$50
Ramps, Docks etc. Review	$0.05/sq. ft.; $50 minimum	$0.05/sq. ft.; $50 minimum
Ramps, Docks etc. Inspection	$0.20/sq. ft.; $50 minimum	$0.20/sq. ft.; $50 minimum
Retaining Walls and Bulkheads Review	$60	$60
Retaining Walls and Bulkheads Inspections	$0.80/lin. ft.; $50 minimum	$0.80/lin. ft.; $50 minimum
Equipment Installation (i.e. generators, pumps etc.)	$60	$60
Zoning - Department of Planning and Zoning - Fee Charged with Permit		
Residential New Zoning Permit	$100	$100
Residential Change Zoning Permit	$70	$70
Commercial Zoning Permit Minor Development	$125	$125
Commercial Zoning Permit Major Development	$250	$250
Sign Permit	$120 + $2/sq. ft.	$120 + $2/sq. ft.
Administrative Fees (All Use Groups)		

Service	Current Fee	New Fee
Building Code, Fire Code, Property Maintenance, and Amusement Device Appeals - (non- refundable if withdrawn by applicant, refundable upon applicant's successful appeal)	$500/appeal	$500/appeal
Permit Information Changes and Refunds	$25/permit	$25/permit
Administrative	$25/permit	$25/permit
Stop Work Orders and Violation Notices	$200/event	$200/event
Re-Inspection Fees - per re-inspection per trade (except fire) - one free re-Inspection	$60	$98
Approval for Third Party Inspectors (includes access to County IWR)	$250/set-up (non-refundable)	$250/set-up (non-refundable)
After Hours and Week-End Inspections (in addition to normal fees) - 2 hour minimum	$75/hour; $150 minimum	$75/hour; $150 minimum
Record Research, Reports, Documents, Verifications, etc. (estimated total fee payable in advance)	$40/hour (non-refundable)	$40/hour (non-refundable)
Mailed or Faxed Documents, Letters, Reports, Occupancy Reports etc.	$2/page (non-refundable)	$2/page (non-refundable)
Photocopies	$0.25/page	$0.25/page
Fees for Amusement Devices shall be in Accordance with State Regulations	State of Virginia Regulations	State of Virginia Regulations
Fees may be Waived at the Discretion of the Building Official when such work is being performed by a non-profit or governmental organization for other than them.	Building Official Discretion	Building Official Discretion
State Levy on Total Building Permit Fees (including Fire Protection Permits)	2%	2%
Refunds for Voided Permits shall be prorated based on percentage of inspections completed. Refund request shall be submitted in writing.	Prorated	Prorated
Re-Instatement of Expired or Rescinded Permit	$50	$50
Elevator Certificate Renewal	$50	$50
Extension of Permit	$50	$50
Technology Service Fee	2.75% off all other fees	2.75% off all other fees
ENVIRONMENTAL - Erosion and Sediment Control, Stormwater Management, and Chesapeake Bay Preservation Area		
Grading Permit		
Erosion and sediment Control Inspection - per disturbed acre or portion thereof	$600/dist. ac.; $600 minimum; $1000 annual renewal	$600/dist. ac.; $600 minimum; $1000 annual renewal
Stormwater Inspection (construction inspection of Stormwater Management BMP, storm sewers, and stormwater conveyance channels located outside VDOT right-of- way	2% of total approved amount of security for stormwater facilities and stormwater drainage systems	2% of total approved amount of security for stormwater facilities and stormwater drainage systems
Virginia Stormwater Management Program (VSMP) Permit - * 28% Portion of fees listed below must be returned to Department of Environmental Quality in accordance with State Regulations		
Sites > 2,500 Square Feet and < 1 Acre *	$290; $20/modification or transfer; $50/annual maintenance	$290; $20/modification or transfer; $50/annual maintenance
Sites > 1 Acre and < 5 Acres *	$2,700; $200/modification or transfer; $400/annual maintenance	$2,700; $200/modification or transfer; $400/annual maintenance
Sites > 5 Acres and < 10 Acres *	$3,400; $250/modification or transfer; $500/annual maintenance	$3,400; $250/modification or transfer; $500/annual maintenance

Service	Current Fee	New Fee
Sites > 10 Acres and < 50 Acres *	$4,500; $300/modification or transfer; $650/annual maintenance	$4,500; $300/modification or transfer; $650/annual maintenance
Sites > 50 Acres and < 100 Acres *	$6,100; $450/modification or transfer; $900/annual maintenance	$6,100; $450/modification or transfer; $900/annual maintenance
Sites > 100 Acres *	$9,600; $700/modification or transfer; $1,400/annual maintenance	$9,600; $700/modification or transfer; $1,400/annual maintenance
Building Permit - Environmental Review		
Residential Lot Grading - Plan Review	$300	$300
Residential Lot Grading - Inspection	$300	$300
Residential Lot Inspection - VSMP	$209	$209
Commercial - Landscaping Inspection	$100/building permit	$100/building permit
Commercial and Residential - New - Chesapeake Bay Preservation Act (CBPA)	$75/building permit review	$75/building permit review
Commercial and Residential - Change - CBPA Building Permit Review	$25/building permit review	$25/building permit review
Stormwater Best Management Practice (BMP) Maintenance Inspection by County Staff - per BMP facility		
Stormwater Ponds (i.e. retention, extension, detention, and detention facilities etc.)	$300	$300
Filtration/Infiltration Facilities (i.e. bioretention, bioinfiltration, infiltration trench, constructed wetlands, sand filter, dry well system, pourous and permeable pavement systems, tree box filter, and vegetated roofs etc.)	$75	$75
Level Spreaders, filter strips, vegetated/grassed swales, manufactured facilities, and check damns etc.	$50	$50
Onlot Low Impact Development (LID) Facilities (i.e. rain gardens, rain barrels, and dry wells etc.) Privately owned BMP facilities located on individual residential lots	N/A	N/A
County Staff Review of Owner BMP Maintenance Inspection Report prepared by Registered Design Professional	$50	$50
Major Water Quality Impact Review	$500	$500
Resource Protected Area (RPA) Waiver Request	$200	$200
RPA Mitigation/Restoration Plan	$200	$200
Securities - Developer		
Securities Contract Management	$550	$550
Security Reduction	$325	$325
Replacement of Agreement	$500	$500
Substitution of Security	$350	$350
Security Contract Extensions	$300	$300
Security Default Action	$600	$600
Report Requests	$75	$75
Securities - Individual Building Lot Security Fees		
Management	$175/building lot	$175/building lot
Substitution	$125	$125
Report Requests	$75	$75
Individual Lot Security (single family home)	$2,500	$2,500

Service	Current Fee	New Fee
Individual Lot Security (townhouse)	$500	$500
Utilites - Fee charged with permit		
Water Meter Set	New	$60.00
Sewer Lateral	New	$60.00
Permenant Water Meter	New	$60.00

EXHIBIT B - PLANNING AND ZONING FEE SCHEDULE
EFFECTIVE NOBEMBER 1, 2024

Service	Current Fee	New Fee
Long Range		
Conditional Use Permit (CUP)	**$9,750**	**$11,040**
General Fee >5 Acres	$125/acre over 5	$210/acre over 5
Fire	$95	$180
Utilities	$95	$270
Transportation	$120	$340
Traffic Impact Analysis <1,000 VPD	$200	$200
Traffic Impact Analysis 1,000+ VPD	$400	$400
Notifications	$6.48/adjacent property	$383 (total)
Conditional Use Permit - Minor Amendment	**$6,190**	**$7,370**
Notifications	$6.48/adjacent property	$383 (total)
Conditional Use Permit - Minor Amendment (when submitted with minor proffer amendment)	**$3,095**	**$3,095**
Notifications	$6.48/adjacent property	$383 (total)
Standard Reclassification		
Base Fee <5.0 acres	**$4,375**	**$3,340**
Base Fee 5.0+ acres	**$12,500**	**$12,860**
General Fee >5 Acres	$125/acre over 5	$350/acre over 5
Fire	$125	$180
Utilities	$215	$420
Transportation	$200	$390
Traffic Impact Analysis <1,000 VPD	$200	$200
Traffic Impact Analysis 1,000+ VPD	$400	$400
Notifications	6.48/adjacent property	$383 (total)
Reclassification - Planned Development	**$15,000**	**$16,200**
General Fee >75 Acres	$25/acre over 75	$24/acre over 75
Fire	$125	$180
Utilities	$215	$420
Transportation	$200	$390
Traffic Impact Analysis <1,000 VPD	$200	$200
Traffic Impact Analysis 1,000+ VPD	$400	$400
Notifications	$6.48/adjacent property	$383 (total)
Proffer Amendment	**$10,000**	**$8,350**
General Fee >5 Acres	$25/acre over 5	$25/acre over 5
Notifications	$6.48/adjacent property	$383 (total)
Proffer Amendment - Minor	**$6,190**	**$5,740**
Notifications	$6.48/adjacent property	$383 (total)
Proffer Amendment - Planned Development	**$10,000**	**$10,000**
General Fee >75 Acres	$25/acre over 75	$33/acre over 75
Notifications	$6.48/adjacent property	$383 (total)
Proffer Amendment - Minor (when submitted with minor CUP)	**$3,095**	**$3,095**
Notifications	$6.48/adjacent property	$383 (total)
Comprehensive Plan Amendment (<100 acres)	**$500**	**$1,810**
Comprehensive Plan Amendment (100+ acres)	**$1,000**	**$2,770**
Comprehensive Plan Compliance Review	**$300**	**$1,820**
Development Review		
Cluster Concept Plan	**$250**	**$2,780**
Per-Lot	$5/lot	$90/lot
E&S/SWM	$0	$460
Utilities	$400	$640
Transportation	$0	$600

Service	Current Fee	New Fee
Preliminary Subdivision Plan	**$8,250**	**$4,820**
Per-Lot	$125/lot	$90/lot
E&S/SWM	$1,200	$1,500
Utilities	$550	$640
Fire		
1-5 Lots	$75	$120
6-30 Lots	$100	$240
31-100 Lots	$175	$360
101-300 Lots	$275	$480
301+ Lots	$275 + $1.50 per lot over 300	$480 + $1.50 per lot over 300
Mapping & Geographic Information	$0	$30/lot
Transportation	$450	$600
Third and Subsequent Reviews	**$3,200**	**$820**
E&S/SWM	$1,200	$800
Utilities	$180	$240
Fire	$125	$120
Transportation	$160	$120
Preliminary Subdivision Plan - Technical Change	**$500**	**$1,830**
E&S/SWM	$0	$220
Subdivision Construction Plan	**$9,500**	**$4,390**
General	$625/impervious acre	$755/impervious acre
E&S/SWM	$2,200	$4,760
Utilities	$845	$3,710
Utility Pump Stations	$1,000/pump station	$1,000/pump station
Fire		
Fire Lane	$200	$0
1-5 Lots	$200	$120
6-30 Lots	$300	$240
31-100 Lots	$400	$360
101-300 Lots	$600	$480
301+ Lots	$600 + $2.50 per lot over 300	$600 + $2.50 per lot over 300
Transportation	$500	$600
Mapping & Geographic Information	$0	$30/lot
Third and Subsequent Reviews	**$3,200**	**$900**
E&S/SWM	$1,200	$2,370
Utilities	$305	$910
Fire	$125	$120
Transportation	$160	$120
Subdivision Construction Plan - Revision	**$4,500**	**$3,100**
E&S/SWM	$1,200	$1,200
Utilities	$490	$2,040
Fire	$125	$125
Transportation	$160	$300
Third and Subsequent Reviews	**$0**	**$850**
E&S/SWM	$1,200	$1,200
Utilities	$240	$460
Fire	$125	$125
Transportation	$160	$60
Major Site Plan	**$7,400**	**$5,600**
General	$625/impervious acre	$755/impervious acre
E&S/SWM	$3,300	$1,760
Utilities	$850	$3,390
Fire		
Fire Lane	$200	$0
Less Than 1 Disturbed Acre	$250	$120
1-5 Disturbed Acres	$350	$360
Greater Than 5 Disturbed Acres	$350 + $75 per disturbed acre over 5	$720 + $60 per disturbed acre over 5
Transportation	$475	$600
Building	$0	$95
Mapping & Geographic Information	$0	$40/lot

Service	Current Fee	New Fee
Third and Subsequent Reviews	**$3,100**	**$1,000**
E&S/SWM	$1,700	$880
Utilities	$240	$700
Fire	$125	$120
Transportation	$160	$120
Major Site Plan - Major Revision	**$4,500**	**$3,620**
E&S/SWM	$1,700	$830
Utilities	$365	$1,280
Fire	$125	$125
Transportation	$160	$300
Third and Subsequent Reviews	**$0**	**$850**
E&S/SWM	$1,700	$410
Utilities	$180	$620
Fire	$125	$125
Transportation	$160	$60
Major Site Plan - Minor Revision	**$2,100**	**$2,160**
E&S/SWM	$1,700	$410
Utilities	$365	$1,280
Fire	$125	$125
Transportation	$160	$300
Third and Subsequent Reviews	**$0**	**$480**
E&S/SWM	$1,700	$210
Utilities	$180	$620
Fire	$125	$125
Transportation	$160	$60
Major Site Plan - Building Addition Only	**$4,500**	**$0**
E&S/SWM	$1,700	$0
Utilities	$365	$0
Fire	$125	$0
Transportation	$160	$0
Third and Subsequent Reviews	**$3,100**	**$0**
E&S/SWM	$1,700	$0
Utilities	$240	$0
Fire	$125	$0
Transportation	$160	$0
Infrastructure Plan	**$3,825**	**$3,270**
E&S/SWM	$1,200	$1,310
Utilities	$600	$1,350
Transportation	$400	$600
Third and Subsequent Reviews	**$1,300**	**$850**
E&S/SWM	$550	$590
Utilities	$160	$120
Transportation	$160	$120
Major Grading Plan	**$7,300**	**$2,680**
E&S/SWM	$2,400	$1,840
Utilities	$430	$400
Third and Subsequent Reviews	**$3,150**	**$570**
E&S/SWM	$1,200	$880
Utilities	$180	$120
Minor Grading Plan	**$2,450**	**$1,350**
E&S/SWM	$0	$1,840
Utilities	$430	$400
Third and Subsequent Reviews	**$1,200**	**$440**
E&S/SWM	$1,200	$880
Utilities	$180	$120

Service	Current Fee	New Fee
Minor Site Plan	**$1,630**	**$2,080**
E&S/SWM	$0	$780
Third and Subsequent Reviews	**$650**	**$400**
E&S/SWM	$0	$420
Minor Site Plan - Revision	**$900**	**$1,420**
E&S/SWM	$0	$290
Major Subdivision Plat	**$1,975**	**$2,260**
Per-Lot	125/lot	$90/lot
E&S/SWM	$0	$240
Mapping & Geographic Information	$34/lot	$60/lot
Utilities	$400	$240
Transportation	$310	$440
Commissioner of the Revenue	$0	$130
Third and Subsequent Reviews	**$1,050**	**$540**
Per-Lot	$65/lot	$50/lot
E&S/SWM	$0	$120
Utilities	$95	$120
Transportation	$100	$170
Commissioner of the Revenue	$0	$60
Major Subdivision Plat - Revision	**$4,500**	**$1,700**
Minor Subdivision Plat	**$1,500**	**$1,700**
Per-Lot	$125/lot	$130/lot
E&S/SWM	$0	$240
Mapping & Geographic Information	$34/lot	$40/lot
Utilities	$220	$240
Transportation	$310	$290
Commissioner of the Revenue	$0	$130
Third and Subsequent Reviews	**$600**	**$520**
Per-Lot	$65/lot	$60/lot
E&S/SWM	$0	$120
Utilities	$95	$120
Transportation	$100	$170
Commissioner of the Revenue	$0	$60
Minor Subdivision Plat - Revision	**$900**	**$1,320**
Family Subdivision Plat	**$1,150**	**$1,620**
E&S/SWM	$0	$240
Utilities Fee	$180	$120
Transportation	$0	$150
Mapping & Geographic Information	$20/lot	$40/lot
Commissioner of the Revenue	$0	$130
Third and Subsequent Reviews	**$550**	**$300**
E&S/SWM	$0	$120
Utilities Fee	$95	$120
Transportation	$0	$60
Commissioner of the Revenue	$0	$60
Boundary Line Adjustment Plat	**$750**	**$1,630**
E&S/SWM	$0	$240
Utilities	$160	$120
Transportation	$0	$150
Mapping & Geographic Information	$20/lot	$40/lot
Commissioner of the Revenue	$0	$130
Third and Subsequent Reviews	**$350**	**$310**
E&S/SWM	$0	$120
Utilities	$95	$120
Transportation	$0	$60
Commissioner of the Revenue	$0	$60

Service	Current Fee	New Fee
Consolidation Plat	**$150**	**$1,320**
E&S/SWM	$0	$240
Utilities	$0	$120
Transportation	$0	$150
Dedication Plat	**$1,150**	**$1,860**
E&S/SWM	$0	$240
Utilities	$240	$240
Transportation	$310	$170
Third and Subsequent Reviews	**$500**	**$440**
E&S/SWM	$0	$120
Utilities	$95	$120
Transportation	$100	$110
Vacation Plat	**$150**	**$150**
Subdivision Ordinance - Waiver	**$750**	**$1,650**
Per Ordinance Section	$500	$410
Subdivision Ordinance - Appeal to BOS	**$2,250**	**$1,650**
Waiver to Board of Supervisors	**$2,250**	**$1,650**
Per Ordinance Section	$850	$410
Departure from Design Standards	**$2,250**	**$2,610**
Per Departure Section	$850	$380
Alternative Compliance	**$300**	**$1,000**
Landscaping Administrative Waiver	**$0**	**$665**
Street Name Change	**$2,500**	**$2,140**
Transfer of Development Rights (TDR)		
Determination of Development Rights	$50	$50
Issuance of TDR Certificate & Severance of Develoment Rights	$180	$180
Ownership Transfer of TDR Certicate	$85	$85
Zoning		
Certificate of Appropriateness	**$25**	**$600**
BZA Variance		
Individual Residential Property	**$600**	**$4,740**
Other	**$1,375**	**$4,740**
BZA Special Exception		
Individual Residential Property	**$600**	**$4,740**
Other	**$1,375**	**$4,740**
BZA Appeal		
Individual Residential Property	**$600**	**$5,710**
Other	**$1,900**	**$5,710**
Zoning Administrator Written Determination	**$390**	**$2,800**
Notifications	$6.48/adjacent property	$383 (total)
Zoning Verification Letter	**$100**	**$530**
DMV Certification	**$50**	**$870**
DMV Verification Letter	**$100**	**$0**
Lighting Administrative Waiver	**$0**	**$890**

Service	Current Fee	New Fee
Environmental		
Slip Sheets	**$0**	**$180**
Stormwater As-Built	**$0**	**$1,020**
As-Built Reduction Request	**$0**	**$540**
Stormwater Management Exception Request	**$450**	**$0**
Floodplain Study	**$2,000**	**$3,130**
Wetlands Permit		
No Board Hearing	$675	$250
Board Hearing	$675	$2,080
Perennial Flow Review		
<20 Acres	$500	$460
20+ Acres	$750	$850
Perennial Flow Evaluation (Family Subdivision)	**$500**	**$850**
Water Quality Impact Assessment		
Major	$500	$850
Minor	$0	$460
Chesapeake Bay Board Public Hearing	**$0**	**$2,080**
Sand Dunes Board Public Hearing	**$0**	**$2,080**
Vegetation Removal	**$0**	**$260**
CBPA Administrative Waiver	**$200**	**$460**
Staff RPA Mitigation/Resoration Plan <5,000 sq ft	**$200**	**$520**
CBPA Special Exception		
Residential	$0	$260
Other	$0	$520
Development Services		
Right-of-Way Abandonment	**$4,500**	**$4,500**
Traffic Safety Request	**$65**	**$65**
As-Built Review		
Zoning	**$123**	**$980**
Stormwater	**$0**	**$1,020**
Utilities	**$0**	**$1,020**
Reduction Request		
Stormwater	**$0**	**$540**

R24-154

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on this the 2nd day of July, 2024:

MEMBERS:	VOTE:
Meg Bohmke, Chairman	Yes
Tinesha O. Allen, Vice Chairman	Yes
Deuntay T. Diggs	Yes
Darrell E. English	Yes
Monica L. Gary	Yes
Crystal L. Vanuch	Yes
Dr. R. Pamela Yeung	Yes

On motion of Ms. Allen, seconded by Mr. Diggs, which carried by a vote of 7 to 0, the following was adopted:

A RESOLUTION AUTHORIZING THE ADVERTISEMENT OF A PUBLIC HEARING TO CONSIDER THE REPEAL AND REPLACEMENT OF THE DEVELOPMENT SERVICES AND PLANNING AND ZONING FEE SCHEDULES

WHEREAS, the Board is authorized by the Virginia Code to set reasonable fees for building and land development services provided by the Departments of Development Services and Planning and Zoning; and

WHEREAS, the Board last amended the fee schedules for the Department of Development Services and the Department of Planning and Zoning by adopting Ordinance O17-14 on March 21, 2017; and

WHEREAS, the Board contracted with Matrix Consulting Group, LLC to review the Fee Schedules and provide recommend changes; and

WHEREAS, the Board desires to consider the repeal and replacement of the Fee Schedules pursuant to proposed Ordinance O24-16; and

WHEREAS, the Board desires to seek input from citizens and other stakeholders and is required to hold a public hearing, pursuant to the Virginia Code, prior to amending the Fee Schedules;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 2nd day of July, 2024, that the Interim County Administrator be and he hereby is authorized to advertise a public hearing to consider the Repeal and Replacement of the fee schedules for the Department of Development Services and the Department of Planning and Zoning pursuant to proposed Ordinance O24-16.

A Copy, teste:

F. Craig Meadows
Interim County Administrator

FCM:PJS:vss

Community Development Fee Schedule

Stafford County Board of Supervisors

September 17, 2024

- Introduction
  - Depts. of Planning & Zoning and Development Services
    - State & local regulatory requirements allow for the levy/collection of fees via Board-established Fee Schedule
      - “defray” the costs
    - Development helps pay for development

- History
  - Last Fee Schedule update - 2017
    - Previous versions in 2015, 2014, 2013 …
  - Process Review Study
    - Review current fee structure
      - Building / Planning & Zoning
    - Peer jurisdiction comparisons
      - Consultant recommendations
  - Present to CEDC and BOS
  - Community Outreach

- Strategy
  - Current Fees vs. Proposed Fees
  - Widely accepted “bottom-up” approach
    - User-fee Methodology
  - 100% cost recovery evaluation
    - Time estimates of services, staff interviews, data collection, etc.
      - Develop fully burdened hourly rates
    - Analyze cost recovery goals

- Impact
  - Reasonableness & Practicality
  - Building permits
    - Increases (amendments, trades, CO's)
    - New fees (re-reviews, re-inspections)
    - Decreases (USE changes)
  - Planning & Zoning applications
    - Cost of Service vs. Current Fee

- Fee Recommendation
  - Staff recommends approval
    - BZA Variance, Special Exception, Appeal, CoA remain unchanged
  - Effective November 1, 2024
  - 3-5 year Fee Schedule review
    - Economic factors, personnel, CPI

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
PUBLIC HEARINGS

Subject:
PLANNING AND ZONING; CONSIDER A PROPOSAL TO AMEND THE "STAFFORD COUNTY, VIRGINIA, COMPREHENSIVE PLAN 2016-2036 2021 5-YEAR UPDATE," ADOPTED ON NOVEMBER 16, 2021, AS LAST REVISED, TO CHANGE THE FUTURE LAND USE DESIGNATION AND URBAN SERVICES AREA LIMITS TO SUPPORT HIGHER DENSITY COMMERCIAL DEVELOPMENT ON AN APPROXIMATELY 262-ACRE PORTION OF TAX MAP PARCEL NO. 38-124 (PROJECT KNOWN AS COM23154932; STAFFORD TECHNOLOGY CAMPUS) PROPOSED RESOLUTION R24-187 (Approve) PROPOSED RESOLUTION R24-188 (Deny) **BACKGROUND SUMMARY:** APPROVES COMPREHENSIVE PLAN AMENDMENT.
Recommended Action:
Staff recommends approval of the Comprehensive Plan Amendment (COM23154932), pursuant to Resolution R24-187.
Committee/Commission Recommendation:
At its meeting on June 12, 2024, the Planning Commission voted 4-2 (1 absent) to recommend approval of the application.

Fiscal Impact:	**District:**
	Falmouth

Overview:
Consider a proposal to amend the “Stafford County, Virginia, Comprehensive Plan 2016-2036 2021 5-Year Update,” adopted on November 16, 2021, as last revised, regarding future land use designations to support higher density commercial and industrial development, on a portion of Tax Map Parcel No. 38-124 (Property). The proposed amendment would modify Chapter 3.0, “The Land Use Plan;” to amend the maps entitled Figure 3.1, “Urban Services Areas;” Figure 3.9, “Future Land Use;” and Figure 3.13, “Central Stafford Targeted Development Area”.
Discussion/Analysis:

The applicant is proposing to amend the future land use designation on the eastern portion of the Property from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area (USA) limits to incorporate the Property into the Urban Services Area. The purpose of the amendment is to support industrial development on the subject parcel, more specifically a data center campus.

The Property is currently zoned A-1, Agricultural and is undeveloped. The site is bisected by a high voltage power line corridor. The applicant is proposing to rezone the Property from the A-1 to M-2, Heavy Industrial zoning district to permit the data center campus. On June 12, 2024, the Planning Commission approved an associated Comprehensive Plan Compliance Review for the placement of up to six electric substations on the Property.

The General Development Plan (GDP) submitted with the concurrent zoning reclassification (RC23154931) depicts the site layout for the proposed development. The GDP contemplates 23 buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change. The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.

Detailed staff reports with complete analysis of the project prepared for the June 12, 2024 Planning Commission meeting is included in Attachment 9 and the staff report for the July 24, 2024 Planning Commission meeting is included in Attachment 12.

On June 12, 2024, the Commission recommended approval of the concurrent Comprehensive Plan Amendment application. On July 24, 2024, the Commission approved the concurrent Comprehensive Plan Compliance Review request determining the electric substations to be substantially in accord with the Comprehensive Plan. Resolution PCR24-13 is included in Attachment 8.

APPLICATION UPDATE:
A public hearing was held with the Board of Supervisors on August 20, 2024 and deferred to this meeting. The basis for the deferral was related to the concurrent zoning

reclassification application. The Board wanted time to consider new proffers that were submitted the day of the hearing. No changes were made to this application.

Attachments:

1. R24-187 Attachment 1.pln Proposed Resolution R24-187 STC (Approval)
2. R24-187 Attachment 2.pln Proposed Resolution R24-188 STC (Denial)
3. R24-187 Attachment 3.pln EXHIBIT A PROPOSED FIGURE 3.1 URBAN SERVICES AREA
4. R24-187 Attachment 4.pln EXHIBIT B PROPOSED FIGURE 3.9 FUTURE LAND USE MAP
5. R24-187 Attachment 5.pln EXHIBIT C PROPOSED FIGURE 3.13 CENTRAL STAFFORD TARGETED DEVELOPMENT AREA
6. R24-187 Attachment 6.pln 06-12-2024 PC Combined Packet
7. R24-187 Attachment 7.pln 06-12-24 PC Staff Presentation Slides
8. R24-187 Attachment 8.pln 06-12-24 PC Minutes_Stafford Technology
9. R24-187 Attachment 9.pln BOS Staff Presentation RC and COMP PLAN

Summary/Conclusion:

Staff recommends approval of the proposed amendments to the Comprehensive Plan to expand the Urban Services Area and amend the future land use designation on a portion of Tax Map Parcel No. 38-124 from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry, pursuant to proposed Resolution R24-187.

There are several positive aspects with this request. The proposed use is more compatible with the surrounding existing land uses. There are limited public services to support residential development that was originally approved for the site. The proposed extension of the USA is unlikely to lead to further extensions of water and/or sewer to other lands outside the Urban Services Area. The proposed use is more appropriate than the current use in the vicinity of the airport. Lastly, the corresponding zoning reclassification proposes to mitigate many of the anticipated impacts.

Strategic Priorities:

Economic Diversification

Reviewed By:

Rysheda McClendon, County Attorney (Legal Review Only)
Craig Meadows, Interim County Administrator

R24-187

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on this the 17th day of September, 2024:

MEMBERS:	VOTE:
Meg Bohmke, Chairman	
Tinesha O. Allen, Vice Chairman	
Deuntay T. Diggs	
Darrell E. English	
Monica L. Gary	
Crystal L. Vanuch	
Dr. R. Pamela Yeung	

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO AMEND THE "STAFFORD COUNTY, VIRGINIA, COMPREHENSIVE PLAN, 2016-2036, 2021 5-YEAR UPDATE," ADOPTED ON NOVEMBER 16, 2021, AS LAST REVISED (COMPREHENSIVE PLAN), CHAPTER 3, "THE LAND USE PLAN," TO CHANGE THE FUTURE LAND USE DESIGNATION AND URBAN SERVICES AREA LIMITS ON A PORTION OF TAX MAP PARCEL NO. 38-124, LOCATED IN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology LC (Applicant), submitted application COM23154932, requesting amendments to the Comprehensive Plan to modify Chapter 3, "The Land Use Plan," to amend the maps entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area" (collectively, the Maps), to change the future land use designation on a portion of Tax Map Parcel No. 38-124 (Property) from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area boundary to incorporate the Property into the Urban Services Area (collectively, the Proposed Amendments); and

WHEREAS, the Board desires to adopt the Proposed Amendments and Virginia Code § 15.2-2229 authorizes the Board to amend the Comprehensive Plan; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board desires to amend the Comprehensive Plan to adopt the Proposed Amendments, as identified in **Exhibit A**, **Exhibit B**, and **Exhibit C**, to this Resolution; and

WHEREAS, the Board finds that adoption of the Proposed Amendments is consistent with good planning practices;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that amendments to Chapter 3, "The Land Use Plan," of the "Stafford County, Virginia, Comprehensive Plan, 2016-2036, 2021 5-Year Update," adopted on November 16, 2021, as last revised, to amend the maps entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area" to change the future land use designation on a portion of Tax Map Parcel No. 38-124 from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area boundary to incorporate a portion of Tax Map Parcel No. 38-124 into the Urban Services Area, all as identified in **Exhibit A**, **Exhibit B**, and **Exhibit C** to this Resolution, be and hereby are adopted with all other portions of the Comprehensive Plan remaining unchanged.

WHA:MJZ:ss

R24-188

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on this the 17th day of September, 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO DENY A REQUEST TO AMEND THE "STAFFORD COUNTY, VIRGINIA, COMPREHENSIVE PLAN, 2016-2036, 2021 5-YEAR UPDATE," ADOPTED ON NOVEMBER 16, 2021, AS LAST REVISED (COMPREHENSIVE PLAN), CHAPTER 3, "THE LAND USE PLAN," TO CHANGE THE FUTURE LAND USE DESIGNATION AND URBAN SERVICES AREA LIMITS ON A PORTION OF TAX MAP PARCEL NO. 38-124, LOCATED IN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology LC (Applicant), submitted application COM23154932, requesting amendments to the Comprehensive Plan to modify Chapter 3, "The Land Use Plan," to amend the maps entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area" (collectively, the "Maps") to change the future land use designation on a portion of Tax Map Parcel No. 38-124 (Property) from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area boundary to incorporate the Property into the Urban Services Area, all as identified in **Exhibit A**, **Exhibit B**, and **Exhibit C**, to this Resolution (collectively, the "Proposed Amendments"); and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that adoption of the Proposed Amendments is inconsistent with good planning practices;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that the request made pursuant to Application COM23154932 be and it hereby is denied.

WHA:MJZ:vss

FIGURE 3.1

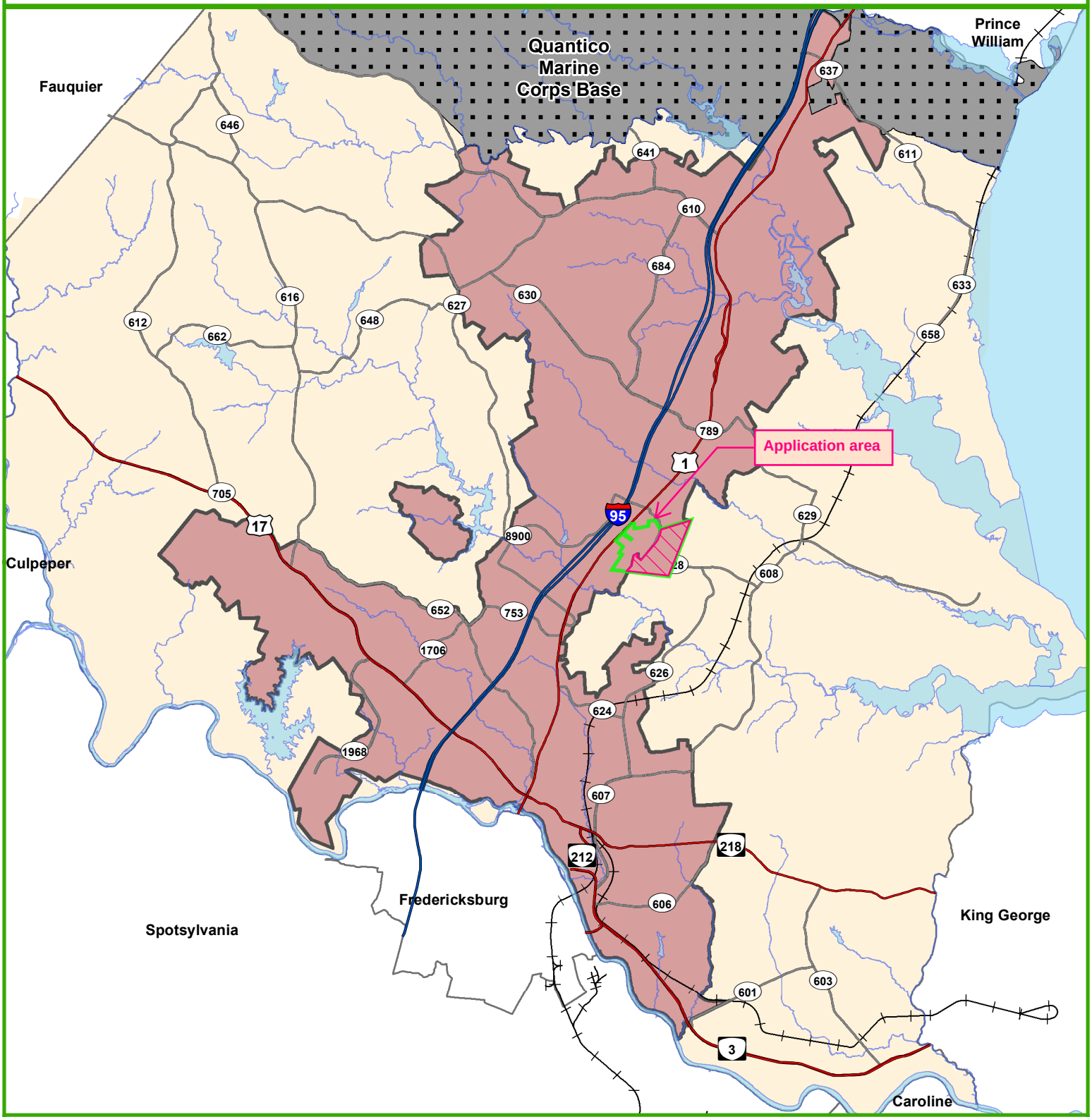
Urban Services Areas

Stafford County Comprehensive Plan

Stafford County, Virginia

September 8, 2021

EXHIBIT A



Legend :

Urban Services Area

Area to be added to Urban Services Area

0 4,700 9,400 18,800 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter3.1_UrbanServicesAreas.mxd

FIGURE 3.9

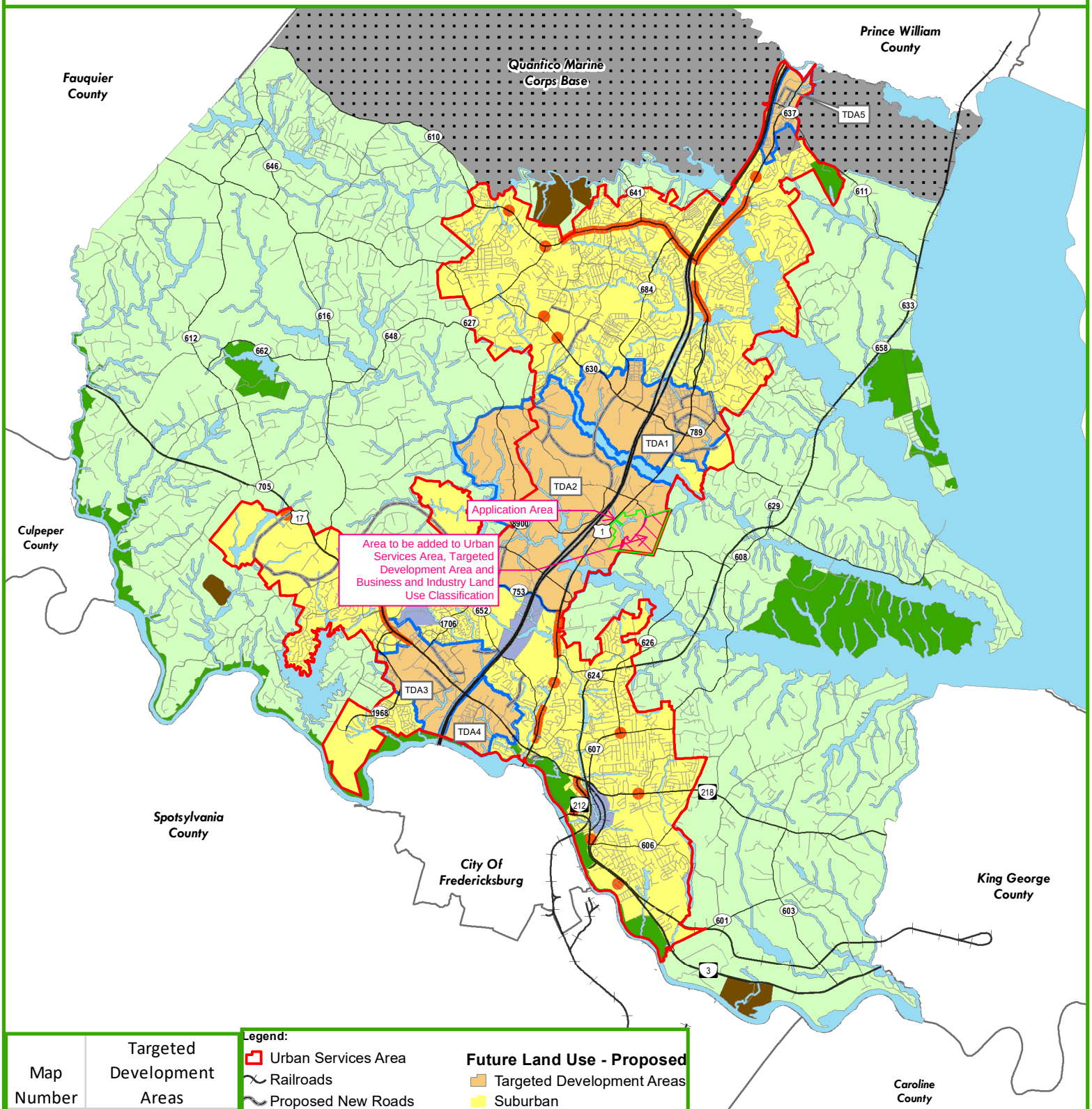
Future Land Use

Stafford County Comprehensive Plan

Stafford County, Virginia

October 19, 2021

EXHIBIT B



Map Number	Targeted Development Areas
TDA1	Courthouse
TDA2	Central Stafford
TDA3	Berea
TDA4	Falmouth Gateway
TDA5	Boswell's Corner

Legend:

- Urban Services Area
- Railroads
- Proposed New Roads
- Commercial Node
- Commercial Corridors
- Targeted Development Areas
- Area to be added to Urban Services Area, Targeted Development Area and Business and Industry Land Use Classification

Future Land Use - Proposed

- Targeted Development Areas
- Suburban
- Business and Industry
- Agricultural/Rural
- Mining
- Federal
- Resource Protection
- Parks

0 5,500 11,000 22,000 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter3.9_FutureLandUse.mxd

FIGURE 3.13

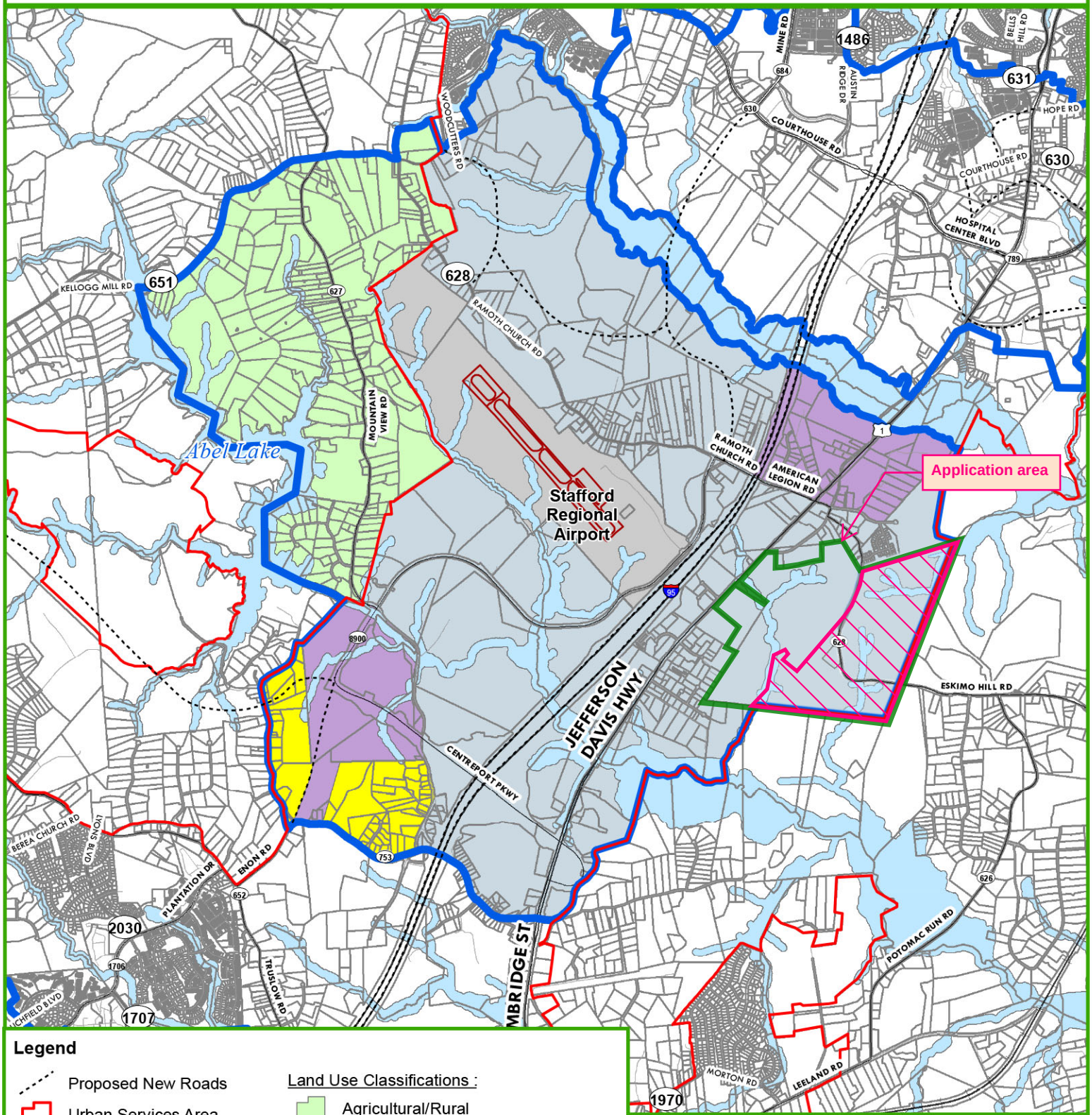
Central Stafford Targeted Development Area

Stafford County Comprehensive Plan

Stafford County, Virginia

September 8, 2021

EXHIBIT C



Legend

- Proposed New Roads
- Urban Services Area
- Targeted Development Areas
- Area to be added to Urban Services Area, Targeted Development Area and Business and Industry Land Use Classification

Land Use Classifications :

- Agricultural/Rural
- Business and Industry
- Mixed Use – Commercial/ Residential
- Residential
- Stafford Regional Airport

0 2,000 4,000 8,000 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

W:\users\gis\Olivia\Planning\ComprehensivePlan\CompPlan2021Revisions\Chapter3.13CentralStaffordBusinessTDA.mxd

Stafford County
Planning Commission Meeting
Agenda Item Report
Meeting Date: June 12, 2024
PUBLIC HEARINGS

Subject:
PLANNING AND ZONING; CONSIDER A PROPOSAL TO AMEND THE "STAFFORD COUNTY, VIRGINIA, COMPREHENSIVE PLAN 2016-2036 2021 5-YEAR UPDATE," ADOPTED ON NOVEMBER 16, 2021, AS LAST REVISED, REGARDING FUTURE LAND USE DESIGNATIONS TO SUPPORT HIGHER DENSITY COMMERCIAL DEVELOPMENT ON AN APPROXIMATELY 262-ACRE PORTION OF TAX MAP PARCEL NO. 38-124 (PROJECT KNOWN AS COM23154932; STAFFORD TECHNOLOGY CAMPUS) Proposed Resolution R24-187 **BACKGROUND SUMMARY:** Approves Comprehensive Plan amendment.
Committee/Commission Recommendation:

Fiscal Impact:	**District:**
	Falmouth

Overview:
Consider a proposal to amend the "Stafford County, Virginia, Comprehensive Plan 2016-2036 2021 5-Year Update," adopted on November 16, 2021, as last revised, regarding future land use designations to support higher density commercial and industrial development, on a portion of Tax Map Parcel No. 38-124 (Property). The proposed amendment would modify Chapter 3.0, "The Land Use Plan;" to amend the maps entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area".
Discussion/Analysis:
The applicant is proposing to amend the future land use designation on the eastern portion of the Property from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area (USA) limits to incorporate the Property into the Urban Services Area. The purpose of the amendment is to support industrial development on the subject parcel, more specifically a data center campus. The Property is currently zoned A-1, Agricultural and is undeveloped. The site is bisected by a high voltage power line corridor. The applicant is proposing to rezone the Property from the A-1 to M-2, Heavy Industrial zoning district to permit the data center campus. In addition, the applicant is seeking a Comprehensive Plan Compliance Review for the placement of up to six electric substations on the Property.

The General Development Plan (GDP) submitted with the concurrent zoning reclassification (RC23154931) depicts the site layout for the proposed development. The GDP contemplates 23 buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change. The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.

A detailed staff report and analysis is included in Attachment 1. The analysis includes an evaluation of how the amendment conforms with the Comprehensive Plan policy 2.2.3, regarding USA expansions, and consideration of land uses, transportation, utilities, and environmental impacts.

Attachments:

1. R24-187 Attachment 1.pln PC Staff Report Stafford Technology Campus
2. R24-187 Attachment 2.pln Comp Plan Impact Statement 9-11-23
3. R24-187 Attachment 3.pln Proposed Resolution R24-187 STS (APPROVED)
4. R24-187 Attachment 4.pln Proposed Resolution R24-188 STC (DENY)
5. R24-187 Attachment 5.pln EXHIBIT A PROPOSED FIGURE 3.1 URBAN SERVICES AREA
6. R24-187 Attachment 6.pln EXHIBIT B PROPOSED FIGURE 3.9 FUTURE LAND USE MAP
7. R24-187 Attachment 7.pln EXHIBIT C PROPOSED FIGURE 3.13 CENTRAL STAFFORD TARGETED DEVELOPMENT AREA
8. R24-187 Attachment 8.pln Utility Impact Assessment 9-11-23
9. R24-187 Attachment 9.pln Environmental Impact Analysis 9-11-23
10. R24-187 Attachment 10.pln APPLICATION Stafford Technology Campus

Summary/Conclusion:

Staff recommends approval of the proposed amendments to the Comprehensive Plan to expand the Urban Services Area and amend the future land use designation on a portion of Tax Map Parcel No. 38-124 from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry, pursuant to proposed Resolution R24-187.

Strategic Priorities:

Reviewed By:

Michael J. Zuraf, AICP, Director of Planning and Zoning

Board of Supervisors

Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica Gary
Crystal L. Vanuch
Dr. Pamela Yeung

F. Craig Meadows
Interim County Administrator

PLANNING COMMISSION STAFF REPORT

Meeting Date: June 12, 2024

Project: ***COM23154932; Comprehensive Plan Amendment – Stafford Technology Campus***

Request: The Planning Commission is to consider a proposal to amend the "Stafford County, Virginia, Comprehensive Plan 2016-2036 2021 5-Year Update," adopted on November 16, 2021, as last revised, regarding future land use designations to support higher density commercial and industrial development, on a portion of Tax Map Parcel No. 38-124 (Property). The proposed amendment would modify Chapter 3.0, "The Land Use Plan;" to amend the maps entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area".

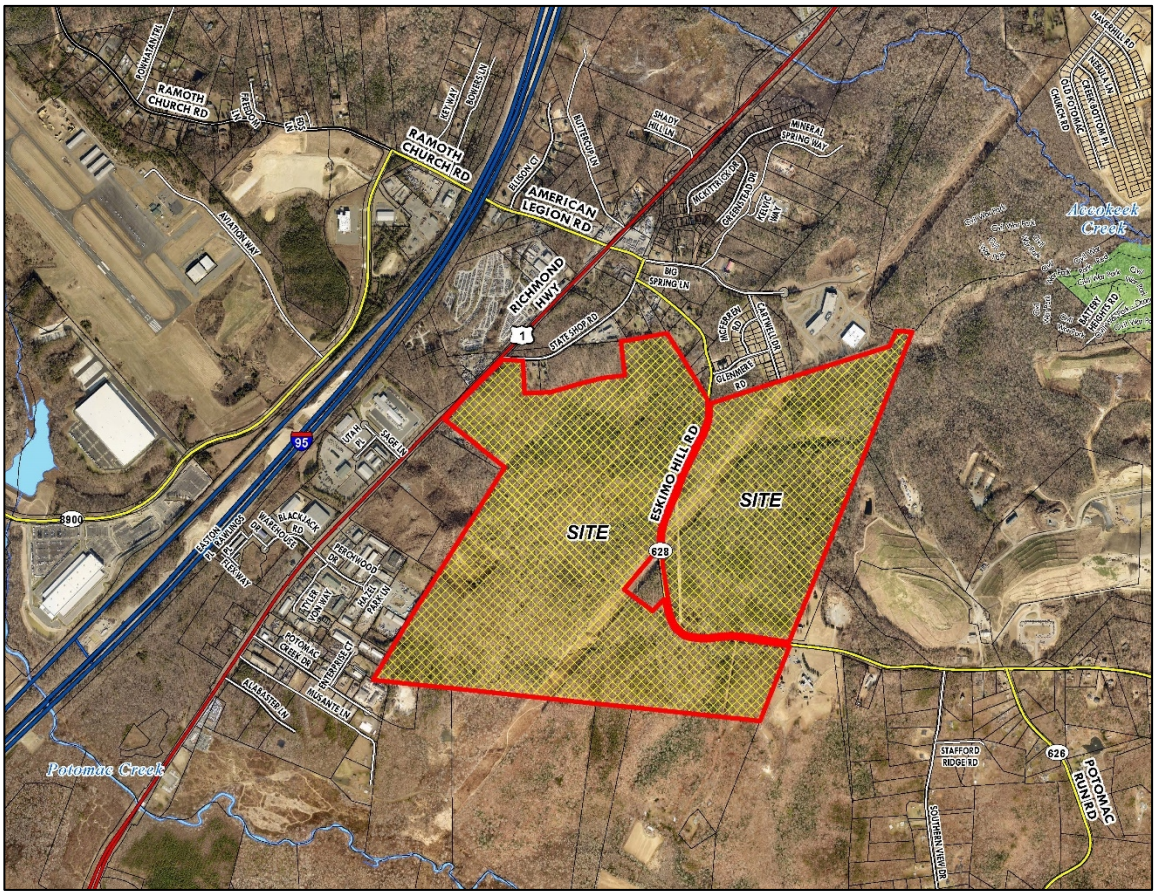
Tax Map Parcel: 38-124 (portion)	**Acreage:** 476.61 Acres (total parcel size), 262 Acres (amendment area)
Location: East side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road (Falmouth Election District)	**Application Date:** March 2**,** 2023
Advertisement Dates: May 29, 2024 and June 5, 2024	**Time Limit:** N/A
Applicant: Stafford Technology, LC	**Owner:** Stafford Technology, LC
Agent/Primary Contact: Jonelle Cameron & Jessica Pfeiffer, Walsh, Colucci, Lubeley, & Walsh PC	
Future Land Use Designation (Existing): Agricultural / Rural	**Future Land Use Designation (Proposed):** Central Stafford Targeted Development Area -- Business and Industry Future Land Use
Staff Recommendation: Approval	**Staff Project Manager:** Michael Zuraf

STAFF REPORT SECTIONS

LOCATION
PROJECT SUMMARY
STAFF ANALYSIS
SUMMARY OF POSITIVE AND NEGATIVE FEATURES
RECOMMENDATION
APPENDIX – SITE CHARACTERISTICS, ZONING, & FUTURE LAND USE

LOCATION:

Location: The site is located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road.



Location Map

PROJECT SUMMARY:
The applicant is proposing to amend the future land use designation on the eastern portion of Tax Map Parcel No. 38-124 (Property) from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area limits to incorporate the Property into the Urban Services Area. The purpose of the amendment is to support industrial development on the subject parcel, more specifically a data center campus.

The Property is currently zoned A-1, Agricultural and is undeveloped. The site is bisected by a high voltage power line corridor. The applicant is proposing to rezone the Property from the A-1 to M-2, Heavy Industrial zoning district to permit the data center campus. In addition, the applicant is seeking a Comprehensive Plan Compliance Review for the placement of up to six (6) electric substations on the Property.

The GDP submitted with the concurrent zoning reclassification depicts the site layout for the proposed development. The GDP contemplates twenty-three (23) buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change. The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.



Concept Plan

PROPOSED MAP AMENDMENTS

The following are the proposed map amendments being requested as part of this comprehensive plan amendment.

Figure 3.1: Urban Services Area Map

The following image highlights the proposed expansion of the USA boundary on Figure 3.1. The expansion area is represented by red hatched area.

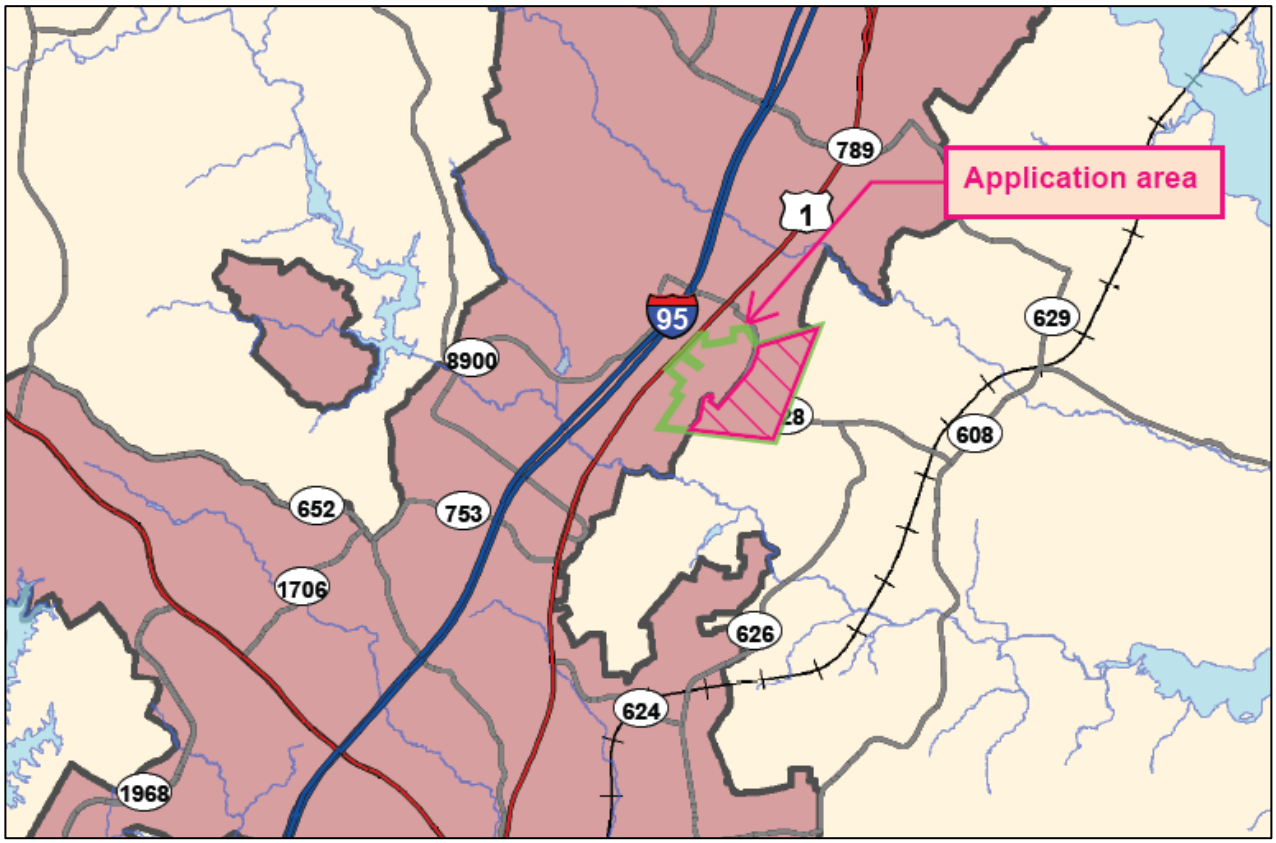
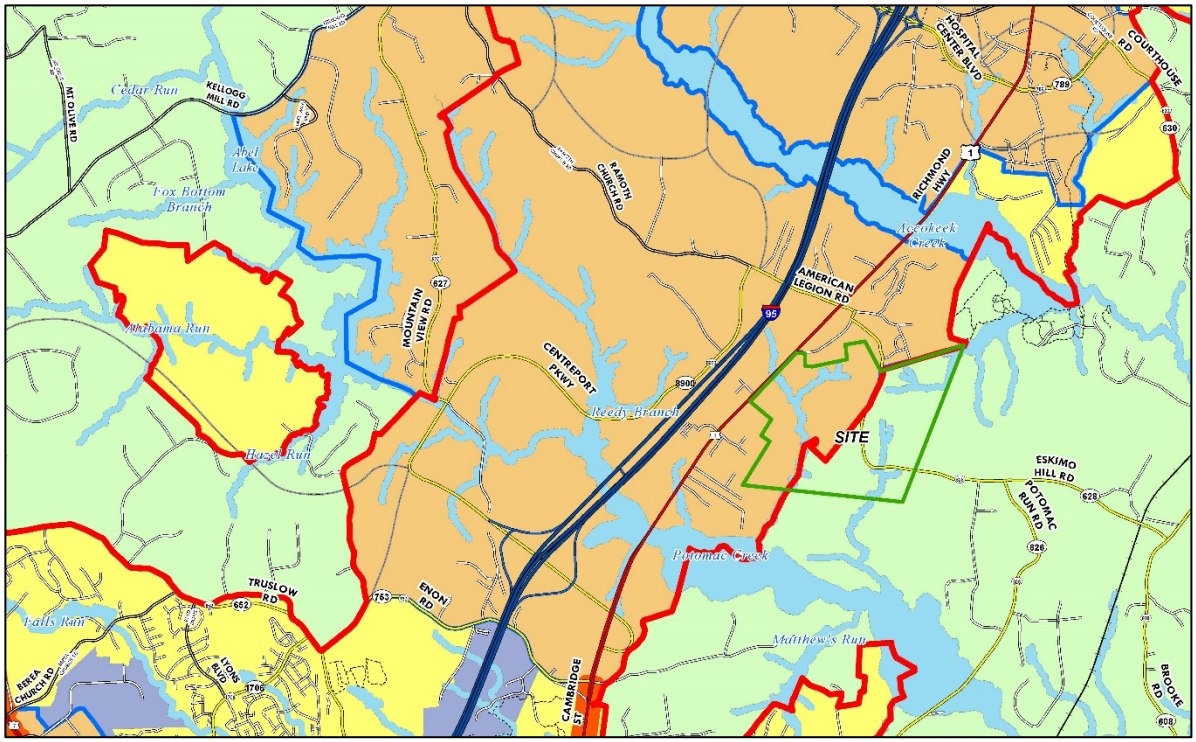


Figure 3.9: Future Land Use Map

CURRENT FIGURE 3.9 MAP



PROPOSED FIGURE 3.9 MAP

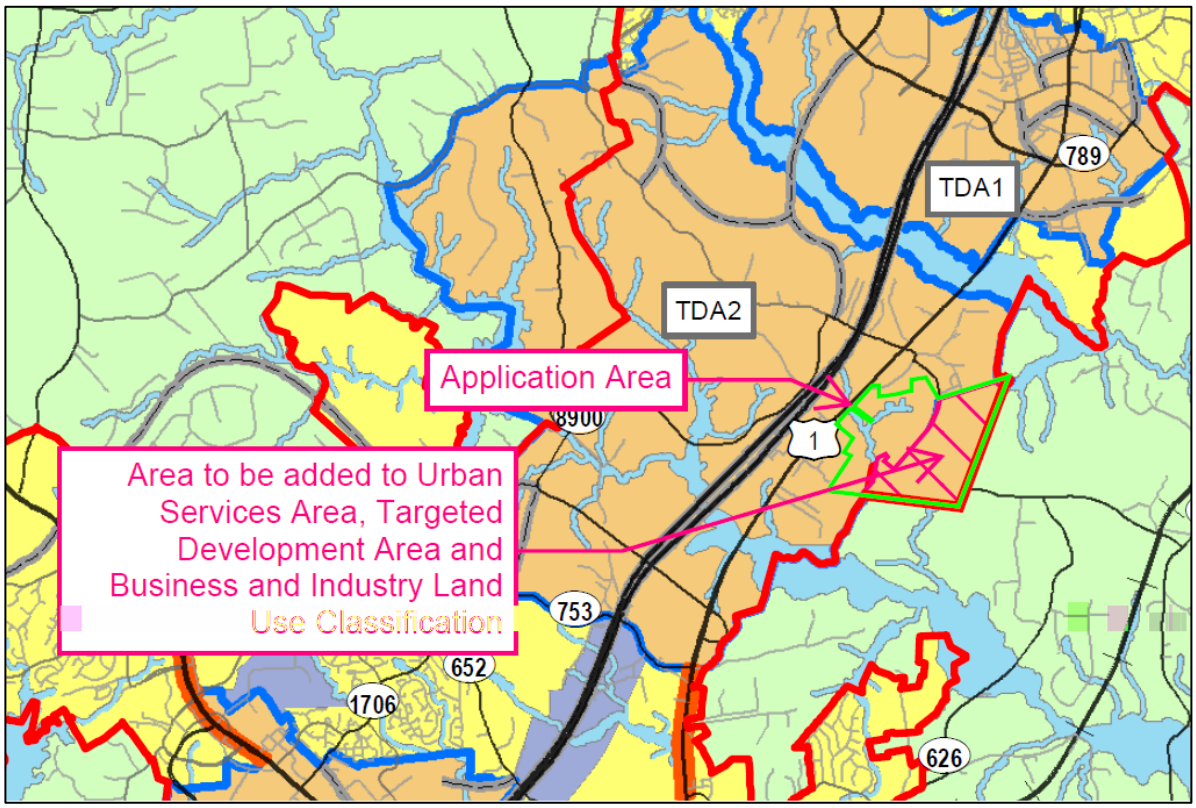
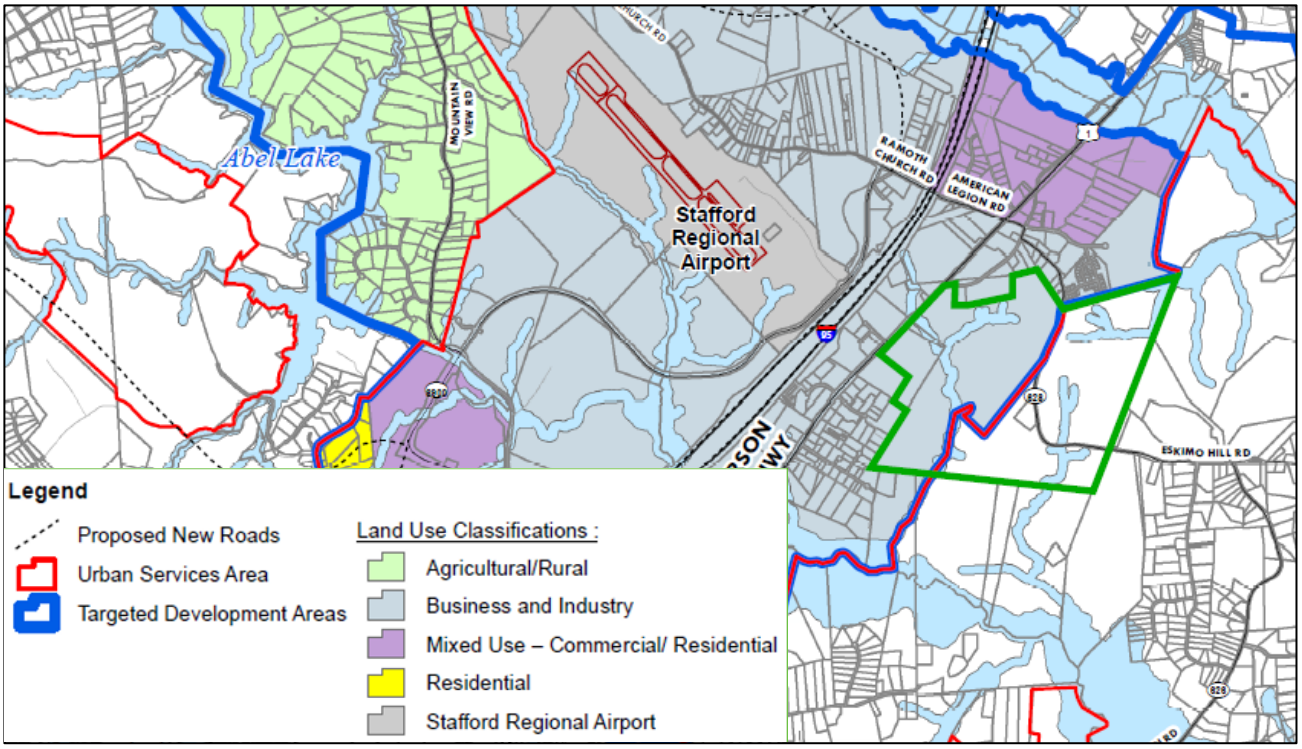
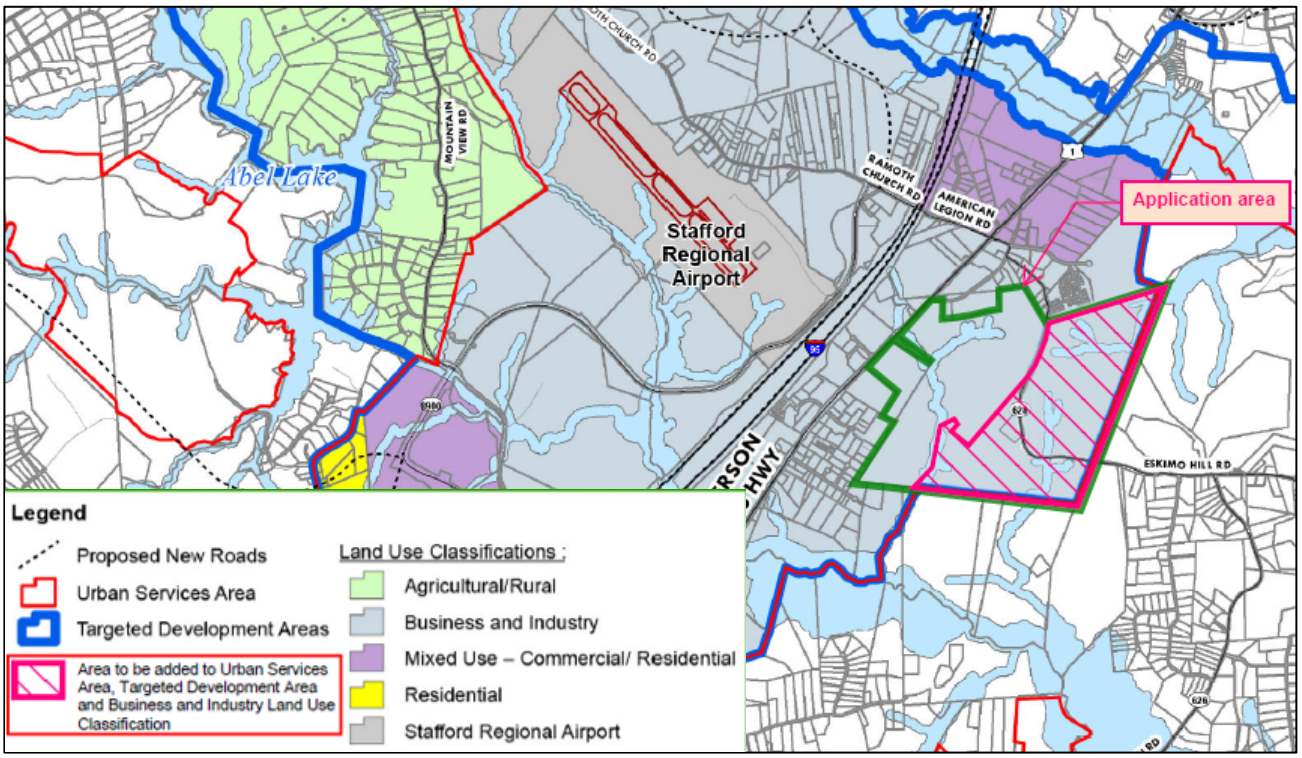


Figure 3.13: Central Stafford Targeted Development Area

CURRENT FIGURE 3.13 MAP



PROPOSED FIGURE 3.13 MAP



STAFF ANALYSIS

The analysis includes an evaluation of how the amendment conforms with the Comprehensive Plan policy 2.2.3, regarding USA expansions, and consideration of land uses, transportation, utilities, and environmental impacts.

Comprehensive Plan Policy regarding expansions to the Urban Services Area (USA) boundaries.
Policy 2.2.3 addresses expansions to the USA and provides a series of criteria that should be met prior to approval of expansions. The following *(in italics)* is the Policy from the Comprehensive Plan, followed by staff commentary for each criterion.

> *Policy 2.2.3. Expansion of the USA boundary is discouraged. However, any increase of the USA boundaries that expands areas of higher density development and extension of or connection to public water and sewer should only be permitted after demonstration of conformance with the following criteria:*
>
> - *The new boundary is consistent with the goals and objectives of the Comprehensive Plan;*
>
> - *The proposed expansion would not lead to extension of water and/or sewer to additional lands outside the USA;*
>
> **STAFF COMMENT: There would be limited potential for extension of water and sewer to additional lands outside the USA. The properties to the east are all publicly owned land and facilities, including the regional landfill and state corrections facility. Land to the south that is outside of the USA and is undeveloped and could create some demand for future extensions.**
>
> - *The boundary change and associated land use will have minimal impact on land, land uses, public facilities or transportation outside of the new boundary;*
>
> **STAFF COMMENT: The amendment will have minimal impact on land uses. The site is surrounded by the landfill and industrial uses and large enough to allow for buffers to be established to minimize impacts on adjacent residential development and other undeveloped land. Transportation patterns from the new land use are anticipated to be focused on roads to the west inside the Urban Services Area.**
>
> - *There is a presence of adequate services* ***-OR-***
>
> **STAFF COMMENT: There is limited water and sewer in this area to serve the proposed use. The proposed use will require upgrades that will be considered with the review of the concurrent rezoning. Typically, new development is required to make necessary upgrades to serve their project. The amendment would reduce the demand for schools and parks and recreation. Fire and rescue demands resulting from the amendment will be evaluated with the concurrent rezoning.**
>
> - *Extensions to sewer lines would provide the benefit of minimizing the potential impact of existing failing septic drainfields on the watershed* ***-OR-***
>
> **STAFF COMMENT: The are no known instances of failing drainfields in this area.**

- *The land area in whole or in part must have been zoned commercial or industrial as of the original date of adoption of this Plan.*
  STAFF COMMENT: The area is zoned A-1, Agricultural.

- ***And in all cases**, with consideration of input from area residents and property owners.*
  STAFF COMMENT: The amendment will require a public hearing with both the Planning Commission and Board of Supervisors with notification to all properties within 500 feet.

Existing Land Uses

The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west. The undeveloped parcel to the south has an approved subdivision plan for 24 dwelling units (Potomac Creek Overlook).

Future Land Use

The following are the recommended purposes as stated in the Comprehensive Plan for the current Agricultural / Rural land use and proposed Business and Industry land use.

Land Use Plan recommendation for Agricultural/Rural areas:
Agricultural/Rural areas of the County are areas where farming, forestry, and land conservation activities are encouraged. Location of new single-family detached dwelling units are to be discouraged; however, such uses may be developed at a maximum density of one (1) unit per six (6) acres. Such areas are located beyond the limits of the Urban Services Area and would have limited community services. Agricultural service establishments and community service retail establishments may be located at significant crossroads.

Land Use Plan recommendation for Business and Industry areas:
Business and Industry areas of the County are areas where large-scale business and industry activities are encouraged. These areas are to be the primary economic engines for the County. Such businesses and industries would primarily serve markets that stretch beyond the County borders. Activities will typically include retail, wholesale, corporate and professional offices, research and development, entertainment, manufacturing, distribution and transportation. Special consideration shall be given when locating heavy industrial uses in these areas. Buildings would typically be large in nature with extensive setbacks, parking and lot coverage requirements. They should be located in proximity to major transportation facilities. Residential activities in the area should be discouraged. Where such areas abut existing residential communities, berms, buffers, noise attenuation measures and additional setbacks may be necessary to minimize community conflicts.

The Resource Protection designation reflects where sensitive environmental resources are located and recommended for protection. This area will be required to be preserved with the exception of the proposed road crossing and any necessary utility connections.

Transportation Impacts

A Traffic Impact Study (TIS) was submitted that evaluates the impact of the proposed industrial use on the transportation network. The Business and Industry Land Use would generate more vehicle trips than the current Agricultural / Rural land use. The anticipated data center campus would generate approximately 4,356 vehicle trips per day (VPD). The TIS identified several mitigation measures which are being proffered as part of the corresponding zoning reclassification. The project would also implement recommendations from the Transportation Plan, including right-of-way dedication and construction of a new east-west connector road from Richmond Highway to Eskimo Hill Road.

Environmental Impacts

Site topography includes sloping terrain. There are several perennial streams, wetlands, and CRPA buffer areas across the site. The northeast corner of the site drains to the northeast towards Accokeek Creek. The remainder of the site drains to the south towards Potomac Creek. The Property contains an archeological resource in the northwest corner: DHR ID #44ST0680. The site consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. The development plan avoids development in the CRPA and the archaeological resource. A large tree preservation area is proposed on the northern portion of the property.

Utility Impacts

The project will be required to be served by the public water and sewer system. A data center use requires more water than other commercial and industrial development. To limit impacts on the County's potable water resources, the Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements. The line is proposed to be constructed from the Aquia Wastewater Treatment Plant. The applicant is working on a water service agreement with the Utilities Department to outline how and when the reuse line will be constructed. Temporary use of potable water will be required as the reuse line may take several years to complete. Without reuse water, the number of buildings that can utilize potable water would be limited. The applicant is proposing to construct other off-site potable water improvements that the buildings will still require even with the reuse line in place.

The following are staff comments on the proposed Amendment:

- The proposed amendment would bring the entirety of the parcel to one consistent land use recommendation.
- The Business and Industry uses would be more compatible with the existing land uses (adjacent landfill, and jail complex) than the current Agricultural land use recommendation and approved residential development.
- There are limited schools, parks, or other community serving commercial uses in the immediate area to support any additional residential development.
- The site is in the approach to Stafford Regional Airport – the proposed land use would be more compatible with airport operations than that of Agricultural/Rural land uses, which support low density residential development.
- Although traffic generation from the proposed business and industry uses will be greater than the Agricultural land use, the proposed data center use generates much lower traffic than many other industrial uses. Nonetheless, a TIA has been prepared with the concurrent rezoning that identifies potential impacts on levels of service and appropriate mitigation.

SUMMARY OF POSITIVE AND NEGATIVE FEATURES:

POSITIVE:

1. The proposed use is more compatible with the surrounding existing land uses.
2. There are limited public services to support residential development.
3. Proposed extension of the USA is unlikely to lead to further extensions of water and/or sewer to other lands outside the Urban Services Area.
4. The proposed use is more appropriate than the current use in the vicinity of the airport.
5. The corresponding zoning reclassification proposes to mitigate many of the anticipated impacts.

NEGATIVE:

1. No apparent negative impacts are noted.

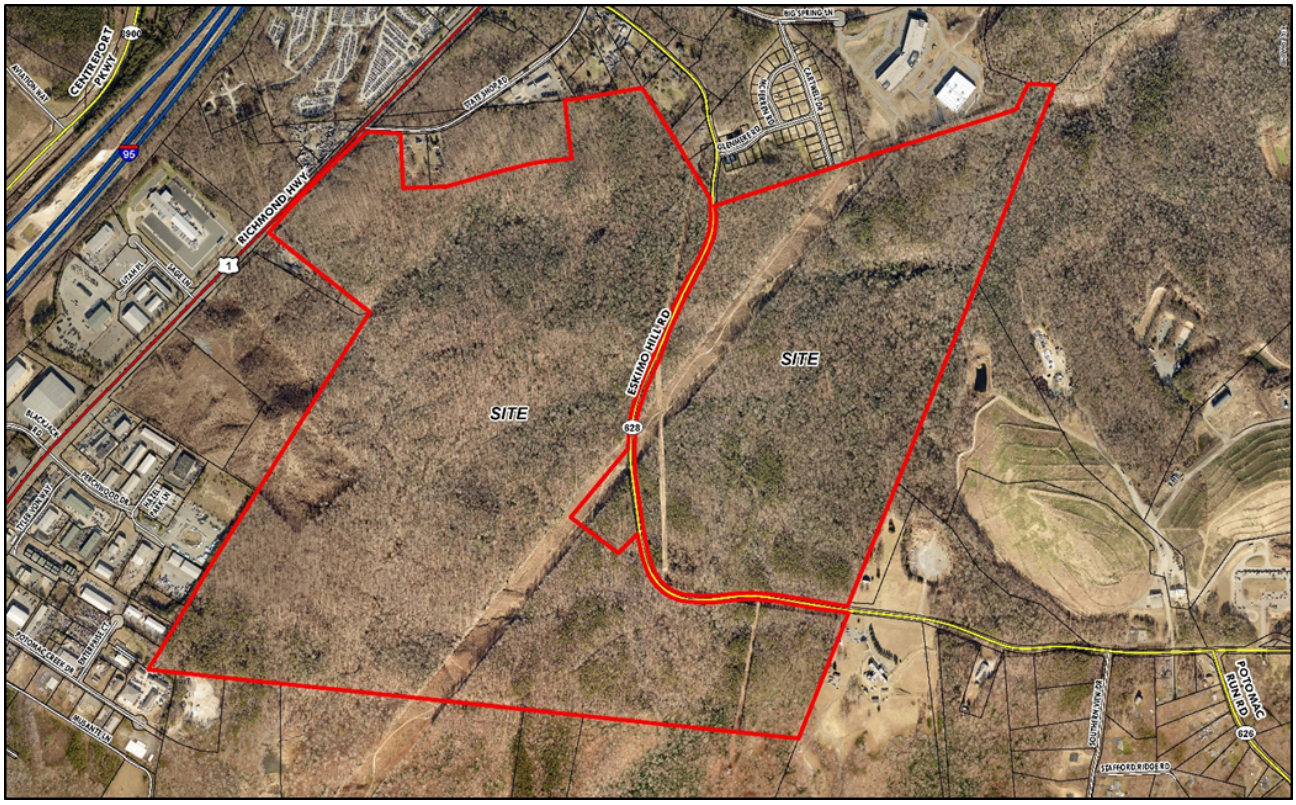
RECOMMENDATION:

Staff recommends approval of the proposed amendments to the Comprehensive Plan to expand the Urban Services Area and amend the future land use designation on a portion of Tax Map Parcel No. 38-124 from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry, pursuant to proposed Resolution R24-187.

APPENDIX

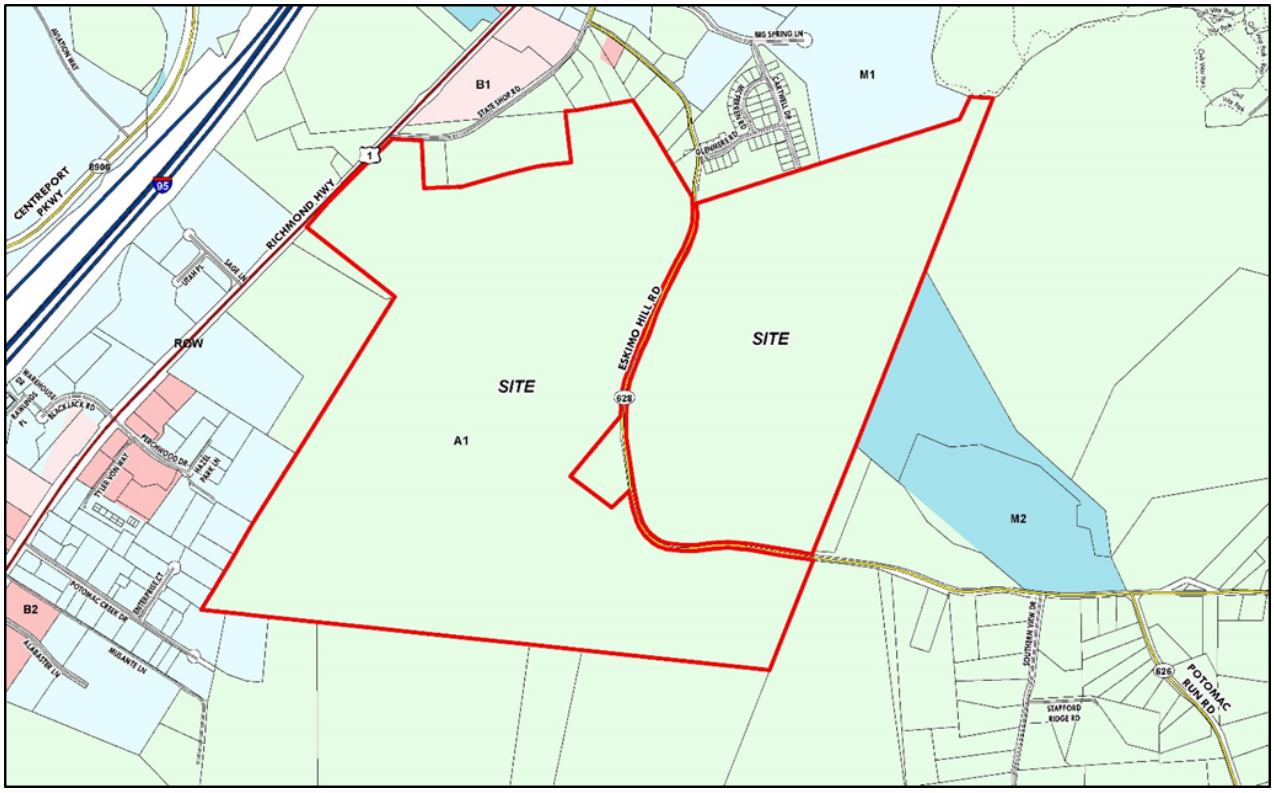
SITE CHARACTERISTICS, ZONING, AND FUTURE LAND USE:

The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Site topography includes sloping terrain. There are several perennial streams, wetlands, and CRPA buffer areas across the site. The northeast corner of the site drains to the northeast towards Accokeek Creek. The remainder of the site drains to the south towards Potomac Creek. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west. The undeveloped parcel to the south has an approved subdivision plan for 24 dwelling units (Potomac Creek Overlook)



Existing Conditions – Aerial View

Zoning Classification: A-1, Agricultural



Zoning Map

Abutting Properties:

Location	**Zoning**	**Existing Use**	**Comprehensive Plan**
North	A-1, Agricultural M-1, Light Industrial	Undeveloped Residential	Central Stafford Targeted Development Area (TDA) (Business and Industry Future Land Use)
South	A-1, Agricultural M-1, Light Industrial	Residential Undeveloped	Central Stafford TDA (Business and Industry Future Land Use) Agricultural/Rural
East	A-1, Agricultural M-2, Heavy Industrial	Landfill Corrections Facility	Agricultural / Rural
West	A-1, Agricultural M-1, Light Industrial	Industrial Auto salvage yard Undeveloped	Central Stafford TDA (Business and Industry Future Land Use)

ZONING HISTORY

The Property has been zoned A-1, Agricultural since before 1978, and no proffers exist for the site. A preliminary subdivision plan for 145 residential lots was approved in 2005 and is still valid. No development has occurred for this project.

COMPREHENSIVE PLAN AMENDMENT

STAFFORD TECHNOLOGY CAMPUS

Applicant:	Stafford Technology LC
Owner:	Stafford Technology LC
Amendment Request:	Revisions to the Urban Service Area and Central Stafford Targeted Development Area
Project Name:	Stafford Technology Campus
Date:	September 8, 2023

The applicant, Stafford Technology LC (the "Applicant"), is the owner of the properties identified as Tax Map Numbers 38 124 and 38 29A, which is comprised of approximately 523.94 acres (the collectively "Property"). The proposal is to reclassify the Property from A-1, Agricultural, to M-1, Light Industrial, and amend the Comprehensive Plan for a portion of the Property to include it in the Urban Service Area and Central Stafford Targeted Development Area.

A preliminary plan for a total of 144 residential lots was previously approved for the Property. Approximately 75 homes were located outside of the Urban Service Area.

The Applicant's proposal includes a phased data center campus which will contain approximately 5.8 million square feet of data center uses at full buildout on the entire Property. Approximately 2,816,000 square feet of data center uses would be located outside of the Urban Service Area. An Overall Illustrative Plan is included with the GDP package with the zoning reclassification and shows how the Property could potentially be developed.

For purposes of comparison for this Impact Analysis, the Applicant is comparing the by-right impacts outside of the Urban Service Area and the data center square footage outside of the Urban Service Area.

Utilities. The Property will be served by public water and sewer. The Applicant is in discussions with the County's Department of Utilities to review the utility infrastructure and looking at ways in which the surrounding infrastructure can be improved through a partnership with the Applicant.

- Water – The Property is partially located within the Central and Falmouth Pro Rata Water Pressure Zones. Public water for the Property will be provided by existing public water infrastructure and the proposed new public water infrastructure, including recycled water infrastructure. The need to upgrade offsite water infrastructure will be determined prior to the issuance of site plan approval. More information, including gallons per day, can be provided in connection with site plan and building permit review.

- Sewer: The Property is partially located within the Potomac Creek Sewershed. Public sewer for the Property not currently located within the Potomac Creek Sewershed is proposed to be provided by extending sewer infrastructure to the unserved area of the Property and expanding the Urban Service Area. More information, including gallons per day, can be provided in connection with site plan and building permit review.

Schools. As previously mentioned, the Property currently has an approved residential subdivision plan. The existing approved use on the site has an impact to the schools. While adding the Property into the Urban Service Area does not by itself reduce the impacts to schools, the proposed reclassification, filed simultaneously with this Comprehensive Plan Amendment application, will have no impact on the school facilities in Stafford County and therefore, is a reduced impact to the County school system over what is currently permitted on the Property by-right.

Recreational Facilities. As previously mentioned, the Property currently has an approved residential subdivision plan. The existing approved use on the site has an impact to recreational facilities. While adding the Property into the Urban Service Area does not by itself reduce the impacts to recreational facilities, the proposed reclassification, filed simultaneously with this Comprehensive Plan Amendment application will have no impact on the recreational facilities in Stafford County and therefore, is a reduced impact over what is currently permitted on the Property by-right.

Transportation. As previously mentioned, the Property currently has an approved residential subdivision plan that would allow for 75 homes outside of the Urban Service Area. The Below is a trip comparison chart that provides a vehicle trip comparison.

Land Use	ITE Code	Size	Weekday						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Approved Residential (Stafford Town Station)									
Single-Family Detached Housing	210	75 DU	14	43	57	48	28	76	774
Proposed Data Center (Stafford Technology Campus)									
Data Center [1]	160	2,992.0 kSF	148	121	269	27	63	90	2,244
Difference in Trips (Proposed minus Approved)			**134**	**78**	**212**	**-21**	**35**	**14**	**1,470**

[1] VDOT approved rates of 0.09 for AM, 0.03 for PM and 0.75 for Daily trips per 1,000 SF for Data Center land use.

While adding the Property into the Urban Service Area does not by itself impact the transportation network, the Applicant has acknowledged that there is an increase in trips over the approved preliminary plan uses and has proposed mitigation to those impacts based on the transportation improvements suggested in the traffic impact analysis submitted with the reclassification application. In addition, the Applicant is providing the Comprehensive Planned road connection that provides an east / west connection between Eskimo Hill Road and Richmond Highway.

Surrounding Land Use Characteristics. The Property is surrounded by industrial uses to the east and west and residential uses to the north and south. To the east are the County's law enforcement academy shooting range, landfill, and prison. To the west is an industrial park. To the north is an existing residential community and to the south is a planned residential community. To mitigate the potential impacts to the residential development to the north and south, the Applicant has

provided 100 ft. buffers adjacent to the residential developments to the north and south, proffered to Design Standards for data center buildings visible from Eskimo Hill Road, Richmond Highway and adjacent residential zoned, and proffered minimum noise requirements.

P1337632.DOCX

R24-187

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the day of , 2024:

MEMBERS:	VOTE:
Meg Bohmke, Chairman	
Tinesha O. Allen, Vice Chairman	
Deuntay T. Diggs	
Darrell E. English	
Monica L. Gary	
Crystal L. Vanuch	
Dr. R. Pamela Yeung	

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO AMEND THE "STAFFORD COUNTY, VIRGINIA, COMPREHENSIVE PLAN, 2016-2036, 2021 5-YEAR UPDATE" ADOPTED ON NOVEMBER 16, 2021, AS LAST REVISED (COMPREHENSIVE PLAN), CHAPTER 3, "THE LAND USE PLAN," TO CHANGE THE FUTURE LAND USE DESIGNATION AND URBAN SERVICES AREA LIMITS ON TAX MAP PARCEL NO. 38-124

WHEREAS, Stafford Technology, LC (Applicant), submitted application COM23154932, requesting amendments to the Comprehensive Plan to modify Chapter 3, "The Land Use Plan," to amend the map entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area" (collectively, the "Maps") to change the future land use designation on a portion of Tax Map Parcel No. 38-124 (Property) from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area limits to incorporate the Property into the Urban Services Area; and

WHEREAS, the Applicant, has requested amendments to the Comprehensive Plan in accordance with Virginia Code § 15.2-2229; and

WHEREAS, the Board desires to amend the Comprehensive Plan to amend the Urban Services Area limits and corresponding future land use designation pursuant to **Exhibit A**, **Exhibit B**, and **Exhibit C** to this Resolution; and

WHEREAS, the Planning Commission conducted a public hearing on the proposed Comprehensive Plan amendments and provided its recommendations to the Board; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that adoption of the proposed Comprehensive Plan amendments is consistent with good planning practices;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the day of , 2024, that it be and hereby does adopt Amendments to Chapter 3, "The Land Use Plan," of the document entitled "Stafford County, Virginia, Comprehensive Plan, 2016-2036," adopted on November 16, 2021, as last revised, to amend the maps entitled "Figure 3.1, Urban Services Areas," dated September 8, 2021, attached hereto as **Exhibit A**, and amend the map entitled "Figure 3.9, Future Land Use," dated October 19, 2019, attached hereto as **Exhibit B**, and amend the map entitled "Figure 3.13, Central Stafford Targeted Development Area," dated September 8, 2021, attached hereto as **Exhibit C**, all other portions of the Comprehensive Plan remaining unchanged.

FCM:MJZ:ss

R24-188

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the day of , 2024:

MEMBERS:	VOTE:
Meg Bohmke, Chairman	
Tinesha O. Allen, Vice Chairman	
Deuntay T. Diggs	
Darrell E. English	
Monica L. Gary	
Crystal L. Vanuch	
Dr. R. Pamela Yeung	

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO DENY A REQUEST TO AMEND THE "STAFFORD COUNTY, VIRGINIA, COMPREHENSIVE PLAN, 2016-2036, 2021 5-YEAR UPDATE" ADOPTED ON NOVEMBER 16, 2021, AS LAST REVISED (COMPREHENSIVE PLAN), CHAPTER 3, "THE LAND USE PLAN," TO CHANGE THE FUTURE LAND USE DESIGNATION AND URBAN SERVICES AREA LIMITS ON TAX MAP PARCEL NO. 38-124

WHEREAS, Stafford Technology, LC (Applicant), submitted application COM23154932, requesting amendments to the Comprehensive Plan to modify Chapter 3, "The Land Use Plan," to amend the map entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area" (collectively, the "Maps") to change the future land use designation on a portion of Tax Map Parcel No. 38-124 (Property) from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area limits to incorporate the Property into the Urban Services Area; and

WHEREAS, the Applicant, has requested amendments to the Comprehensive Plan in accordance with Virginia Code § 15.2-2229; and

WHEREAS, the Planning Commission conducted a public hearing on the proposed Comprehensive Plan amendments and provided its recommendations to the Board; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

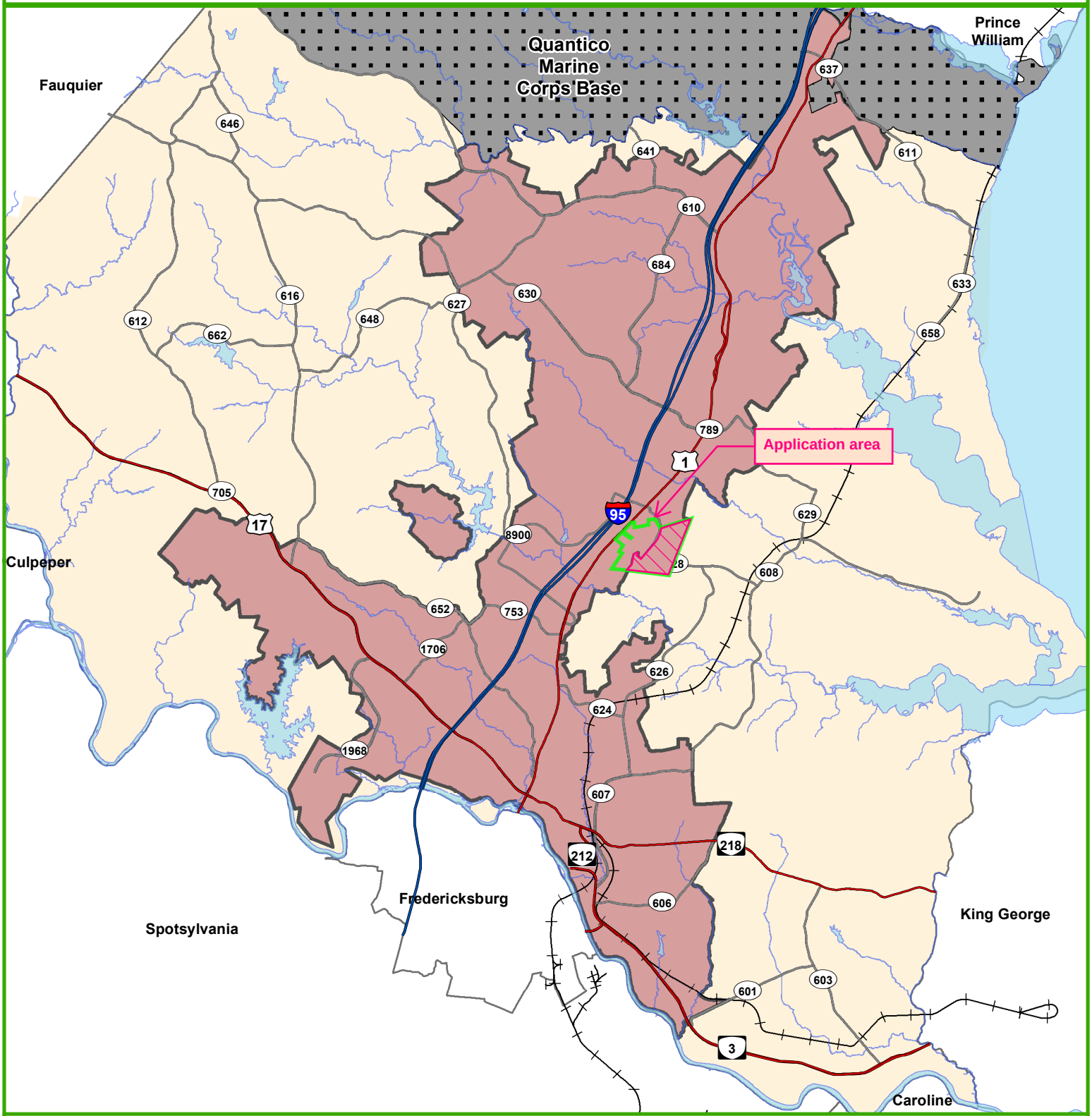
WHEREAS, the Board concludes that the proposed amendments to the Comprehensive Plan should not be adopted;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the day of , 2024, that the application COM23154932 be and it hereby is denied.

FCM:MJZ:mjz

FIGURE 3.1
Urban Services Areas
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021

EXHIBIT A



Legend :

Urban Services Area

Area to be added to Urban Services Area

0 4,700 9,400 18,800 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

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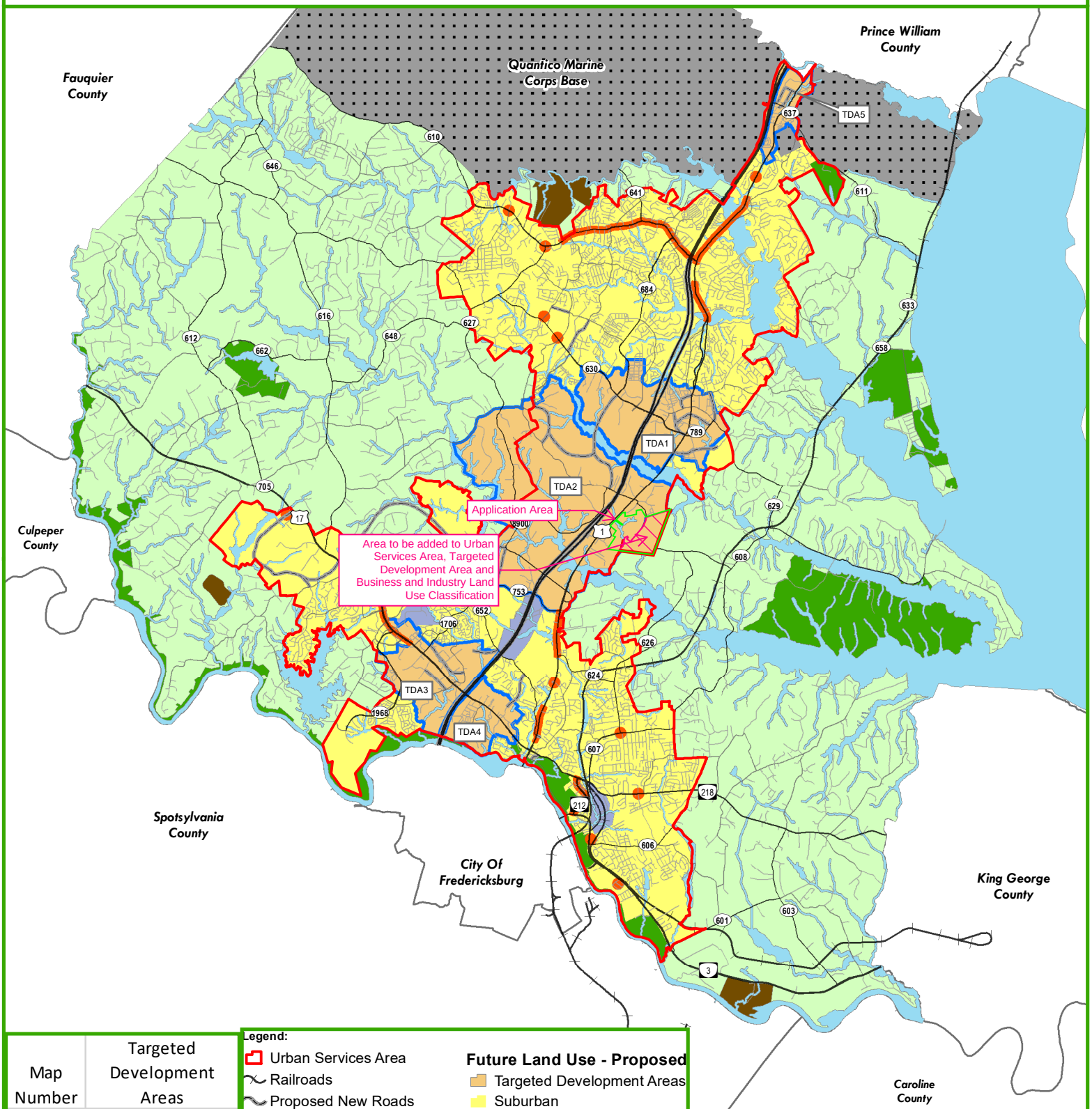
FIGURE 3.9
Future Land Use
Stafford County Comprehensive Plan
Stafford County, Virginia
October 19, 2021

EXHIBIT B



Map Number	Targeted Development Areas
TDA1	Courthouse
TDA2	Central Stafford
TDA3	Berea
TDA4	Falmouth Gateway
TDA5	Boswell's Corner

Legend:
- Urban Services Area
- Railroads
- Proposed New Roads
- Commercial Node
- Commercial Corridors
- Targeted Development Areas
- Area to be added to Urban Services Area, Targeted Development Area and Business and Industry Land Use Classification

Future Land Use - Proposed
- Targeted Development Areas
- Suburban
- Business and Industry
- Agricultural/Rural
- Mining
- Federal
- Resource Protection
- Parks

0 5,500 11,000 22,000 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

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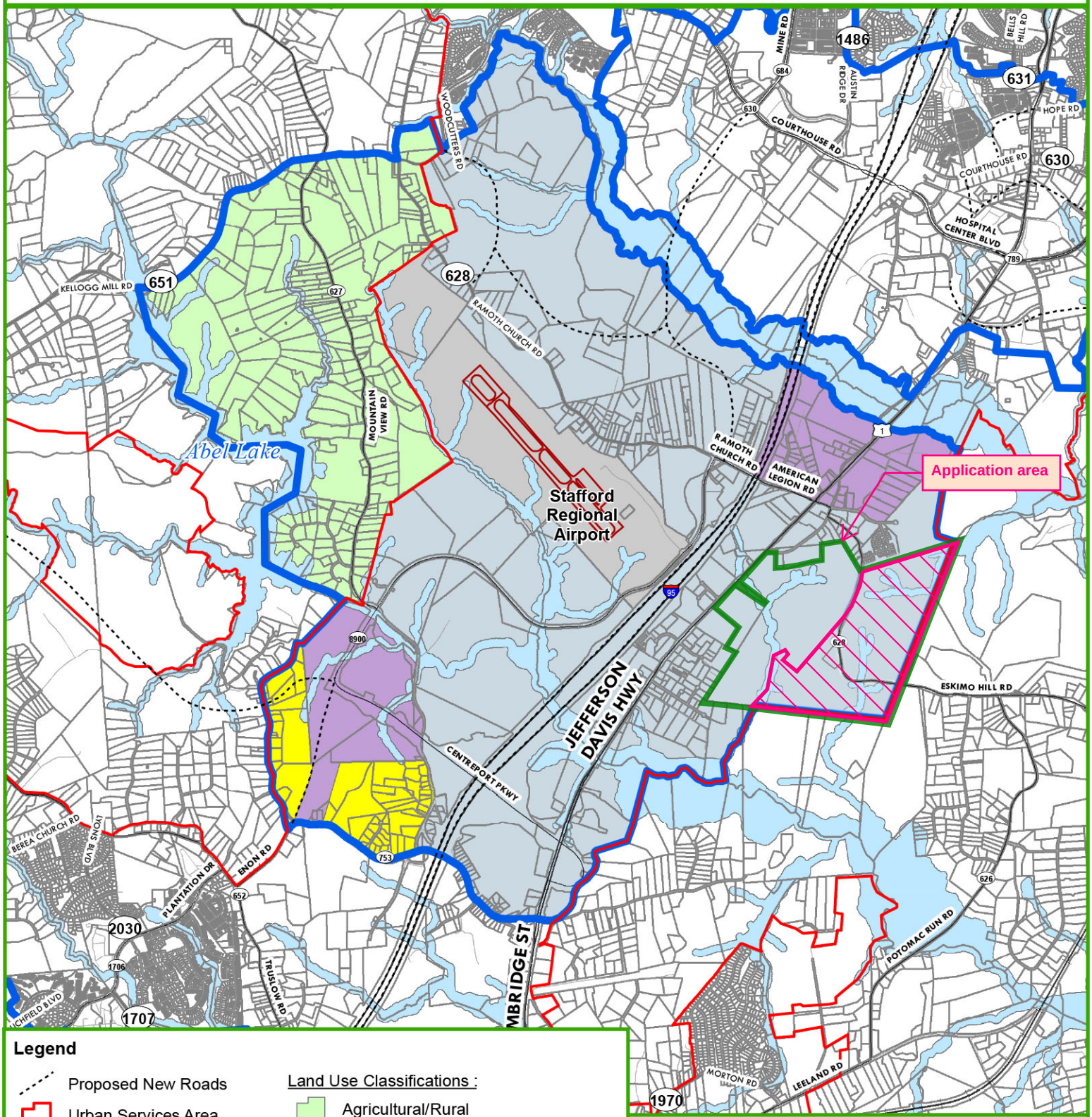
FIGURE 3.13
Central Stafford Targeted Development Area
Stafford County Comprehensive Plan
Stafford County, Virginia
September 8, 2021

EXHIBIT C



Legend

- Proposed New Roads
- Urban Services Area
- Targeted Development Areas
- Area to be added to Urban Services Area, Targeted Development Area and Business and Industry Land Use Classification

Land Use Classifications :

- Agricultural/Rural
- Business and Industry
- Mixed Use – Commercial/ Residential
- Residential
- Stafford Regional Airport

0 2,000 4,000 8,000 Feet

Data layers are compiled from various sources and are not to be construed or used as a "legal description." Data layers are believed to be accurate, but accuracy is not guaranteed.

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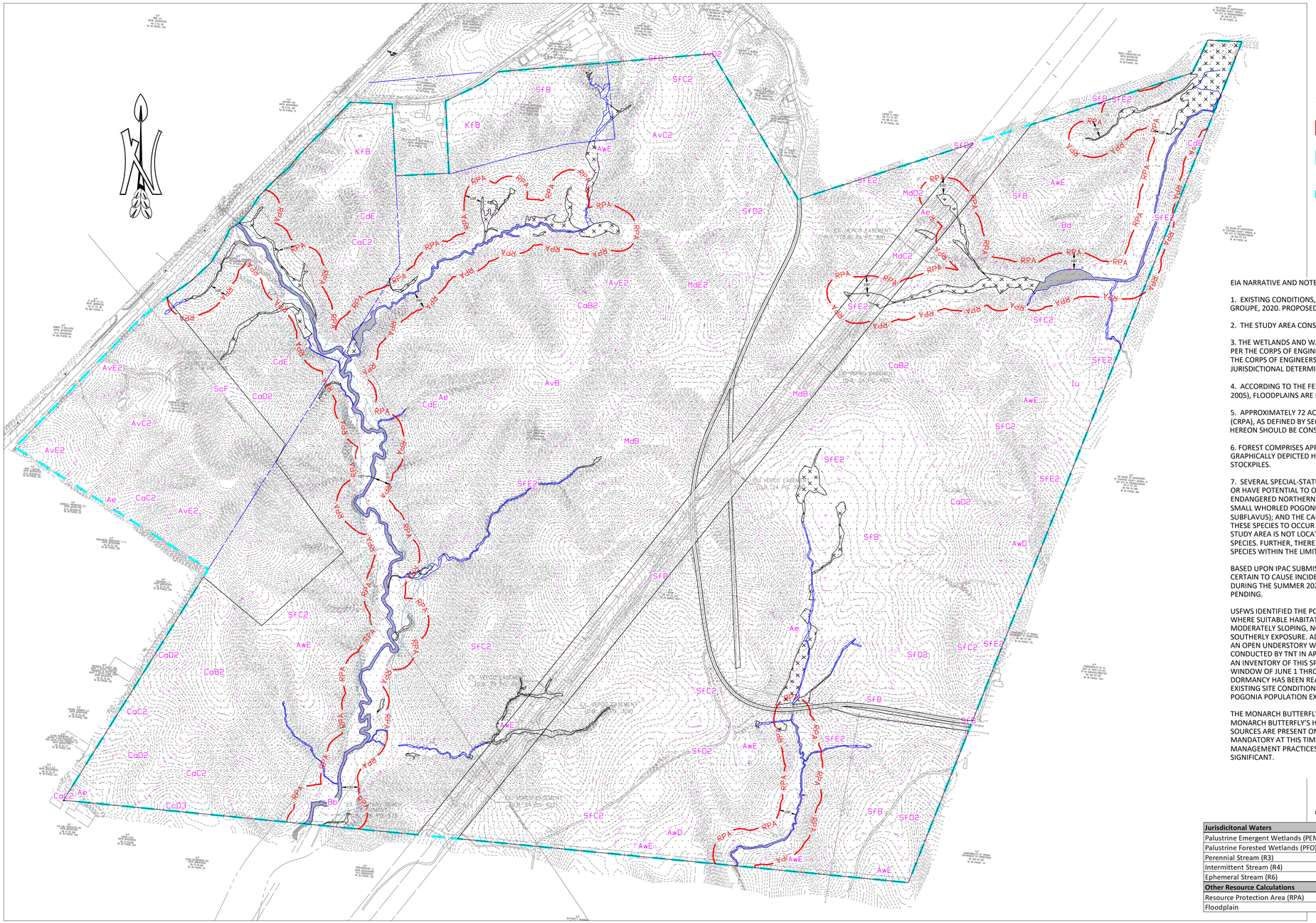
STAFFORD COUNTY, VIRGINIA
COMPREHENSIVE PLAN AMENDMENT
UTILITY IMPACT ASSESSMENT (UIA)

Applicant:	Stafford Technology LC
Owner:	Stafford Technology LC
Amendment Request:	Revisions to Urban Services Area and Future Land Use Maps to extend the USA to fully encompass Tax Map 38-124 ("Property") and include it as part of the Suburban district
Project Name:	Stafford Technology Campus
Date:	September 8, 2023
File No.	_____

As noted in the Zoning Reclassification Impact Statement, this Parcel is partially located outside of the County's USA and does not entirely have access to public water and sewer. In accordance with County policy, water and sewer upgrades will be done as necessary to fully serve the parcel and provide adequate capacity to the site.

Public Water: This project is split between the Central and Falmouth Pressure Zones. The anticipated daily demand for water for the Stafford Technology Campus is not yet known at this time, as the buildings have not been fully designed. It is anticipated that upgrades to the existing water infrastructure will need to be made to account for this development. A hydraulic analysis will be performed at the time of final engineering to determine the exact water pressures and velocities. Continued coordination with the Stafford Utilities Department will take place as demands are determined.

Sewer: This project is currently split by the USA, with the area within the USA being within the Potomac Creek sewershed. The anticipated daily demand for sewer discharge from the Stafford Technology Campus is not yet known at this time, as the buildings have not been fully designed. Based on preliminary calculations, upgrades to the existing infrastructure may be required to support the development of this campus, including the existing sewer line connecting to Parcel 38-124. A sewer study will be performed at the time of final engineering to determine the exact water discharge rates and what upgrades are required as a result of the proposed development.



LEGEND

- PERENNIAL WATERS (R3)
- INTERMITTENT WATERS (R4)
- EPHEMERAL WATERS (R6)
- PALUSTRINE FORESTED (PFO) WETLAND
- PALUSTRINE EMERGENT (PEM) WETLAND
- OFFSITE PERENNIAL WATERS (R3)
- FOREST CANOPY
- SOIL MAP UNIT BOUDARY
- SITE-SPECIFIC RESOURCE PROTECTION AREA (RPA)
- FEMA MAPPED 100-YEAR FLOODPLAIN BOUNDARY
- SITE BOUNDARY

EIA NARRATIVE AND NOTES:

1. EXISTING CONDITIONS, TOPOGRAPHY, AND WETLAND FLAGS WERE SURVEYED BY THE ENGINEERING GROUPE, 2020. PROPOSED LIMITS OF CLEARING PROVIDED BY BOHLER ENGINEERING, 2023.

2. THE STUDY AREA CONSISTS OF APPROXIMATELY 502 ACRES.

3. THE WETLANDS AND WATERS WERE DELINEATED BY TNT ENVIRONMENTAL INC IN JULY AND AUGUST 2022 PER THE CORPS OF ENGINEERS' WETLANDS DELINEATION MANUAL (1987) AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL: ATLANTIC & GULF COAST REGION. A JURISDICTIONAL DETERMINATION WAS ISSUED JANUARY 13, 2023 (NAO-2022-02671)

4. ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP (FIRM) NO. 5101540143E, EFFECTIVE FEBRUARY 4, 2005), FLOODPLAINS ARE MAPPED WITHIN THE SUBJECT SITE'S BOUNDARIES.

5. APPROXIMATELY 72 ACRES OF THE PROPERTY (13.6%) CONSISTS OF CRITICAL RESOURCE PROTECTION AREAS (CRPA), AS DEFINED BY SECTION 28-62 OF THE STAFFORD COUNTY ZONING ORDINANCE. THE CRPA SHOWN HEREON SHOULD BE CONSIDERED PRELIMINARY UNTIL APPROVED BY STAFFORD COUNTY.

6. FOREST COMPRISES APPROXIMATELY 470 ACRES (93.5%) OF THE SITE. THE REMAINDER OF THE SITE, AS GRAPHICALLY DEPICTED HEREON, CONSISTS OF DISTURBED LAND, INCLUDING UTILITY EASEMENTS AND SOIL STOCKPILES.

7. SEVERAL SPECIAL-STATUS WILDLIFE AND PLANT SPECIES HAVE BEEN REPORTED BY THE AGENCIES TO OCCUR OR HAVE POTENTIAL TO OCCUR WITHIN THE VICINITY OF THE STUDY AREA. THESE INCLUDE FEDERALLY-LISTED ENDANGERED NORTHERN LONG-EARED BAT (MYOTIS SEPTENTRIONALIS); FEDERALLY-LISTED THREATENED SMALL WHORLED POGONIA (ISOTRIA MEDEOLOIDES); PROPOSED ENDANGERED TRICOLORED BAT (PERIMYOTIS SUBFLAVUS); AND THE CANDIDATE SPECIES, MONARCH BUTTERFLY (DANAUS PLEXIPPUS). THE POTENTIAL FOR THESE SPECIES TO OCCUR ONSITE IS FURTHER DISCUSSED BELOW; HOWEVER, IT SHOULD BE NOTED THAT THE STUDY AREA IS NOT LOCATED IN AREAS DESIGNATED OR PROPOSED AS CRITICAL HABITAT FOR ANY OF THESE SPECIES. FURTHER, THERE ARE NO DOCUMENTED OCCURRENCES OR "COLLECTIONS" RECORDS OF ANY LISTED SPECIES WITHIN THE LIMITS OF THE PROPOSED PROJECT.

BASED UPON IPAC SUBMISSION AND A STANDING ANALYSIS, THE SUBJECT PROJECT IS NOT REASONABLY CERTAIN TO CAUSE INCIDENTAL TAKE OF THE NLEB. IN ADDITION, AN ACOUSTIC BAST SURVEY WAS CONDUCTED DURING THE SUMMER 2023 SURVEY WINDOW OF MAY 15TH TO AUGUST 15TH. RESULTS ARE CURRENTLY PENDING.

USFWS IDENTIFIED THE POTENTIAL FOR SMALL WHORLED POGONIA TO OCCUR WITHIN THE STUDY AREA WHERE SUITABLE HABITAT EXISTS. THE SMALL WHORLED POGONIA IS TYPICALLY FOUND ON FLAT TO MODERATELY SLOPING, NORTHEAST TO EAST FACING TERRAIN WITH SOME POPULATIONS HAVING A SOUTHERLY EXPOSURE. ADDITIONALLY, THE PLANT IS FOUND IN MATURE HARDWOOD FORESTS THAT CONTAIN AN OPEN UNDERSTORY WHICH PROVIDES DIFFUSED LIGHT ON THE FOREST FLOOR. BASED ON SITE VISITS CONDUCTED BY TNT IN APRIL 2022, POTENTIAL HABITAT FOR THIS SPECIES OCCURS WITHIN THE STUDY AREA. AN INVENTORY OF THIS SPECIES WAS CONDUCTED IN 2020 AND 2023 DURING THE USFWS' ANNUAL SURVEY WINDOW OF JUNE 1 THROUGH JULY 20. NO SPECIES WERE OBSERVED WITHIN THE STUDY AREA. WHILE DORMANCY HAS BEEN READILY OBSERVED WITH THIS SPECIES, BASED ON THE SURVEY RESULTS AND THE EXISTING SITE CONDITIONS, WE BELIEVE THAT IT IS UNLIKELY THAT AN UNDETECTED SMALL WHORLED POGONIA POPULATION EXISTS WITHIN THE INVESTIGATION AREAS.

THE MONARCH BUTTERFLY HAS BEEN NOTED BY USFWS TO POTENTIALLY OCCUR. ON THE EAST COAST, THE MONARCH BUTTERFLY'S HABITAT IS TYPICALLY OPEN FIELDS AND MEADOWS WITH MILKWEED. IF NECTAR SOURCES ARE PRESENT ON SITE, THIS SPECIES MAY BE AFFECTED BY PROJECT ACTIVITIES. WHILE NOT MANDATORY AT THIS TIME, INCORPORATING MONARCH- AND OTHER POLLINATOR-FRIENDLY BEST MANAGEMENT PRACTICES (BMPS) ARE RECOMMENDED TO OFFSET PROJECT AFFECTS TO LESS THAN SIGNIFICANT.

ONSITE NATURAL RESOURCES

Jurisdicitonal Waters	**Total**
Palustrine Emergent Wetlands (PEM)	30,805 square feet (0.71 acres)
Palustrine Forested Wetlands (PFO)	352,204 square feet (8.09 acres)
Perennial Stream (R3)	10,909 linear feet (3.71 acres)
Intermittent Stream (R4)	5,982 linear feet (1.09 acres)
Ephemeral Stream (R6)	2,541 linear feet (0.31 acres)
Other Resource Calculations	**Total**
Resource Protection Area (RPA)	3,145,457 square feet 72.21 acres)
Floodplain	849,547 square feet (19.50 acres)

SCALE (IN FEET)
150 300
300 0

4455 Brookfield Corporate Drive, Suite 100
Chantilly, VA 20151
PH: 703-466-5123 WWW.TNTENVIRONMENTALINC.COM
ENVIRONMENTAL

STAFFORD TECHNOLOGY CAMPUS
STAFFORD COUNTY

ENVIRONMENTAL IMPACT ANALYSIS

REVISIONS

DATE	COMMENTS

SHEET 1 OF 1

SCALE: 1" = 300'

PROJECT DATE: 9-8-2024

DRAFT: JMS | CHECK: AMS

FILE NUMBER: 1987-B

STAFFORD COUNTY
Department of Planning and Zoning

Application Submittal Checklist

- ☒ Completed **"Project Information & Primary Contacts"** form (Page 4)
- ☒ Signed **"Statements of Understanding"** from the owner(s) and applicant (Page 5)
- ☒ Completed **"General Information"** sheet (Page 6)
- ☒ Completed **"Review Fee Calculation"** sheet and appropriate **Fees** payable to "County of Stafford" (Page 7)
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- ☒ Completed **"Transportation Impact Analysis Determination Form"** (Page 10)
- ☒ Proposed Comprehensive Plan **Map Amendments**, if applicable (Fourteen (14) Copies)
- ☐ Proposed **Text Amendments** to all components of the Comprehensive Plan, if applicable
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  - ☒ Completed **Transportation Impact Statement (TIS)** (Five (5) paper copies with electronic copies or ftp site)
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- ☒ Completed **VDOT Transportation Impact Analysis (TIA)**, if required (Five (5) paper copies with electronic copies or ftp site)

RECEIVED	OFFICIALLY SUBMITTED
DATE:_____ INITIALS _____	DATE:_____ INITIALS_____

Optional Application Materials:

Although not required, the following additional materials are requested to be included with the initial application submission, if available, to assist in the review process.

1. Electronic Version of any plans, surveys, and illustrations (a pdf on a CD, DVD, sent via email, or through ftp site is acceptable)

Project Information & Primary Contacts

PROJECT INFORMATION — PROJECT # _____

Stafford Technology Campus
PROJECT NAME

SECTION

ADDRESS (IF AVAILABLE)

+/- 523.94
TOTAL SITE ACREAGE

38 124 and 38 29A
TAX MAP /PARCEL(S)

A-1 to M-1
ZONING DISTRICT

East side of Richmond Highway and east and west side of Eskimo Hill Road
LOCATION OF PROJECT

AGENT (Provide attachment if Applicant and Agent differ) — Primary Contact Person ☒

Jonelle Cameron, Esq./Jessica Pfeiffer
NAME

Walsh, Colucci, Lubeley & Walsh, P.C.
COMPANY

4310 Prince William Parkway, Suite 300 — Prince William — VA — 22301
ADDRESS — CITY — STATE — ZIP

703-680-4664
PHONE NUMBER

703-680-6067
FAX NUMBER

jcameron@thelandlawyers.com/ jpfeiffer@thelandlawyers.com
EMAIL ADDRESS

APPLICANT/OWNER (Provide attachments if multiple owners) — Primary Contact Person ☐

Taylor Chess/Kevin McHugh
NAME

Stafford Technology LC
COMPANY

12500 Fair Lakes Circle, Suite 400 — Fairfax — VA — 22033
ADDRESS — CITY — STATE — ZIP

PHONE NUMBER — FAX NUMBER — EMAIL ADDRESS

PROFESSIONAL (Engineer, Surveyor, etc.) — Primary Contact Person ☐

Bohler Engineering
NAME

COMPANY

12825 Worldgate Drive, Suite 700 — Herndon — VA — 20170
ADDRESS — CITY — STATE — ZIP

PHONE NUMBER — FAX NUMBER — EMAIL ADDRESS

STAFFORD COUNTY
Department of Planning and Zoning

Statements of Understanding

CONTROL OF PROPERTY: The applicant must be the property owner or the duly appointed agent for at least seventy five (75) percent of the property in the applicant's proposed amendment.

I, as owner/co-owner of the property subject to this application, do hereby certify that I have read and understand the requirements for the submission of a Comprehensive Plan amendment for review and approval as provided under the requirements and applicable provisions of the Stafford County Comprehensive Plan.

Date: March 1, 2023

Stafford Technology LC
a Virginia limited liability company

By: MVP Management, LLC
a Virginia limited liability company
its Manager

By: _____
Name: Jon M. Peterson
Its: Manager

STAFFORD COUNTY
Department of Planning and Zoning

General Information

Clearly indicate all information that applies to this project:

NAME OF PROJECT: Stafford Technology Campus SECTION: _____

IS THIS APPLICATION SUBMITTED WITH ANOTHER APPLICATION? YES ☒ NO ☐

Application Name/Type/Number (if known): Stafford Technology Campus Zoning Reclassification

DETAILED DESCRIPTION OF PROJECT:

The applicant, Stafford Technology LC (the "Applicant") is the owner of the properties identified as Tax Map Numbers 38 124 and 38 29A, which is comprised of approximately 523.94. The proposal is to reclassify the Property from A-1, Agricultural, to M-1, Light Industrial. The Applicant's proposal includes a phased data center campus which will contain approximately 5.5 million square feet of data center uses at full build out.

COMPONENT(S) OF COMPREHENSIVE PLAN REQUESTED FOR AMENDMENT:
(for example: Land Use, Telecommunication, Transportation)

Land Use - Chapter 3, Maps Figure 3.1, 3.9, and 3.13

RATIONALE FOR THE REQUEST:

Extend Urban Service Area and Central Stafford Targeted Development Area to include the entire property

GENERAL INFORMATION:

# of Acres: portion of approximately 523.94 acres
Approximately 262 acres

Current Land Use Plan Designation(s): Agricultural/Rural

Proposed Land Use Plan Designation(s), if applicable: Targeted Development Area
Urban Service Area and Business and Industry Land Use Classification

☐ Within the Urban Service Area (USA)

☒ Amendment expands the Urban Service Area (USA)

Existing Infrastructure/Public Facilities: See Utilities Impact Assessment

Proposed Infrastructure/Public Facilities: See Utilities Impact Assessment

CHECK WHICH REQUIRED STUDIES HAVE BEEN SUBMITTED:

☒ Environmental Impact Assessment (EIA)

☒ Transportation Impact Statement (TIS)

☒ Utilities Impact Assessment (UIA)

STAFFORD COUNTY
Department of Planning and Zoning

Review Fee Calculations

A. Application Fee: (enter the dollar amount that applies)
< 100 Acres ……..…$500.00
≥ 100 Acres …….….$1,000.00 ...……. $ 1,000.00

B. Technology Fee (Application Fee x 2.75% or 0.0275)……..…… $ 27.50

TOTAL (Add lines A and B)……..…… $ 1,027.50

MAKE CHECK PAYABLE TO "STAFFORD COUNTY"

Note: The application fees are for the administrative process and review of this application and do not constitute an approval.

List of Adjoining Property Owners

The applicant is required to provide a list of the owners as shown on the current real estate tax assessment books of all abutting properties and properties immediately across the street or road from the property to be rezoned or issued a Conditional Use Permit. If the application requests a rezoning of only a portion of the parcel or a Conditional Use Permit on only a portion of the parcel, the entire parcel must be the basis for the below listing.

Provide additional pages if needed.

TAX MAP / PARCEL	NAME
38 30	PORTILLO ALEXANDER

690 FITZPATRICK CT
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-6583

TAX MAP / PARCEL	NAME
38 32	MORROW CHARLES R & BRENDA H TRUSTEES MORROW RONALD A

10524 COURTHOUSE RD
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-1612

TAX MAP / PARCEL	NAME
38A 3	SOUTHEASTERN FREIGHT LINES INC

420 DAVEGA DR
MAILING ADDRESS

CITY	STATE	ZIP
LEXINGTON	SC	29073-7485

TAX MAP / PARCEL	NAME
38A 5	15 SAGE LLC

15129 WETHERBURN DR
MAILING ADDRESS

CITY	STATE	ZIP
CENTREVILLE	VA	20120

TAX MAP / PARCEL	NAME
38A 6A	DEGEN-UTAH LLC

PO BOX 7103
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22404-7103

TAX MAP / PARCEL	NAME
38 29	FERNANDEZ JULIO EDGAR MONTANO

34 STALLINGS LN
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-5455

TAX MAP / PARCEL	NAME
38 25K	FREDWOOD L C

PO BOX 600
MAILING ADDRESS

CITY	STATE	ZIP
CHANTILLY	VA	20153-0600

38 25L	DEVITO FREDERICK W & MARY T TRSTEES
TAX MAP / PARCEL	NAME

5 ALY SHEBA LN
MAILING ADDRESS

STAFFORD	VA	22556-6679
CITY	STATE	ZIP

38 25M	CRANES CORNER LLC
TAX MAP / PARCEL	NAME

170 W SHIRLEY AVE STE 201
MAILING ADDRESS

WARRENTON	VA	20186-3083
CITY	STATE	ZIP

38 24X	FLYNN PROPERTIES & JEFFREY FLYNN HOL
TAX MAP / PARCEL	NAME

PO BOX 429
MAILING ADDRESS

LOCUST GROVE	VA	22508-0429
CITY	STATE	ZIP

38 24Y	J-SEA II LLC
TAX MAP / PARCEL	NAME

22638 MORNING GLORY CIR
MAILING ADDRESS

BRADENTON	FL	34202-6356
CITY	STATE	ZIP

TAX MAP / PARCEL	NAME
38 24M	POTOMAC CREEK INDUSTRIAL LLC

2603 MORSE LN
MAILING ADDRESS

CITY	STATE	ZIP
WOODBRIDGE	VA	22192-4628

TAX MAP / PARCEL	NAME
38 22A	PERDOMO REALTY LLC

20801 BISCAYNE BLVD STE 501
MAILING ADDRESS

CITY	STATE	ZIP
MIAMI	FL	33180-1400

TAX MAP / PARCEL	NAME
38 22	LEXON ENTERPRISES INC

275 W 231 STREET STE 1030
MAILING ADDRESS

CITY	STATE	ZIP
BRONX	NY	10463-3903

TAX MAP / PARCEL	NAME
38 126	METTS LC

1355 BEVERLY RD STE 240
MAILING ADDRESS

CITY	STATE	ZIP
MC LEAN	VA	22101-3649

TAX MAP / PARCEL	NAME
38 125	SHANNON MATTHEW F

3332 M STREET SE
MAILING ADDRESS

CITY	STATE	ZIP
WASHINGTON	DC	20019-2931

TAX MAP / PARCEL	NAME
38 130	FRANKS BETTY A

368 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7308

TAX MAP / PARCEL	NAME
38 131, 38 132	COMMONWEALTH OF VIRGINIA DEPARTMENT OF CORRECTIONS

384 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7308

TAX MAP / PARCEL	NAME
38 132A	COMMONWEALTH OF VA DEPT OF HWYS

1111 E BROAD ST 2ND FLOOR
MAILING ADDRESS

CITY	STATE	ZIP
RICHMOND	VA	23219-1936

TAX MAP / PARCEL	NAME
39 26D, 39 26, 39 22	BOARD OF SUPERVISORS OF STAFFORD COUNTY

PO BOX 339
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22555-0339

TAX MAP / PARCEL	NAME
38 104	TRIDEX ASSOCIATES INC

200 BIG SPRING LN
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7316

TAX MAP / PARCEL	NAME
38G D, 38G B	KENDALL HILLS HOMEOWNERS ASSOCIATION

PO BOX 1866
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22402

TAX MAP / PARCEL	NAME
38 105B	TOLBERT CARL R

8061 CHANCELLOR RD
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-7301

STAFFORD COUNTY
Department of Planning and Zoning

Application Submittal Checklist

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DATE:_____ INITIALS _____	DATE:_____ INITIALS_____

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1. Electronic Version of any plans, surveys, and illustrations (a pdf on a CD, DVD, sent via email, or through ftp site is acceptable)

TAX MAP / PARCEL	NAME
38 105A	ATCHINSON PRICILLA

108 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7304

TAX MAP / PARCEL	NAME
38 107B	LLOYD MELODY

100 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7304

TAX MAP / PARCEL	NAME
38 107	ESCOBAR MELVIN O MARTINEZ

76 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	2554-7302

TAX MAP / PARCEL	NAME
38 116	KELLY CROCKETT & DREAMA J

1351 OSBORNES GAP RD
MAILING ADDRESS

CITY	STATE	ZIP
CLINTWOOD	VA	24228-5853

TAX MAP / PARCEL	NAME
38 117	HUSSAIN SAKHAWAT & ASHRAF MOHAMMAD SABIR

MAILING ADDRESS		
134 JIB DR		
CITY	**STATE**	**ZIP**
STAFFORD	VA	22554-5322

TAX MAP / PARCEL	NAME
38 118	DOSA INCORPORATED

MAILING ADDRESS		
13416 CLASSIC CT		
CITY	**STATE**	**ZIP**
WOODBRIDGE	VA	22192-4502

TAX MAP / PARCEL	NAME
38 119	COMMONWEALTH OF VA DEPT OF HWYS

MAILING ADDRESS		
1111 E BROAD ST 2ND FLOOR		
CITY	**STATE**	**ZIP**
RICHMOND	VA	23219-1936

TAX MAP / PARCEL	NAME
38 122A, 38 122	26 & 30 STATE SHOP ROAD LLC

MAILING ADDRESS		
8449 MARY JANE DR		
CITY	**STATE**	**ZIP**
MANASSAS	VA	20112-4710

38 121A	7K INVESTMENTS LLC
TAX MAP / PARCEL	NAME
818 18TH ST NW STE 400	
MAILING ADDRESS	
WASHINGTON	DC 20006-3504
CITY	STATE ZIP

38 31	KIM ANTHONY
TAX MAP / PARCEL	NAME
3999 RICHMOND HWY	
MAILING ADDRESS	
STAFFORD	VA 22554-4826
CITY	STATE ZIP

38 38	MORROW CHARLES R & BRENDA H TRUSTEES MORROW RONALD A
TAX MAP / PARCEL	NAME
10524 COURTHOUSE RD	
MAILING ADDRESS	
FREDERICKSBURG	VA 22407-1612
CITY	STATE ZIP

38 123A	VEPCO
TAX MAP / PARCEL	NAME
MAILING ADDRESS	
CITY	STATE ZIP

Stafford Technology Campus

COM23154932; Comprehensive Plan Amendment
RC23154931; Reclassification
COM24155687; Comp Plan Compliance Review

Stafford County Planning Commission

June 12, 2024

Background

- Requests:
  - COMP PLAN AMENDMENT: Amend Future Land Use Plan maps to expand the Urban Services Area and amend the future land use from Agricultural/Rural to Central Stafford Targeted Development Area, and future land use of Business and Industry
  - REZONING: Rezone from the A-1, Agricultural to M-2, Heavy Industrial Zoning District, with proffers.
  - COMP PLAN COMPLIANCE REVIEW: Review compliance with the Comprehensive Plan, for the placement of up to 6 electric substations.
- All to permit a data center, public facility/utility, and related accessory uses.

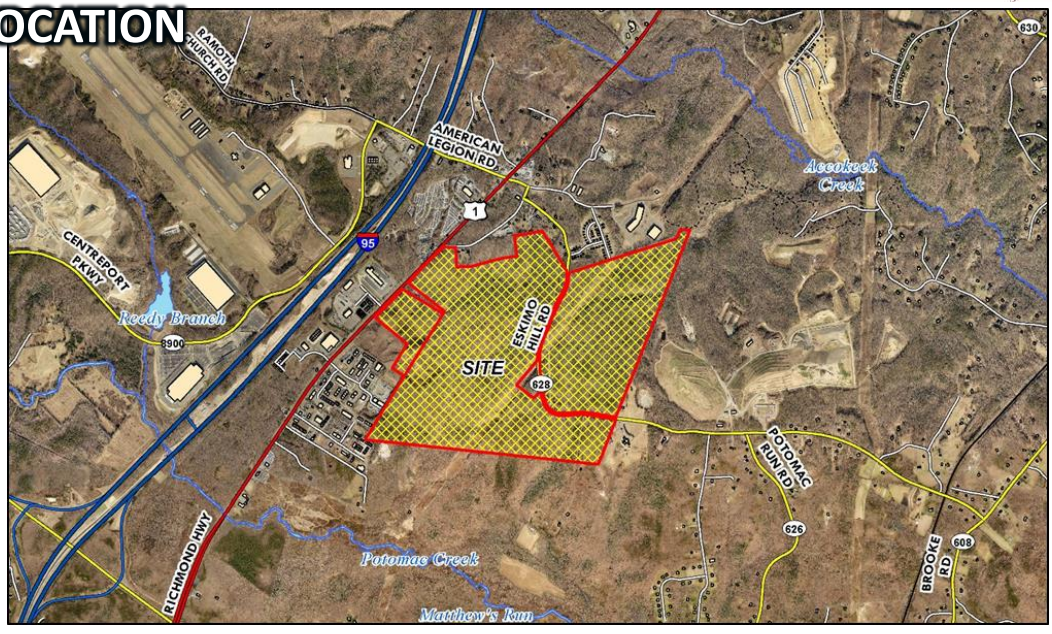
2

Background

- Tax Map Parcel Nos.: 38-124 & 38-29A
- Area: 503.84 Acres
- District: Falmouth
- Applicant/Owner: Stafford Technology, LC
- Agents: Jonelle Cameron & Jessica Pfeiffer, Walsh, Colucci, Lubeley, & Walsh PC

3

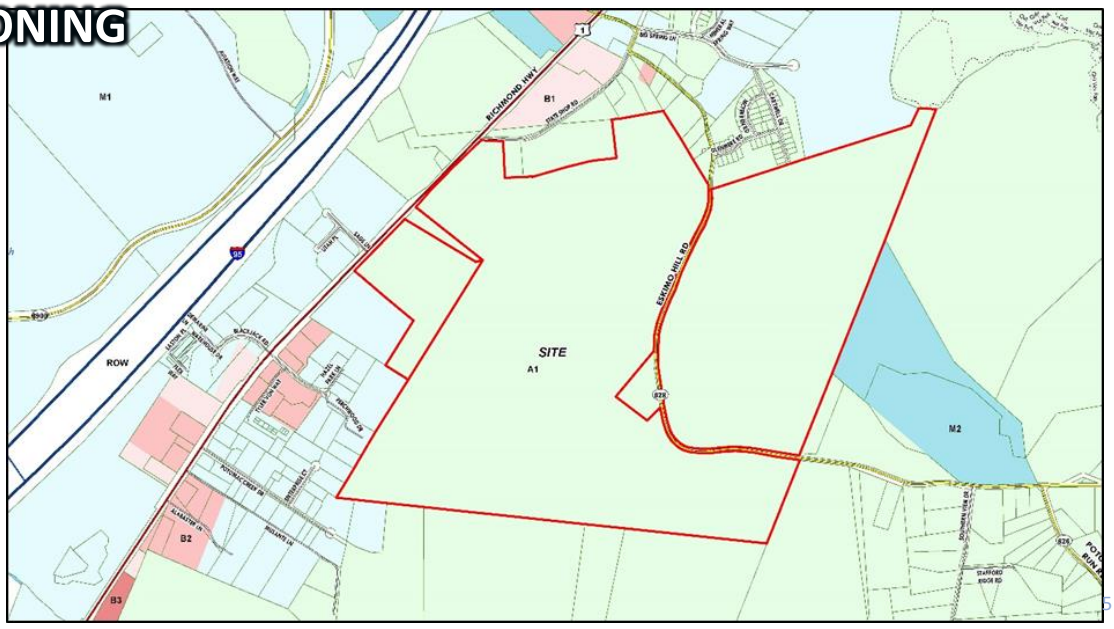
LOCATION



4

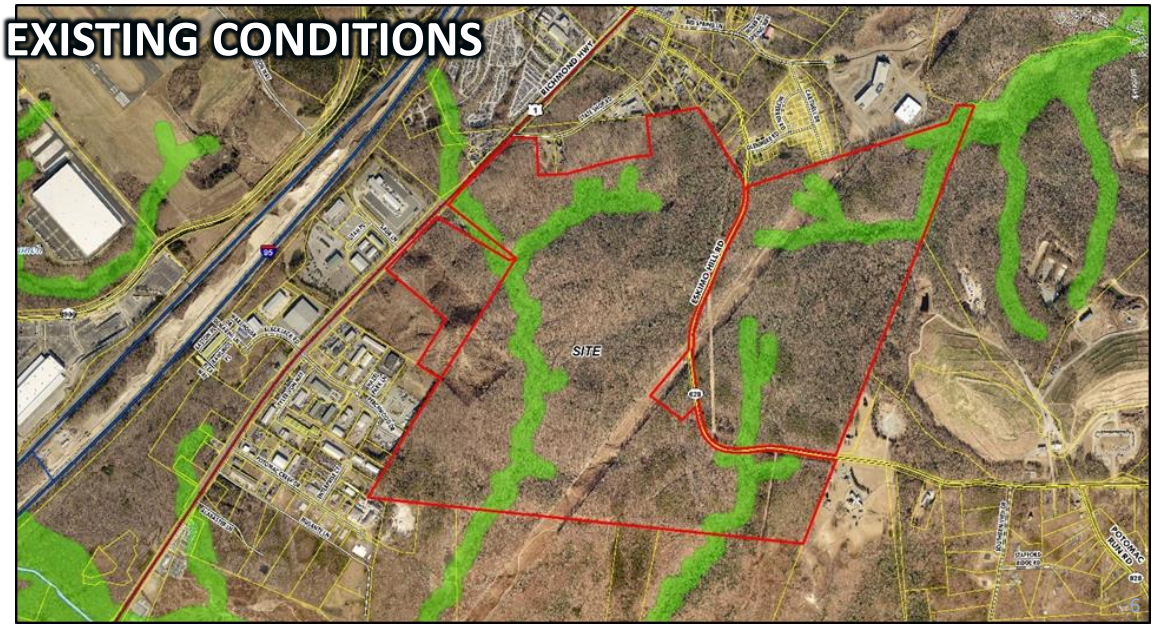
STAFFORD Virginia

ZONING



STAFFORD Virginia

EXISTING CONDITIONS



COMPREHENSIVE PLAN AMENDMENT

7

PROPOSED MAP AMENDMENTS

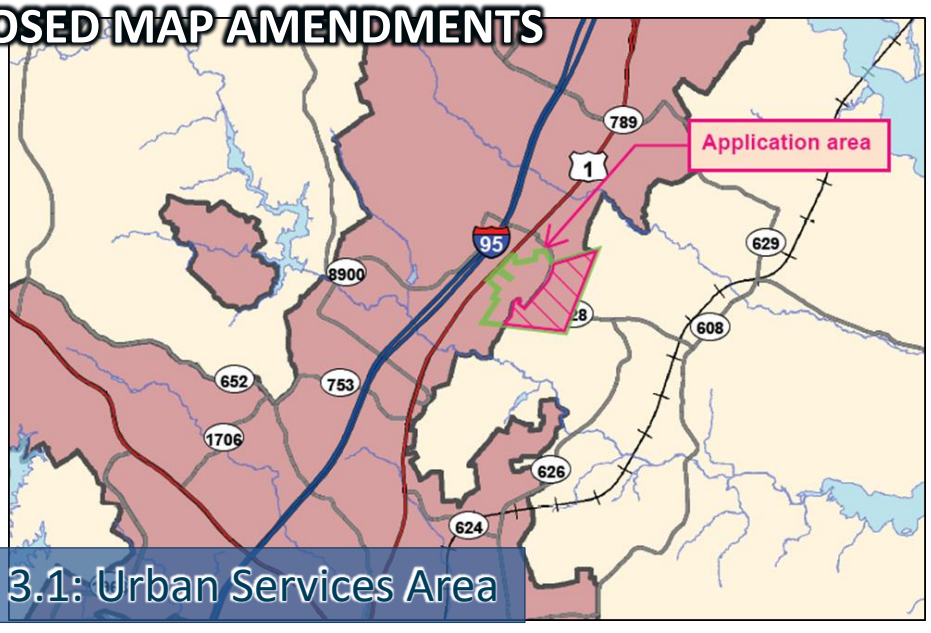
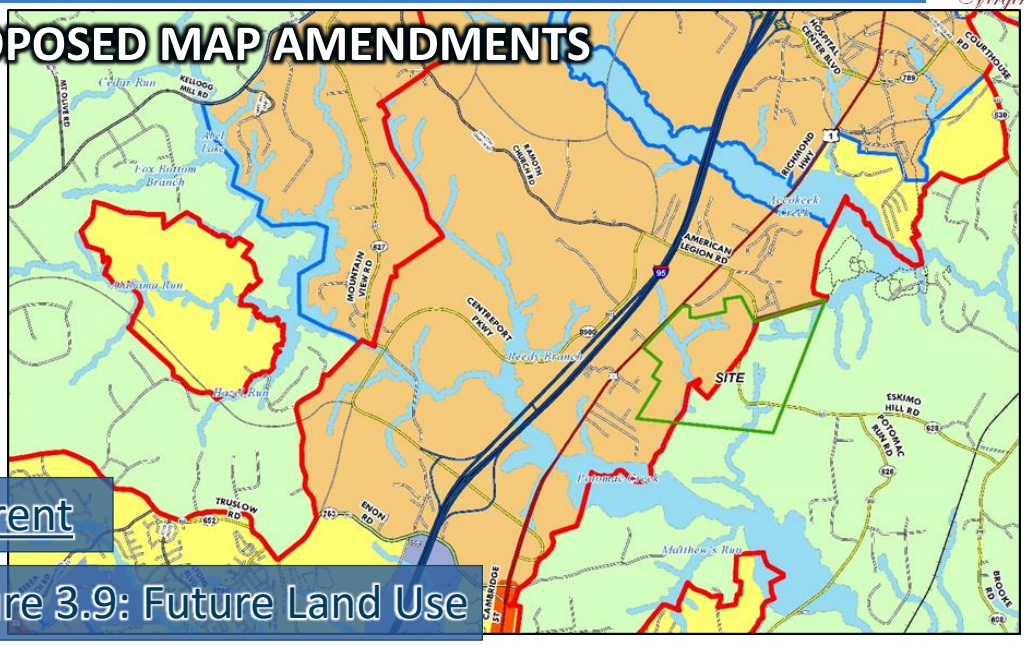


Figure 3.1: Urban Services Area

8

STAFFORD Virginia

PROPOSED MAP AMENDMENTS



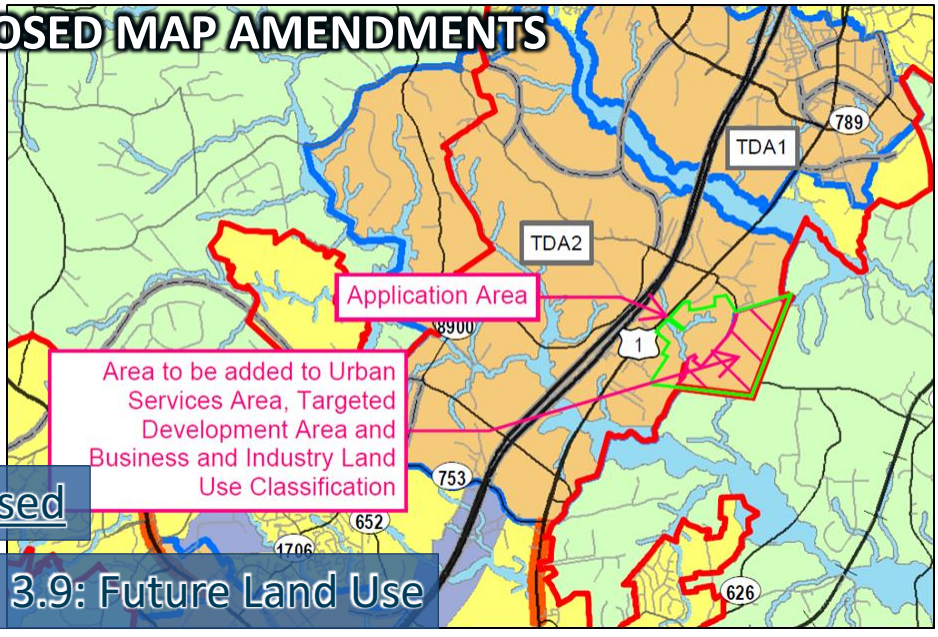
Current

Figure 3.9: Future Land Use

9

STAFFORD Virginia

PROPOSED MAP AMENDMENTS



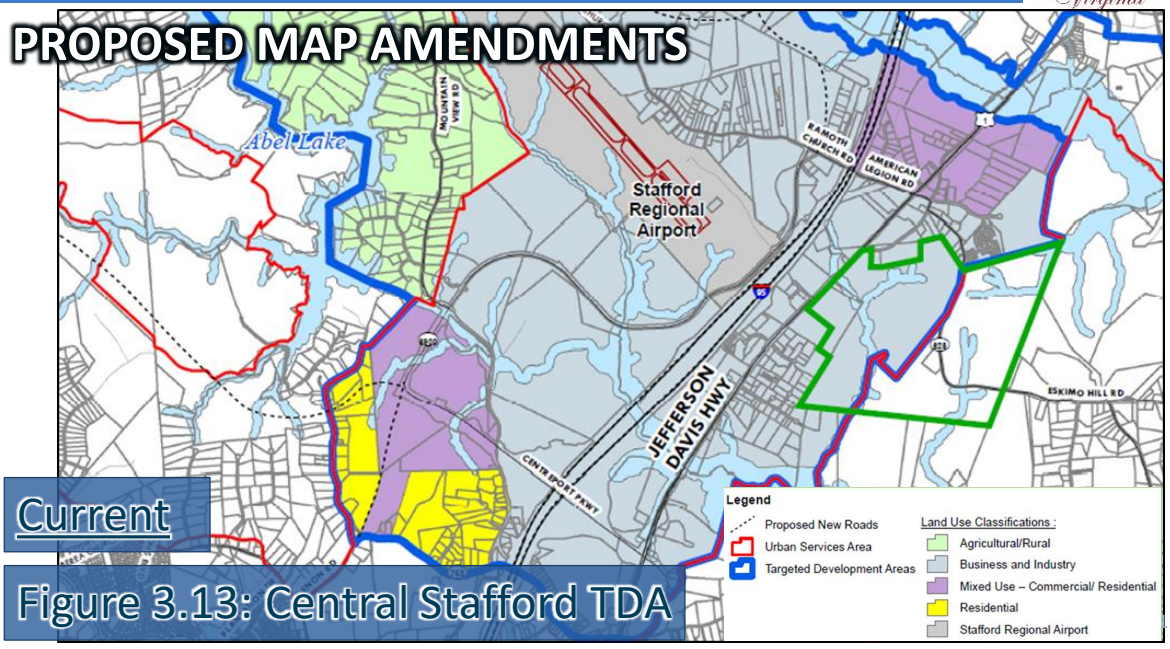
Proposed

Figure 3.9: Future Land Use

10

STAFFORD Virginia

PROPOSED MAP AMENDMENTS

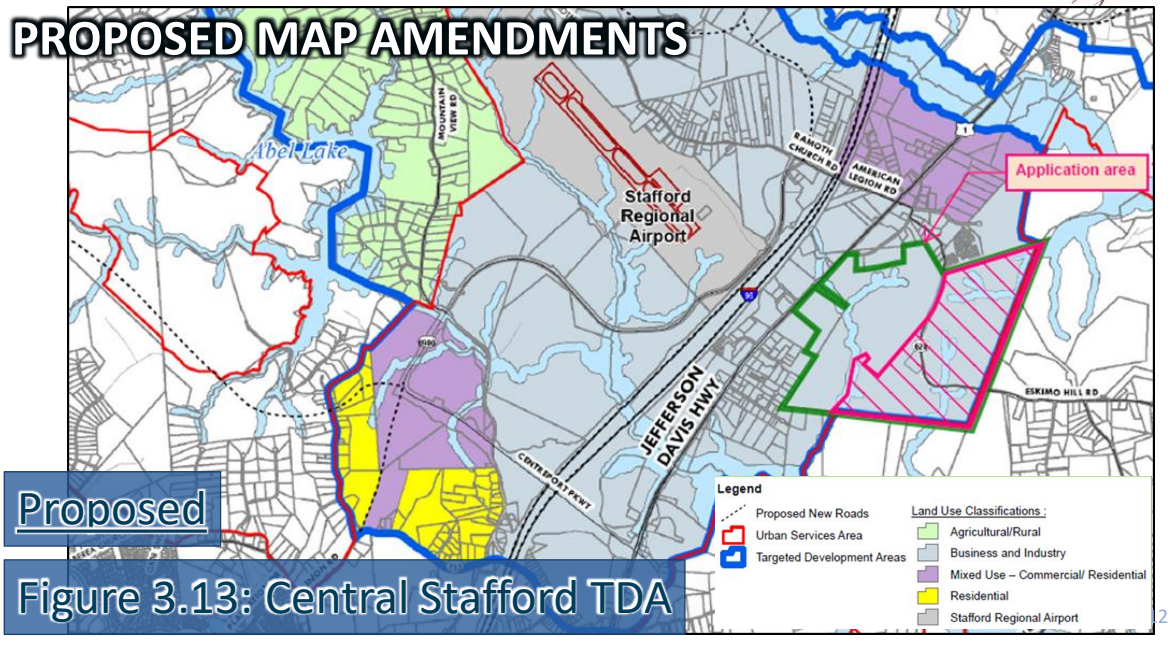


Current

Figure 3.13: Central Stafford TDA

STAFFORD Virginia

PROPOSED MAP AMENDMENTS



Proposed

Figure 3.13: Central Stafford TDA

Evaluation – Staff Findings (COMP PLAN AMENDMENT)

- Positives
  - Proposed use is more compatible with the surrounding existing land uses.
  - There are limited public services to support residential development.
  - Proposed extension of the USA is unlikely to lead to further extensions of water and/or sewer to other lands outside the Urban Services Area.
  - Proposed use is more appropriate than the current use in the vicinity of the airport.
  - The corresponding zoning reclassification proposes to mitigate many of the anticipated impacts.
- No apparent Negative impacts noted.

13

Recommendation – COMP PLAN AMENDMENT

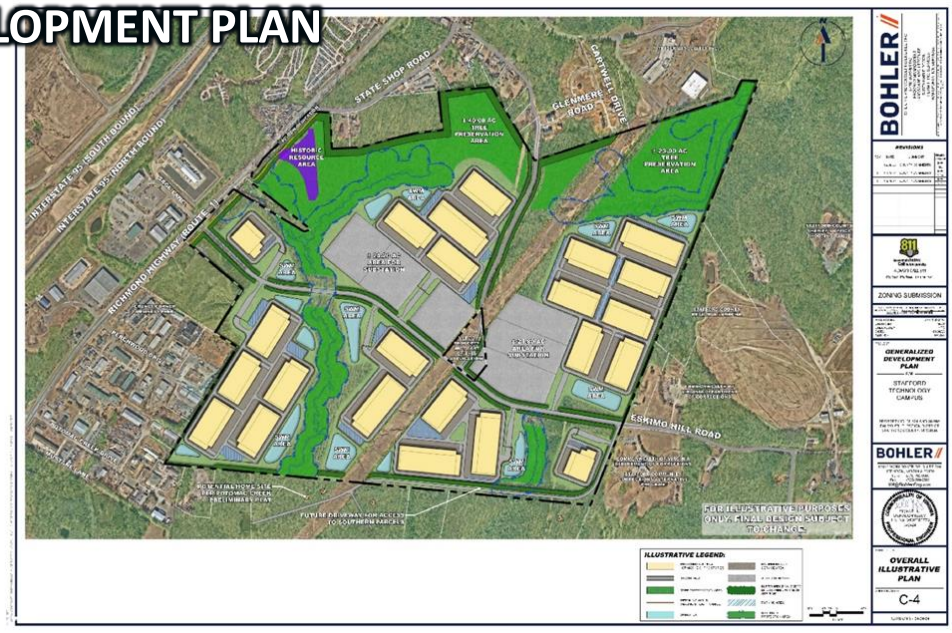
- Staff recommends approval of the proposed amendments to the Comprehensive Plan (application RC23154932), pursuant to proposed Resolution R24-187.

14

ZONING RECLASSIFICATION

15

DEVELOPMENT PLAN



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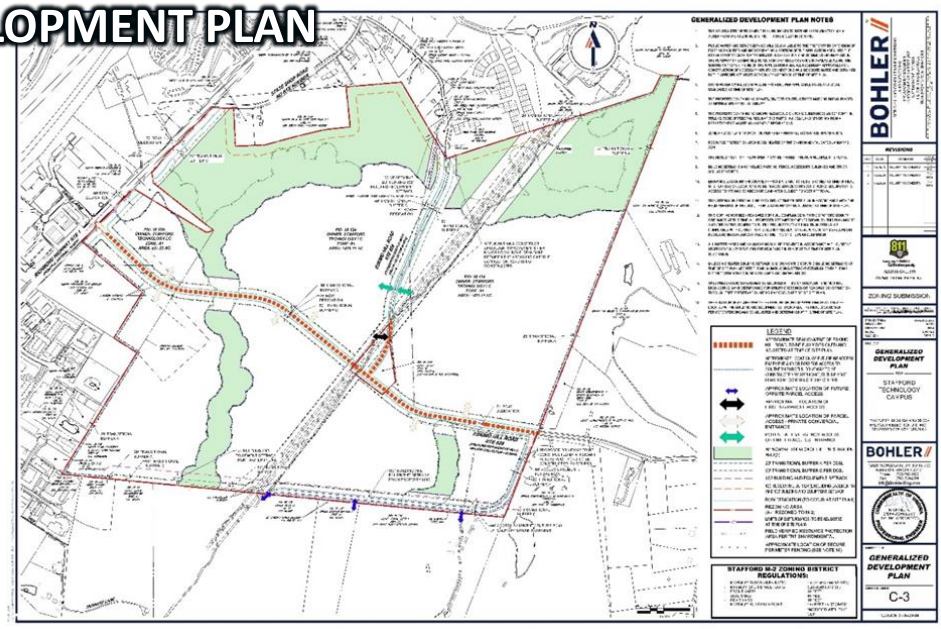
STAFFORD Virginia

DEVELOPMENT PLAN



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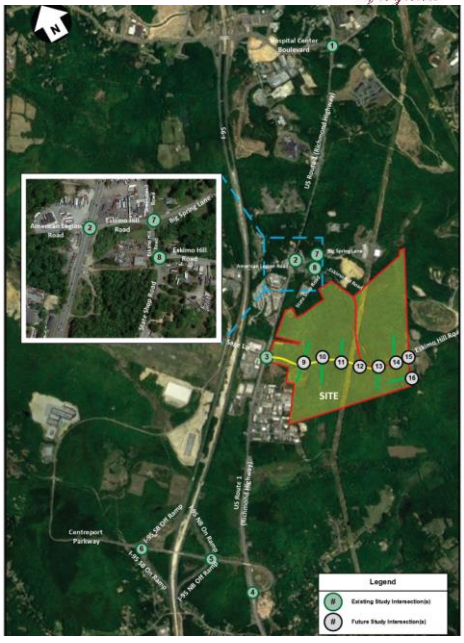
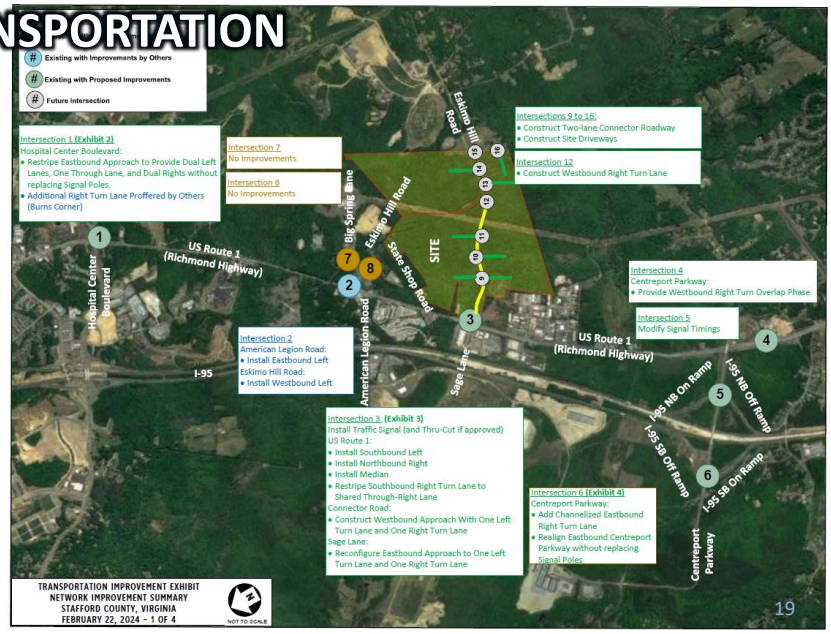
STAFFORD Virginia

Evaluation - TRANSPORTATION

- 4,356 vehicle trips per day
- A TIA evaluated surrounding intersections
- Several mitigation measures identified
- Project would implement recommendations from the Transportation Plan



Evaluation - TRANSPORTATION



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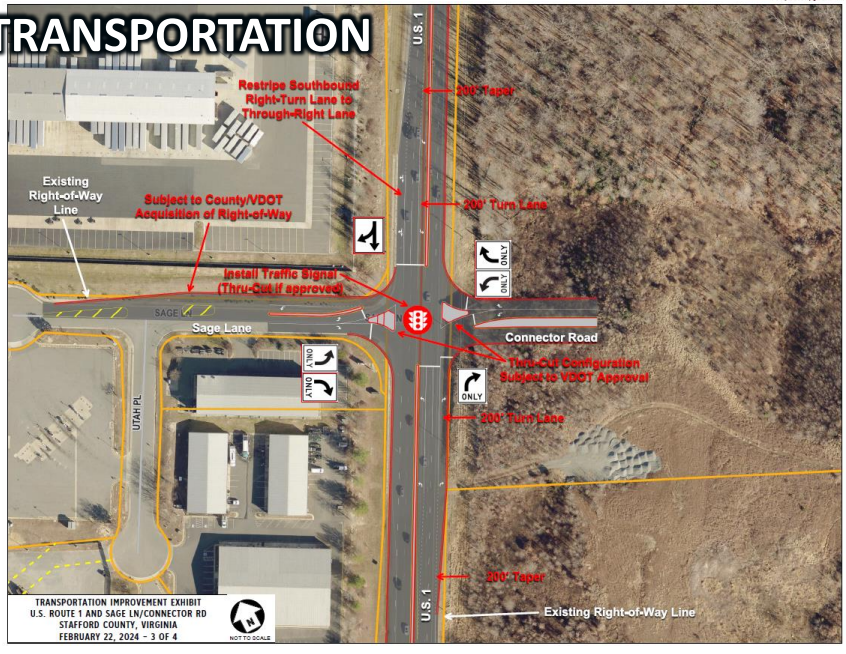
Evaluation - TRANSPORTATION



20

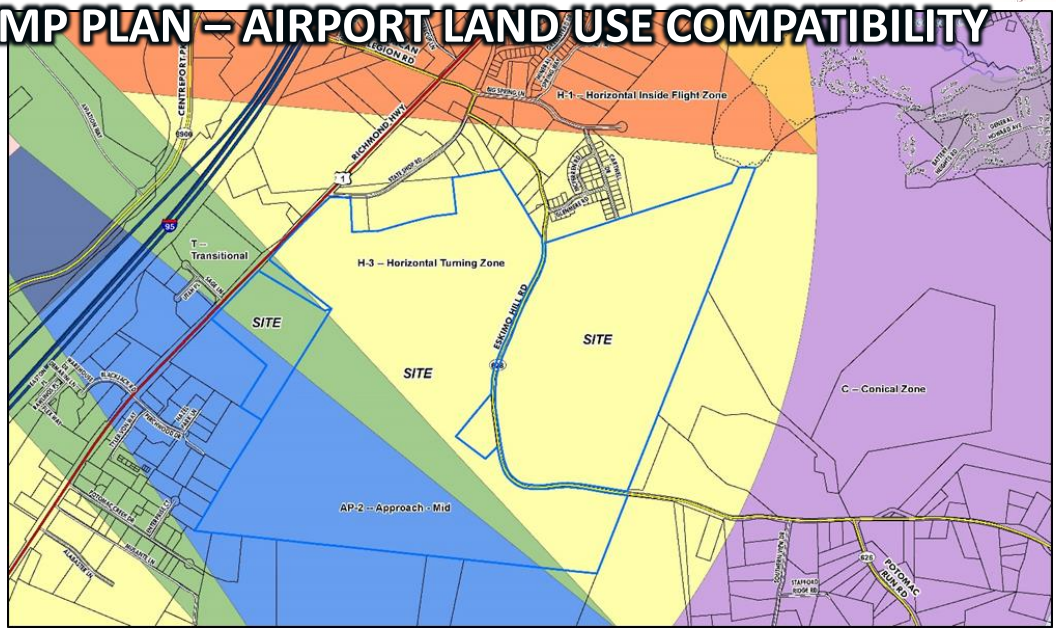
Evaluation – UTILITIES

- Water demand: Not quantified in the application
- Proffers:
  - require connection to reuse water lines when available to meet cooling requirements.
  - Required to enter into a water service agreement with the County.
- Temporary use of potable water until reuse lines constructed to the site.
- Other off-site water and sewer improvements needed.

Evaluation –SOUND

- Data Centers have the potential of creating noise impacts
- Proffers:
  - For prominent discreet tones, the Sound Standard shall be reduced by 3 dB(A).
  - Require sound measurements six (6) months after final occupancy permit to confirm compliance.
  - Require a sound analysis prior to the approval of each final site plan for the property.

COMP PLAN – AIRPORT LAND USE COMPATIBILITY



23

BUILDING FACADE TREATMENTS

Data Center Fenestrations, material changes



Change in step-backs, recesses and change in color



Change in height



24

Additional Proposed Proffers

- Require the Property to be developed in general accordance with the GDP;
- Prohibit several uses that would be permitted in the M-2 district;
- Permit building heights of 105 feet, above the max. permitted;
- Permit electric substations on the property, with height and location standards;
- Require a 150-foot data center building setback from the southern property line ;
- Require security fence to be at least 7 feet in height, if provided;
- Establish tree preservation areas;
- Establish fire and rescue standards;

25

Additional Proposed Proffers

- Provide a series of sound mitigation standards;
- Provide a series of Transportation improvements;
- Limit the combined uses on the property to no more than 4,356 vehicle trips per day;
- Pay to repair any damaged wells or septic systems on adjoining residential properties, or pay public connection fees if requested;
- Develop a construction management plan;
- Develop an emergency management action plan; and
- Provide an annual general development schedule if requested by the County.

26

Evaluation – Staff Findings (ZONING RECLASSIFICATION)

- Positives
  - Use consistent with the recommended Business and Industry land use and the full site would be in compliance if the concurrent Comp Plan amendment is approved.
  - The data centers are an appropriate use within the Airport Overlay district.
  - Data centers would be consistent with the adjacent industrial and public facility uses.
  - Buffers and building setbacks would limit visual impacts to the adjacent residential uses.
  - Siting near electric transmission lines limit the need to extend additional transmission lines.

27

Evaluation – Staff Findings (ZONING RECLASSIFICATION)

- Positives
  - The substations would be centrally located on the site, minimizing visual impacts to adjacent properties.
  - Ensures the data centers will use reuse water when available, negating any potential impacts to the County's potable water supply.
  - The planned connector road is generally consistent with a recommended road connection in the Transportation Plan, improving access to the data centers.
  - Promotes Economic Development goals of bringing high paying jobs to the County.

28

Evaluation – Staff Findings (ZONING RECLASSIFICATION)

- Negatives
  - Several transportation issues remain unresolved.
  - The electric substations may be in conflict with the Airport Compatibility guidelines.
  - Taller maximum building heights may create potential visual impacts on adjacent properties.
  - There are no limitations to the amount of potable water that may be used for data center cooling, or corresponding timeframes for the completion of the water reuse line.
  - Sound measurement proffers may not provide adequate standards.

29

Recommendation – ZONING RECLASSIFICATION

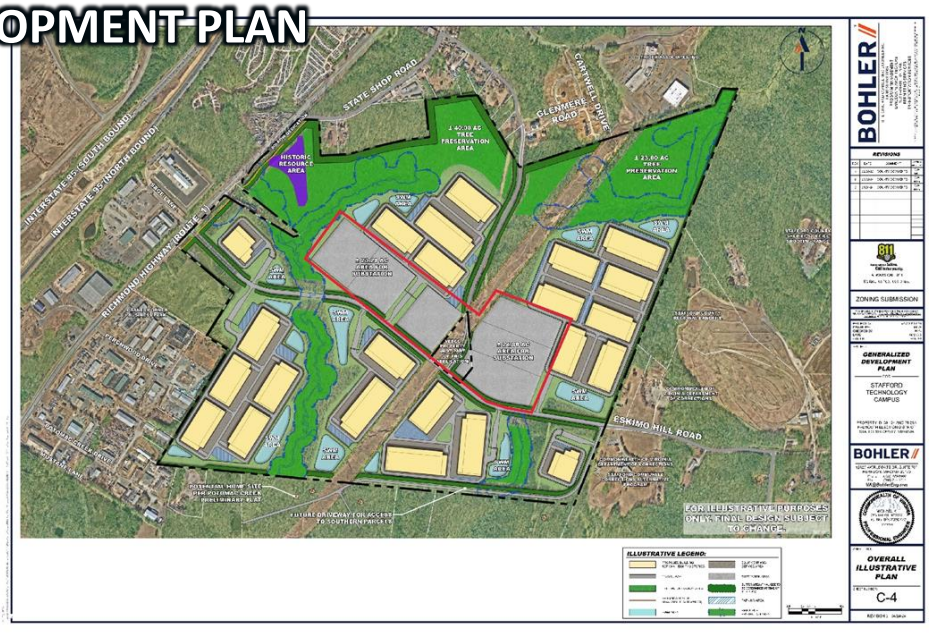
- Although there are several positive aspects, staff recommends deferral of the application (RC23154931), as there are unresolved issues that should be considered.

30

COMPREHENSIVE PLAN COMPLIANCE REVIEW

31

DEVELOPMENT PLAN



32

SAMPLE SUBSTATION IMAGE



33

Comp Plan Evaluation

- *Objective 5.5: Support the expansion of electric and pipeline utilities in a manner that minimizes the exposure of County residents to potential pipeline ruptures and visual impacts and environmental hazards associated with electrical generation transmission, and distribution facilities.*

- *Policy 5.5.4: Electric utility and telecommunication providers should design their systems to minimize electromagnetic field impacts on nearby residential uses, schools, and businesses.*

34

Comp Plan Evaluation

- *Policy 5.5.5: Above ground transmission lines, sub-stations, and switching stations should be sited and designed in a manner to minimize visual and environmental impacts on adjacent land uses. Within the Urban Services Area, the County strongly encourages the underground placement of all electric transmission lines when new lines are installed or existing lines relocated. Above ground transmission lines of 150 kilovolts or more, and associated facilities such as sub-stations and switching stations should provide adequate screening and buffering.*

- *Policy 5.5.6: The County discourages future residential development from locating in the vicinity of existing and future electric transmission lines of 150 kilovolts or more, and associated facilities such as substations and switching stations without adequate screening and buffering.*

35

Evaluation – Staff Findings (COMP PLAN COMPLIANCE)

- Positives
  - Siting of substation immediately adjacent to the existing overhead powerlines eliminates the need to extend transmission lines through the community.
  - The site is located away from densely populated areas, with lower density land uses in the proximity of this site.
  - The proposed tree preservation and setbacks of the substations from the closest residential properties would minimize any visual or other negative impacts.
  - The Comprehensive Plan does not support higher-density residential development in the vicinity of the site.

36

Evaluation – Staff Findings (COMP PLAN COMPLIANCE)

- Negatives
  - Potential impacts to operations sat the Stafford Regional Airport are unknown at this time.

37

Recommendation – COMP PLAN COMPLIANCE REVIEW

- Staff recommends that the Planning Commission defer the request to determine if the substations would pose any negative impacts on the operations of the Stafford Regional Airport.

38

1. COM23154932; Amendment to the Stafford County Comprehensive Plan – Stafford Technology Campus - A proposal to amend the "Stafford County, Virginia, Comprehensive Plan 2016-2036 2021 5-Year Update," adopted on November 16, 2021, as last revised, regarding future land use designations to support higher density commercial development. The proposed amendment would modify Chapter 3.0, "The Land Use Plan;" to amend the maps entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area" (collectively, the "Maps"). The proposal would amend the Maps by changing the future land use designation on an approximately 262-acre portion of Tax Map Parcel No. 38-124 (Property) from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area limits to incorporate the Property into the Urban Services Area. The Property consists of approximately 262 acres, located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road, within the Falmouth Election District.

2. RC23154931; Zoning Reclassification – Stafford Technology Campus - A proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-124 and 38-29A, together consisting of 503.84 acres (collectively, "the Property"). The proposed proffers would: require the Property to be developed in general conformance with the generalized development plan; prohibit specific uses otherwise permitted in the M-2 Zoning District; permit height for data center buildings of one hundred and five (105) feet; permit and establish requirements applicable to electric substations; establish building setback and architectural design standards for data center buildings; establish tree preservation areas; establish fire and rescue standards; establish noise limitation standards; require specified improvements to utilities and transportation; and require plans related to construction management and emergency management and a general development schedule. The Property is located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road, within the Falmouth Election District. **(Time Limit: September 20, 2024)**

3. COM24155687; Comprehensive Plan Compliance Review – Stafford Technology Campus - A request to review compliance with the Comprehensive Plan, in accordance with Virginia Code Sec. 15.2-2232, for the placement of up to six (6) electric substations on Tax Map Parcel No. 38-124 (Property). The Property consists of 476.61 acres, and is located on the east side of Richmond Highway, south of State Shop Road, and east and west of Eskimo Hill Road, within the Falmouth Election District. **(Time Limit: August 11, 2024)**

Mr. Zuraf: Good evening Vice Chair Shelton and members of the Commission. Mike Zuraf with the Planning and Zoning Department. My presentation, if I can have the computer please, for this project, it includes items 1, 2, and 3. So if you, if I may, I'd go ahead through the full presentation of all three items. So this is three separate applications for a single project called Stafford Technology Campus. It includes a Comprehensive Plan Amendment, Zoning Reclassification, and Comprehensive Plan Compliance Review. So the first item is a Comprehensive Plan Amendment. It is a proposal to amend the Future Land Use Plan maps. There are three separate Land Use Plan maps that are proposed to be amended. First, to expand the Urban Services Area map, to amend the Future Land Use map from AG/Rural, Agricultural/Rural to the Central Stafford Targeted Development Area, and a third map modifying the Central Stafford TDA map that pinpoints specific land use recommendations. The second item is a Zoning Reclassification to rezone the subject properties from A-1, Agricultural to M-2, Heavy Industrial Zoning, and includes proffers. And then a Comp Plan Compliance Review, to review compliance with the Comp Plan for the placement of up

to six electric substations. This would all be to permit a data center campus and public facility utility related, and related accessory uses. And I'll go through all this in a lot of detail. So for background, these parcels, two parcels are involved, 38-124, and 38-29A. This covers over 500 acres. It's in the Falmouth Election District. Stafford Technology, LC is the applicant, and Jonelle Cameron is here tonight representing the applicant. The site's located on the east side of Richmond Highway, across from the intersection with Sage Lane. It's also on the south side of State Shop Road and on both sides of Eskimo Hill Road. This is a zoning map of the site and surrounding area. The light green color represents A-1 zoning of the subject property. And then the surrounding zoning includes other A-1 zoned property in all sides, There's some M-1, Light Industrial zoning; that's the light blue shading that is on the western side of the site and a little bit to the north. And then on the eastern side, there's a little bit of M-2, Heavy Industrial zoning. The property has been zoned A-1 since before 1978 and there are no proffers that exist currently on the site. There was a preliminary subdivision plan approved on this property for 145 residential lots; it was back in 2005. That approval is still valid, but there's no development that has occurred for that residential project. The property is undeveloped and wooded. This is an aerial view. There is a high voltage transmission line and easement that bisects the property. You can kind of see that different shading through the middle. That's where the high voltage transmission line is located. The site includes rolling, sloping terrain through the property. There are several perennial streams and wetlands and RPA buffer areas across the site. Those are highlighted in the green shading. Some of the general surrounding uses include some residential and undeveloped uses to the north, and also other residential and undeveloped to the south as well. The Stafford Regional Landfill and also State Corrections Facility is located on the eastern side of the property. And to the west you have an industrial park, auto salvage yard, and other undeveloped land. The undeveloped parcel to the south has, also has an approved subdivision plan for 24 dwelling units. This is known as Potomac Creek Overlook. There, the property owner, though, has submitted a Comp Plan amendment application for that property. So first going over the, in a little more detail, the first item on the agenda, the Comp Plan Amendment. Again, this is the proposal to amend three different maps, and I'll go over those changes or those proposed changes. So the first map would be Figure 3.1 out of the, out of the Land Use chapter of the Comp Plan. This basically the red shaded area highlights the limits of the Urban Services Area. And so the propo… the subject property that is highlighted with the green line, and then the area that where the Urban Services Area would be expanded, it was in the red hatched area, basically on the eastern side of the property. And that area covers approximately 262 acres. The next map amendment request is, so this is the Figure 3.9, the Future Land Use map, also in Chapter 3 of the Comp Plan. This highlights the existing Future Land Use map. Again, the site highlighted in green, the orange shaded area is the area known as the Central Stafford Targeted Development Area. The light green area is the Agricultural/Rural Future Land Use Area. And the red line, that is the current Urban Services Area limit. So the proposed change to this map would expand that Central Stafford Targeted Development Area to the east to include the entire site. And the corresponding Urban Services Area limit would, would change and be expanded to include that area as well. So in the last map being requested to be changed is Figure 3.13. This is the Central Stafford Targeted Development Area map. It's the Future Land Use Concepts within this Targeted Development Area. So this is the current map, and you can see the gray shaded area recommends Business and Industry Future Land Use, and you see the portion of the site currently is outside of that. So then the proposed amendment to this map would expand that Business and Industry Land Use to go along with the proposed new boundaries to the Urban Services Area and Central Stafford Targeted Development Area. With the overall evaluation of, of this item, there are several positive aspects that staff point out. The proposed use is more compatible with the surrounding existing land uses in this area. There are limited public services in this area to support additional residential development such as schools and parks and things like that, and other shopping as well. Also, third point, the proposed extension of the Urban Services Area is unlikely to lead to further extension of the water and/or sewer to other lands outside of the Urban Services Area. As I noted, the area kind of butts up against the regional landfill, so there would be no need

to expand the Urban Services Area to cover that, that area. Also, the proposed use is more appropriate than the current use in the vicinity of the Stafford Regional Airport. Some maps I'll get into show the operations of the airport and how that affects this site. And also the corresponding zoning reclassification proposes to mitigate many of the anticipated impacts. Staff does not see any negative impacts from this proposed land use change, the Comp Plan change, and staff recommends approval of the Comp Plan Amendment pursuant to Resolution R24-187. So now getting into the zoning reclassification, this is the second item on the agenda. This, again, is rezoning the property from A-1, Agricultural to M-2, Heavy Industrial. This application includes a general development plan. This general development plan contemplates up to 23, at least shown on this concept plan, 23 buildings. Those are the yellow boxes on this plan. They are anticipated as data, as a data center campus, which total up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site and avoid the Critical Resource Protection Areas that, and stream corridors that, that run through the property. The plan is showing potential building locations and layouts. With a project of this size, I'll point out that the applicant cannot commit to specific, the specific number of buildings and building locations and sizes as future tenant needs may change as the build-out of this project proceeds out several years. Each building would consist of two to three levels. The two level buildings would likely be up to 65 feet tall. The three level buildings would potentially be up to 105 feet tall. The maximum building height in M-2 is 65 feet in the zoning ordinance. Any structures exceeding that, that elevation would typically require a conditional use permit. The applicant, though, has listed the height exception in the proffer statement as a permitted component of the project. So acceptance of the proffers by approval of this request would allow the applicant to proceed with constructing the buildings up to 105 feet without needing a conditional, separate conditional use permit. The applicant is also proposing to construct a new road extension from Richmond Highway across from Sage Lane and running east to connect to Eskimo Hill – let's see if this works tonight. The new road extension, here's Route 1. It would run across here in this direction and connect up with Eskimo Hill in this, in this area. So that would be a new road network that would be added. Entrances to the data center pods are proposed off the new road and the existing Eskimo Hill Road. The applicant does not propose any, any direct entrances off of Route 1 into any of the specific parcels into the site, other than the main road entrance. Also the general development plan identifies up to six electric substations. They're proposed in the center of the site; the gray boxes in the center in this location. The stations will connect to the adjacent high voltage power line, and that bisects the property. Also similar to the height, I'll note that the electric substation is identified as a use that requires a conditional use permit in M-2. The applicant has listed the use as a permitted use in the proffer statement. And same thing here, that acceptance of the proffers would allow that, that use to proceed without needing a separate conditional use permit application. The general development plan also includes another page that identifies tree preservation areas. Those are the green shaded areas on the site. They also identify landscape buffers to screen the project from residential uses to the north. The tree preservation zones are identified as ranging from 400 to 1,000 feet in width. Mature trees that exist in this area would be preserved as part of this plan. Transitional buffers are proposed, are shown on this… you have a 20-foot transitional buffer adjacent to the landfill and Corrections Facility. On the south side, a 50-foot transitional buffer is, is planned and street buffers of 50 feet in width are proposed along Eskimo Hill Road and the new road connection. So looking at some of the evaluation factors, with transportation, a traffic impact analysis was submitted with the application to determine if the impacts from the proposed use. The development would generate up to 4,365 vehicle trips per day. The traffic study evaluated impacts from the project on the, on several intersections that go up and down Richmond Highway, all the way from Hospital Center Boulevard down to Centreport Parkway, and also the I-95 ramps at the Centerport exit. In the study, several mitigation measures were identified in the, that would be implemented as part of the project. A Transportation Plan Exhibit is included with the application that illustrates the proposed improvements. The project would also incorporate recommendations out of the Transportation Plan Element of the Comprehensive Plan. This includes right-of-way dedication that's recommended along

Route 1, and then also right-of-way dedication along Eskimo Hill Road to allow for future widening and general improvement to those two roads in the future. And also the new east/west road connection is a recommended road segment in our Comprehensive Plan so the applicant is implementing that recommended road segment. This is one of the main pages from the Transportation Plan Exhibit. It just highlights the improvements to be made from, from one end to the other, and it kind of spell, identifies each point and highlights, in general, the improvements being provided. Then also separate pages in the Transportation Plan zoom in on specific intersections and provide more detail on how the improvements would be made at each of those intersections. With utilities, a data center use does require more water than other typical commercial and industrial development. The amount of water needed for the project, it was not identified specifically in the application. There are proffers that are being offered though. The proffers would require connection to a future reuse water line when available to meet cooling requirements. And also, they would be required through the proffers to enter into a Water Service Agreement with the County to help outline the improvements that would be needed to serve this site and surrounding area. The Water Service Agreement would outline how and when the reuse line would be constructed. The reuse line would need to be constructed from the Aquia Wastewater Treatment Plant to out to this site. The previous Potomac Church data center project that was approved, they proffered to construct a line to their site, and so from that Potomac Church data center site you have a one and three quarter mile distance to get to this site. The Water Service Agreement also then needs to be approved separately by the, from the Board of Supervisors. And staff would note, the proffers do not set a limit. First off, I'll note that the temporary use of potable water would be likely until the reuse lines are constructed to the site. I'll note, the proffers do not set a limit on the number of buildings that can utilize potable water. The reuse line is an extensive infrastructure project that will take several years to complete, so staff does recommend some sort of limit be established as to how many projects, how much, how many data centers can really utilize the potable water on this site. And also, other off-site water and sewer improvements would be needed, and the applicant is proposing to construct other off-site potable water improvements that the buildings will still require even if they are connected to reuse. So with sound, data centers do have the potential creating noise impacts. The applicant, the facilities, data center facilities, they require consistent climate control, which is handled with cooling systems that operate more frequently. The uses can generate consistent, low level sound that can be audible from adjacent properties. There are proffers that the applicant has included addressing sound. They have included that for prominent, discrete tones, the sound standard would be, the sound standard that is provided in the proffers and in the County ordinance would be reduced by three decibels. Also, require sound measurements to be conducted six months after final occupancy of the buildings to permit, occupancy permit to confirm compliance with the, the sound proffers and County Noise Ordinance, and also require sound analysis prior to the approval of each final site plan for the property. Staff would recommend additional sound measurement criteria be added, including sound measurements at specific months of the year, and then also requiring some measurements several years after occupancy. You saw the Comp Plan maps already on this. There are other Comp Plan features that affect this site. The site's within the Airport Impact Overlay that is in the Comp Plan as it relates to the Stafford Regional Airport. This identifies specific operational areas around the airport and identifies what land uses would be compatible or not, or might be iffy, within all these different zones. So you see the site highlighted in blue, this area is affected by and intersects with three different airport land use zones. Your bright blue area, the AP-2, that's, that's the approach pattern to the runway. And the green area, that is a transitional zone adjacent to that approach. And then H-3 is called the horizontal turning zone. That's if a plane needs to circle the airport in some way, that's generally where planes will be circling in that area. And so I mentioned the, the land use compatibility, the plan addresses that with, and identifies if uses are compatible or not or require additional review. Data centers would like be defined as needing additional review in the approach zone, additional review in the transition zone, and ident… are identified as a compatible use in the H-3 turning zone. The electric substations are classified in the, in this matrix as vertical infrastructure. This use is defined as not

compatible in the approach zone, not incompatible in the transition zone, and needing additional review in the H-3 zone. These are representative images provided by the applicant depicting the required design features of the buildings. The proffers require buildings incorporate a variety of façade design treatments that correspond with, with these images. Just a quick summary of the proffers that were provided. The proffers require the property be developed in general accordance with the GDP; prohibit several uses that would otherwise be permitted by-right in the M-2 district. Also, as mentioned, permitting the building height up to 105 feet. Permit the electric substation on the property, also requiring a 100-foot data center building setback from the southern property line to help minimize potential noise impacts from residential uses in that direction. Also require security fence to be at least seven feet in height. If provided, established tree preservation areas and establish Fire and Rescue standards. Also, they're providing a series of sound mitigation standards. I mentioned a few. Also, providing a series of transportation improvements, limiting the combined uses of the property to no more than 4,356 vehicle trips per day. That… those number of vehicle trips correspond with up to 5.8 million square feet of data center building area. That's how the two match up. And also, they would pay to repair any damage… oh, that's not this project, that's the other one. Sorry. They would develop a construction management plan, develop an Emergency Management Action Plan, and provide annual general development schedule, if requested by the County. So the overall evaluation of the rezoning – there are positives: the use is consistent with the recommended Business and Industry Land Use in the, in the, and the full site would be in compliance if the concurrent Comp Plan Amendment is approved. The data centers are an appropriate use within the Airport Overlay District; data centers would be consistent with the adjacent industrial and public facility uses; buffers and building setbacks would limit visual impacts to the adjacent residential uses; and siting near electric transmission lines limit the need to extend additional transmission lines throughout the County. Additional positives – the substations would be centrally located on the site, minimizing visual impacts to adjacent properties. The project ensures the data centers will reuse, will use reuse water, reuse water when available, negating the potential impacts to the County's potable water supply. Planned connector road… the planned connector road is generally consistent with the recommended road connection in the, in the Comp Plan and the Transportation Plan; and promoting economic development goals of bringing high paying jobs to the County. There are some negative aspects. There's several transportation issues remaining that are, and concerns raised by VDOT that remain unresolved. The electric substations may be in conflict with the Airport Compatibility Guidelines. The taller maximum building heights may create potential visual impacts on adjacent properties. There are no limitations to the amount of potable water that might be used for data center cooling or corresponding timeframes for the completion of the water reuse line. And then sound measurement proffers may not provide adequate standards. For the recommendation on the reclassification, although there are several positive aspects, staff does recommend deferral of the application because there are unresolved issues that should be considered. In the staff report we basically outline all those, all those issues after this, after the recommendation. So the last item, item three, the Comprehensive Plan Compliance Review, again, this is a request for the Planning Commission to review compliance with the Comp Plan for the placement of up to six electric substations. As mentioned, they're centrally located within the overall property; the gray shaded area shows the locations. They're along Eskimo Hill Road and the proposed extension of Eskimo Hill Road. This is a sample substation image included with the application. The applicant noted the tall structure in the facility are components called backbones and static poles that reach 95 feet in height. So Chapter 2 of the Comp Plan includes one objective and three policies that are specific to electric substations. Staff evaluated how the substations conform to the policies. The proposal is generally consistent with Objective 5.5; the substation is located immediately next to an existing transmission corridor, eliminating the need to extend transmission lines through the community. The facility is located away from dense residential uses, and setbacks are proposed from the closest residential uses to the south and north. On Policy 5.5.4, the application does not necessarily address the electromagnetic field impacts, but other similar applications in the past have noted that Dominion Energy

does site and design their facilities to maximize or minimize, sorry, minimize any impact of EMF levels. Staff is uncertain if there are maximum permissible EMF levels or other measurable standards that address the issue. The central location of facilities, though, on the property should serve to minimize EMF impacts on adjacent properties. Regarding Policy 5.5.5, the mature tree cover being preserved to the north and proposed buildings and setbacks to the south would help to provide screening of any new overhead lines. The substation infrastructure will likely be visible, though, from Eskimo Hill Road; the tall structures within the facility, as mentioned, the static poles at 95 feet. It has been noted that the uses identified as incompatible in two of the airport zones that bisect the site. The proximity of the potential substation locations to these incompatible areas and the potential impact on the airport operations should be explored in more detail. With Policy 5.5.6, the site is primarily surrounded by non-residential uses to the east and west. A relatively new residential development, Kendall Hills, and a few other residential parcels are located to the north. A few existing residents in a planned larger, large lot subdivision are located to the south. Staff would note the Comp Plan recommends Business and Industry in Ag/Rural Future Land Uses in this area which does not support other future higher density residential development. With the evaluation of item 3, there are positive aspects. The siting of the substation immediately adjacent to the existing overhead power lines eliminates extensions of transmission lines. The site's located away from dense populated areas with lower density land use in the proximity. The proposed tree preservation and setbacks from the closest residential properties will minimize visual or other negative impacts. And the Comp Plan does not support higher density residential in the future in this area. With the negative, the potential impacts to operations at the Stafford Regional Airport are unknown at this time, and because of that, staff recommends the Planning Commission to further request to further determine if the substations would pose any negative impacts on the operations of the airport. And that concludes my presentation.

Mr. Shelton: Questions for Mr. Zuraf? Ms. Barnes?

Ms. Barnes: Okay, just a few. At some, at one point I remember the proffers said that the GDP was proffered. So it's proffered, but there's a couple of outs, correct? So it's proffered, except for we don't know how many buildings. It's proffered, the GDP is proffered, except for we don't know exactly how tall the buildings are going to be. It's, the road connection between Route 1 and Eskimo Hill is proffered, but we don't really… well, and I'm not sure if that's even proffered; it was kind of loose in there. So what… why, why is there some question about that road that could possibly be connected?

Mr. Zuraf: Yeah, the proffer related to the road extension does mention… it includes, one of the provisions does say if, I guess since that road does have to cross a perennial stream with wetlands and, and environmental features, so if there's any issues there, I guess the applicant wanted to kind of have that caveat that if there's any issue with a, if they're unable to get approval from the County or VDOT, that they would make other improvements to Eskimo Hill Road and then do a future traffic study to see what the impacts would be at Eskimo Road and the intersection up towards Route 1.

Ms. Barnes: So, when they say the GDP is proffered, then what exactly is proffered in that GDP?

Mr. Zuraf: I think that generally it's going to be the buildable areas, and then that one image that identified the preservation areas and your buffers.

Ms. Barnes: Okay, so we, do we have a… those buffers, do we have a… those, those preservation areas to the north, it looked quite extensive. Do we know how wide they are and is that proffered, or is that proffer then adequately covered in saying that that's going to be where it is on the GDP?

Mr. Zuraf: Right. Yeah, it does. It ranges anywhere from 400 to 1,000 feet from the properties to the north.

Ms. Barnes: Okay. Another big thing that I noticed, it says that they are going to use the recycled water the quote, unquote, purple pipe when it becomes available. Is it and if it becomes available as well? That seems… that makes me nervous.

Mr. Zuraf: Well, there, yeah, there's, there's a proffer that states that the applicant has to enter into a Water Service Agreement, and that's going to focus on the on the reuse line, but that's…

Ms. Barnes: So if it, for some reason, doesn't become available, then we've got possibly 23 buildings using potable water at some point in time. That's a possibility.

Mr. Zuraf: Well, potentially, but I'm sure there's probably going to be some capacity issues that would really potentially hamper the full, you know, use of the entire site with potable water.

Ms. Barnes: So that gets in… that get's into my next question is, we suggested, you suggested that we have a limit on I don't, I don't remember if it's the number of buildings that you want to have up while we're using potable water, or is there going to be a cap on the amount of water that they can use before they start to really stress the system.
Mr. Zuraf: Some sort of cap, whether it's the volume or square-footage, it probably would be the appropriate way…

Ms. Barnes: I know, those things that we're still working out at this point.

Mr. Zuraf: Yeah, and actually, we have the Director of Utilities here who can maybe talk a little bit more about all of that.

Ms. Barnes: Okay.

Mr. Edwards: Hello. My name is Chris Edwards, Director of Utilities. I guess, first and foremost the question of if there is a recycled reuse system. If you guys remember when we did the Potomac Church rezoning, the applicant for Potomac Church did proffer to build a reuse water facility. We are working actually through our Water Services Agreement with them, where they are, you know, still, they still agree to build a reuse water facility that would serve their site and potentially serve the Stafford Technology Campus. One of the things that, you know, we also anticipate as we work through the Water Services Agreement, the Water Services Agreement will have a cap on the maximum number of buildings or a maximum square-footage or, you know, availability of water that would be provided before potable water prior to us connecting it to reuse.

Ms. Barnes: Is that something that… is that information going to be made available to us, or maybe the Board of Supervisors at some point in time, or is that to be worked out after all of this either goes, goes through?

Mr. Edwards: I think, you know, moving forward, we will probably have, you know, the, most of the conditions of the Water Service Agreement, or some of the conditions of the Water Service Agreement, including the cap, agreed upon, you know, as it moves through this process.

Ms. Barnes: But we don't know what that is right now.

Mr. Edwards: We have a draft water ser… we have started to put together what we think would be a draft Water Surface Agreement that does have a cap in it right now, with the condition that a number of the potable water improvements are complete before they connect to potable water.

Ms. Barnes: Okay.

Mr. Shelton: Go ahead, Ms. Sellers.

Ms. Sellers: So is it based on the square-footage of the building, or is it based on the, the amount of equipment that, that's creating the heat? I mean, what are we basing the water usage on?

Mr. Edwards: We'll most likely put a cap on the amount of water usage. It won't be probably tied back to the number of buildings, since, in this case, the building size varies, you know, somewhat. So we will probably tie it back to a square-footage that allows them to develop. And so we know, by per square-footage, how much per square foot, how much water is used. So the amount of water will be tied back to a square-ootage of the building.

Ms. Sellers: Independent of whatever they have in the building?

Mr. Edwards: But you make… yeah, well, you make these, you know, you… they kind of know per square-footage how many… *inaudible*… are going to be in each square foot. That is something they've actually been able to provide the County as we've gone through this process.

Ms. Sellers: Okay. Because, I mean, in my mind, and I'm a social worker by training…

Mr. Edwards: Okay.

Ms. Sellers: … so let me tell you, typically, I'd have to say, how many iPhones is that.

Mr. Edwards: Yeah.

Ms. Sellers: That's my understanding of technology. But it's the technology that's creating the heat that's requiring the water is my understanding.

Mr. Edwards: Yeah, and you know how much, you know, technology they can get per square foot.

Ms. Sellers: Okay.

Mr. Edwards: And that you know how much heat, so you know how much water they're going to need per square foot. So if we cap the amount of water, and then you know how much water per square foot, then you can kind of, you know, enter, you know, make the estimate on how many square-footage, or how much square-footage we can provide water to, and put that cap based upon square-footage, correlating it back to water.

Ms. Sellers: So we also thought maybe about not just a cap, but looked at what is our ability to build out this, the, the capacity, because I don't know what capacity we have in that area, wherever this water is

coming from, but to build that out and tie it to some sort of phasing agreement that we would see in other commercial type of developments. So that we're not just placing a cap, but we're saying we're going to phase this development and phase the water usage so that we can… I'll use the word phase again… but you can sequence it in a way that, that, that everybody kind of knows when things are going to come on, come online, so that Dominion knows when they need to have the substation up and running, and the water is there, and.

Mr. Edwards: Yeah, and it's my understanding, I mean, there, there is a, you know, phasing plan. I mean, the goal with the reuse facility is to have that complete within the first year to two years of after construction begins, or after, you know, buildings start to come online. Once we're able to get the reuse line there, um, there won't be a question of, you know, how much water is needed. We should have more than enough reuse water for this, for this project.

Ms. Sellers: Okay. And even with the water, the new water that they're going to need in the beginning, it's my, it was m understanding from my years on the Board that they would have to pay for that anyway. I mean, it's not free water. They're going to have to pay for that capacity upgrade. And so…

Mr. Edwards: Yeah, they will make that capacity upgrade. And then they will, you know, that will be potable water. Once the reuse water line is there, they will go back to all the existing buildings, reconnect those to reuse water, and then all new buildings will also go on reuse water.

Ms. Sellers: Okay.
Mr. Shelton: Additional questions?

Ms. Barnes: The reuse line, it's going to be hooked up to Potomac Church.

Mr. Edwards: Mm-hmm.

Ms. Barnes: And then from Potomac Church to this project, that's, that's on the County, right? The County is going to be building that.

Mr. Edwards: No ma'am, that will be run by, you know, by the applicant, or, you know, by the previous applicant for Potomac Church from Aquia Wastewater Treatment Plant by the Potomac Church site to the STC site. So the County will not need to make, you know, they will not expend any funds to get reuse water down to the applicant's site.

Ms. Barnes: So the applicant is paying for offsite improvements to get the purple pipe to the the campus.

Mr. Edwards: Yes. I mean, a long story short, like I said, the County is going to be, you know, expend, you know, is not going to spend, expend any funds to construct the purple pipe to the Stafford Technology Campus.

Ms. Barnes: Okay.

Mr. Shelton: Additional questions?

Ms. Barnes: I have a few more for Mike, but I can…

Mr. Shelton: I have a couple, Mr Edwards, I'd like to ask you. If I understand what you're saying, you have not finished your utility impact study. Is that correct?

Mr. Edwards: We, yeah, we are, we're finalizing. Actually, it will be something that we present to the Board at the end of the… in the next couple of months. But it is a overall water, it's a reuse master plan that will be incorporated into our water sewer master plan that will have all of these improvements in it.

Mr. Shelton: So for the benefit of the public that's in the audience, what impact could this potentially have on water distribution? And I know what, I don't believe anyone's here from Dominion, but out of those two utilities, what potential impact would that have on our citizenry?

Mr. Edwards: You know, after, you know, after reuse water is brought to the site, there actually will not be any, you know, additional impact in, there won't be any impacts to the, you know, water or sewer capacity to our citizens for the potable water that they're provide, being provided for for the first year or two. They are making improvements to make sure that our citizens don't have long term or any impacts.

Mr. Shelton: So we're saying that Mooney Reservoir is capable of supplying adequate water to that geographical area.

Mr. Edwards: Yes, and…

Mr. Shelton: With no limitations.

Mr. Edwards: Yeah, we're, we right now, you know, going through, you know, all the calculations, it does not appear that, you know, Lake Mooney will have any negative impacts because of the project.

Mr. Shelton: Thank you.

Ms. Barnes: One more question, I'm sorry. I remember listening to a work session a couple weeks ago between the Board of Supervisors and I believe it was you, I don't remember… we are working on a drought plan. And the reason why I'm asking this is because if we do go through something like a drought, I remember that there was a series of, you know, who, who gets to go without first.

Mr. Edwards: Yeah.

Ms. Barnes: Can you just explain a little bit about that? Because one of the questions I'm getting is, if we have a drought and if we have water restrictions, do we restrict our uses so that the data centers can have the water, or is it going to be the other way around?

Mr. Edwards: Okay. So, number one, the drought management plan, that was a response. It's actually going back to Lake Mooney. We had to update our, you know, it's been 15 years since that was finished. So we had to update our… *inaudible*… permit there. It is a state mandate that we have a drought management plan. So the drought management plan, number one, was brought to the Board because it is a requirement by the state. But kind of, you know, as you remember, the presentation was three or four slides. The slide on there, you know, had, if the state like is in a drought watch or drought warning, the water levels of either Lake Mooney or Smith Lake, it actually requires two of the three. If they get past a certain level, we will go through voluntary water restrictions for residential customers, then voluntary water restrictions for commercial customers, then mandatory for residential, mandatory for commercial. You know, last year

was one that, you know, one of the highest droughts of records or one of the driest droughts of records, we still would not have gone to water restrictions last year. So what would end up happening is, we would, you know, ask, you know, if, and as I told Mr Shelton, you know, when we went back through it, even with the demand from a data center, we would not have gone to water restrictions last year. But the way that it would work is just like, you know, like we laid it out, we would have voluntary restrictions for residential, then commercial, and then mandatory for residential, then commercial. But we are not, you know, anticipating over the two year period, you know, hitting either voluntary or mandatory restrictions. But, you know, we could hit the next drought of record, and something does happen. I can't say without certain, with all certainty, but we do not anticipate going to restrictions with our existing water supplies.

Ms. Barnes: Okay, thank you.

Mr. Edwards: Yep.

Mr. Shelton: Any additional questions? Mr. Zuraf, I have one question. What has the Airport Commission said about the 105-foot building and the 95-foot structural thing for the electric distribution system? Do we have a letter from the Airport Commission condoning or questioning? I noticed you went over two or three different things about the glide path and that aspect. And for a person who worked aviation, crash Fire Rescue for 25 years, glide path is essential that we not have any obstructions.

Mr. Zuraf: Yeah, we we notified the Airport Authority of the of the applications, of the initial applications, which included the rezoning and the Comp Plan amendment. We did not get any input on or response on that aspect, which would have included the height. The issue of the substations, that application was submitted later in the game, and I don't think that was sent to them. So that was something we've, we've discovered very late, the issue of that incompatibility. So we do need to re-reach out to the Airport Authority again and, and make them aware of this, and just confirm they're, or see if they have any more specific information that they can provide us.

Mr. Shelton: Thank you very much. Any additional questions?

Ms. Barnes: I have one more.

Mr. Shelton: Yes, ma'am.

Ms. Barnes: Mike, we said, we said something about develop… in the proffers it says, develop a construction plan, but we don't know what that construction plan is, but it's proffered. Or do we do?

Mr. Zuraf: Was that referring to construction mitigation plan?

Ms. Barnes: Yes, yes.

Mr. Zuraf: Yeah, that would be something that would happen later, as they're getting into, actually, how the site is going to be developed, and they, they get into their phasing. And let me find that language. But it essentially is, it's something that happens, and it's typically something that is done at a later point in the game, when they're knowing more specifically where their access will be and where impacts may be.

Ms. Barnes: So we haven't, we haven't really nailed down whether they're gonna, they're gonna access this off of Eskimo Road, or if we're going to have access off of Route 1.

Mr. Zuraf: There potentially could be either way. Initially, it could be from both directions at first and, because it is phasing for the, the connection is through the proffers phased to happen at a later point.

Ms. Barnes: So there's a possibility that we could have a lot of really heavy construction traffic that does that little zigzag on Eskimo Hill, around the corner there and pass some of those houses.

Mr. Zuraf: Yes.

Ms. Barnes: Okay, thank you.

Ms. Sellers: *Inaudible, microphone not on*.

Ms. Barnes: I don't know that I can say it again. There's a possibility that we'll have heavy construction, very large trucks coming off of Route 1 at where it's, I think it's Foreign Legion Road is on the west side, and Eskimo Hill is on on the east side. And then you go through Eskimo Hill, and there's that, that zigzag that goes, I mean, it's a, it's a funky little zigzag. I don't think it was ever intentioned for, or intended to be used for really heavy construction equipment. I know that the dump is there, but this is, this is a pretty heavy industrial construction plan. So it concerns me that that is a very, I don't even think there's a… is there even a line on that zigzag that goes around there? *Inaudible*… the line broke?

Mr. Zuraf: I believe so.

Ms. Barnes: Yeah, so, I mean, that's a… I'd like to see some, some construction mitigations a little bit more firm in where that's going to come in, how it's going to come in, and if that we possibly can get it to come in from Route 1 rather than doing that. Does that make sense? Okay.

Mr. Shelton: Thank you, Mr. Zuraf. Would the applicant come forward and speak?

Ms. Cameron: Good evening. My name is Jonelle Cameron with Walsh, Colucci, Lubeley and Walsh, here tonight on behalf of the applicant, Peterson Companies. With me is Taylor Chess and Kevin McHugh with Peterson, Michael O'Shaughnessy, our civil engineer with Bowler, Kevin Sitzman, our traffic consultant with Grove Slade. Mike goes first, so a lot of my presentation is a repeat, so I will go through that pretty quickly, but I do have some exhibits that I think would be helpful based on the comments and conversations that you have asked Mike. So I will walk through the presentation. We have some line of sight exhibits to show you. I will then talk about the recommendations that were in the staff report for deferral and how we think that that has been adequately addressed, and I have some exhibits to show you there. And then I will end with proffer changes. So we provided updated proffers to staff last week before the staff report was dispatched, but those were too late to be incorporated into the staff report. But I do believe some of those proffers specifically address some of the comments that we have received after meeting with several of the Planning Commissioners over the last couple of weeks, and specifically Commissioner Barnes, some of those also get to the construction management plan. As Mike mentioned, the property is a little less than 504 acres in size. It's located east of Route 1 and west of Eskimo Hill Road. The property is currently zoned A-1. This is a request for a reclassification to M-2, a Comprehensive Plan Amendment, and a Comprehensive Plan Compliance Review for the substations. This slide, Mike went over in great detail that shows the Comprehensive Plan Amendment area. And as you can see, again, a portion of the property is within the Urban Service Area. There's about 262 acres that are outside of the Urban Service Area, so we are seeking all of the property to be located within the Urban Service Area and then designated as Central

Stafford Targeted Development Area. This slide is the General Development Plan that Mike went through in great detail. As part of this proposal, the applicant is seeking a floor area ratio of 1.0; however, we have limited the uses to not exceed 4,365 average vehicle trips per day, and that is a data center campus and associated uses of approximately 5.8 million square feet. The applicant has proffered 25% of open space on the property, and the applicant has committed to a minimum of 63 acres of preservation areas on the property. You can see those areas in green on the screen. A large part of this proposal and transportation improvement is a connection from Eskimo Hill Road to Route 1. This is what we're calling in the proffers, the connector road. And as Mike mentioned previously, the County's Comprehensive Plan did call for a connection between Eskimo Hill Road and Route 1. This slide is an illustrative of the building elevations, and it shows the landscaping. So as mentioned, the applicant is proposing a 50-foot buffer to the south adjacent to the vacant properties that are currently planned for residential. There is one property that's zoned M-1 to the south, so there will be a 20-foot buffer. We are proposing 50-foot buffers adjacent to Eskimo Hill Road, that new connector road, a 50-foot buffer adjacent to Route 1, a 100-foot buffer that would be preserved adjacent to the residential to the north, and then 20-foot buffers adjacent to the landfill and the Virginia jail. The applicant has proffered that no data center building or equipment yard can be located within 150 feet from the residential properties to the south. As you all are aware, the Board adopted new standards, both Comprehensive Plan standards and Zoning Ordinance standards for data centers. This property was grandfathered from those standards, but the applicant has incorporated a majority of those standards, both from a architectural standpoint, but also layout standpoint, fencing and screening. So the applicant has proffered to screen ground level and rooftop mechanical equipment. The screening may be provided by a principal building, existing vegetation, berms, landscaping, a visual solid fence, green wall or panel, parapet wall or other visually solid screens shall be constructed of materials generally compatible with those used in the exterior construction of the buildings or a combination thereof. As a request from a few of the Planning Commissioners, what you all have in the revised proffers, the applicant has mimicked the architectural standards that you all recommended approval for, for the Potomac Church data center project. So our updated proffers mimic those design standards. The applicant has also committed to conducting sound studies prior to site plan approval, and which is proffer 18, and committed to certain noise requirements, which is proffers 14 through 17.

Mr. Shelton: Excuse me for one moment. What's the dBA output?

Ms. Cameron: Fifty-five. So the applicant, um, part of the data center recommendation, although if you are adjacent to residential, it's 60 dBA in the zoning ordinance. The applicant has limited if you are adjacent to residential, that noise that hits that residential cannot be louder than 55 dBA in the day and at night.

Ms. Sellers: I have a question for you. While you have this up, this tree preservation area here, these are going to be evergreens I'm assuming?

Ms. Cameron: That’s the existing trees that are out there today. So it's a mix.

Ms. Sellers: Because you do have some residential homes right here. That would put some sound barriers between those.

Ms. Cameron: So, these residential homes here, the buildings, I will show you some line of sight exhibits. I think those are helpful because they show you the distance from the nearest home to the nearest building. And there is plenty of distance in between those, and we can walk through that.

Ms. Sellers: Okay.

Ms. Cameron: As part of the proposal, the applicant proffered several transportation improvements. Mike pulled this up earlier, but I do want to focus on the main transportation improvements with you all. At Route 1 and Hospital Center Boulevard, it's about 2.4 miles away from the site. The applicant proffered to restripe the eastbound approach on Hospital Center Boulevard to provide dual left turn lanes, one through lane, and two right turn lanes, and if required to modify the signal. With these improvements, the overall, the overall intersection changes from a Level of Service E in the future condition without our development, to a Level of Service D in the future with this development, and that's for the AM peak hour. And for the PM peak hour with this improvement, it's currently a Level of Service F in the future without this development, and this improvement would make it a Level of Service E. Many of the improvements were focused at the access to the site. So at Sage Lane and Route 1, the applicant proffered to provide a dedicated left and right turn lanes into the site on the connector road. They proffered to restripe the southbound right turn lane on Route 1, to provide a shared through right turn lane extending from Sage Lane to Blackjack Road, and to install a traffic signal. On Sage Lane itself, the applicant proffered to provide curb and striping modifications to not allow for through movements to the connector road, so you can only do a left or right from Sage Lane onto Route 1. And the benefit of that is it helps with that overall intersection, and it's less phasing that happens instead of having two throughs through that movement. At Route 1 and the I-95 ramps, the applicant proffered to provide striping to channelize the right turn lane and provided signal timing modifications. And we have had a lot of questions about the water line. I think this exhibit is helpful. Commissioner Barnes, you had questions about where it extends to and where it doesn't extend to. So as part of this proposal, the applicant is creating a new port potable water pump on Centreport and a new water line that crosses from Centreport and connecting to Route 1's existing line, so that new water line that you see, that's that water line in blue, and this water line is tapping into the water availability for Lake Mooney. The applicant is connecting a dedi… is connecting to a dedicated reuse line. That's that purple line that you see. Until the reuse water is available, there will be a limit on the number of buildings and potable water supply that can be used for cooling systems to ensure that there is not a negative impact on the residents of Stafford County. In addition, the applicant will be connecting to a specific sewer return line so they are not tapping into any existing sewer infrastructure going to Aquia Wastewater Treatment Plant.

Ms. Barnes: Can you go back to that slide again?

Ms. Cameron: Yeah, absolutely.

Ms. Barnes: A little clarification on that blue line, which is on the line from Centreport. So, that, that's been on the County CIP for, for a while, hasn't it?

Ms. Cameron: And the applicant is paying for that.

Ms. Barnes: Okay.

Ms. Cameron: So that will be an applicant payment for that line.

Ms. Barnes: Okay, thank you.

Ms. Cameron: You're welcome. And this slide shows distances. So to get to the properties to the north, so there's about 800 feet. And I'll start, I always break this thing, so I'll start here. This one is 800 feet from this building to the nearest residential. It's 850 feet from that building here. And then we have about 1,250

feet here, sorry. And then there's about 1,000 feet in this area in here. And then to the south, it's 500 feet. And this property here, it's 500 feet, and about 425 feet here.

Ms. Barnes: Okay, and just to clarify, because if I were the people living up there in those houses in the north, I want to make sure. That's the tree preservation area…

Ms. Cameron: Tree preservation area.

Ms. Barnes: Okay, and it's, it's not going anywhere. I mean…

Ms. Cameron: It is not going anywhere.

Ms. Barnes: It's absolutely in stone that that's going to remain there in perpetuity.

Ms. Cameron: Yes. Now there are some exceptions if we have to connect, like the sewer line and water line. It would go through that tree preservation area. But that tree preservation area is staying. It is shown on the general development plan as outside of the limits of clearing and grading.

Ms. Barnes: Okay, so, and if you, if you do have to do, do the connections that you just discussed, would that, would that, where it goes through. would that be re-landscaped then? Would it be turned…

Ms. Cameron: So, depending on the utility… so, you can't necessarily plant trees, but we might be able to plant shrubs or some other plantings over that. But we're not anticipating that it would be large swaths. For example, it's not going to be the large transmission line…

Ms. Barnes: Yeah, yeah.

Ms. Cameron: … running through there.

Ms. Barnes: Okay. And you are, and you are able to get in there to do safety things, like, if there are trees down, or…

Ms. Cameron: Yes.

Ms. Barnes: … is this like, are you treating it like an RPA?

Ms. Cameron: So we've said if, like, there are dead, dying, or noxious trees that might be a detriment to the data center building where it looks like it's falling, then they can remove those. But the goal is that it would remain in place. Some of it is within the RPA, so we wouldn't touch that. But if it's outside of the RPA, our goal is let it stay, but if it's a danger or harm, then we would remove it.

Ms. Barnes: Okay, thank you.

Ms. Cameron: You're welcome. And then in the next few slides, I just have some line of sight exhibits that better depict what people would see from a distance. So this is section AA, which is circled, and that is about 294 feet from the property line. The next one is 195 feet from the property line. Into the north again, that's about 800 feet from the building to building. That's about two football fields away. This is again

about 850 feet away, two football fields away. And we have this from building to building, and it's about 3.48 football fields away, so over 1200 feet away.

Ms. Barnes: How tall is that building that's on the left there. Is it 105, or…?

Ms. Cameron: So, these are all shown as 105 feet. So when you're looking at the line of sight, what you see is a home. The HOA property has landscaping. You see the vegetation to remain. So we start with the home, the HOA landscaping, the vegetation to remain, and then in this instance, we have the transmission line easement, open space, a drive aisle, and then you get to that building. So their visual impacts are going to be minimal, if at all, because of the landscaping and the distance in between. And then we do that again on this slide as well. So you have the home, the HOA property, vegetation to remain, and then we have the transmission line easement, additional vegetation to remain, open space in between the drive aisles, the drive aisle, and then you get to that building. So from a visual impact perspective, we're not anticipating that the people to the north would be able to see the buildings.

Mr. Shelton: Question.

Ms. Cameron: Yes.

Mr. Shelton: Back up…

Ms. Cameron: Absolutely.

Mr. Shelton: … to that one slide. So we're saying that the topography of where the transmission lines are in the lower level. Is that correct?

Ms. Cameron: Yes.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome. And then we have a couple from the south, assuming that there would be homes there based on the approved subdivision plan.

Mr. Shelton: Okay, clarify, 105 feet does not include the dog box, does it?

Ms. Cameron: It does not.

Mr. Shelton: So how tall is the dog box?

Ms. Cameron: We don't have that; usually it's 15 to 20 feet, but I can get that exact answer for you.

Ms. Barnes: Clarify,what is a dog box?

Ms. Cameron: It's this, it's… he's talking about…

Mr. Shelton: A utilility access.

Ms. Barnes: Okay.

Mr. Shelton: So, in other words, we're saying we're going from 105 feet up to a potential of 125 feet. Am I correct?

Ms. Cameron: Potentially, yes, and that would be for parapet wall and screening. So what you would see wouldn't be the mechanical equipment, but potentially the mechanical wall and screening.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome. And then this is the final line of sight exhibit. As part of the proposal, we do have Comprehensive Plan Compliance Review. I think Mike went over this in great detail. I do have in a couple of slides just to walk you through what we've already done with the FAA for the height, so I do want to show you all that. This is the substation rendering that was submitted as part of the Comprehensive Plan Compliance Review application.

Mr. Shelton: Is that one of six? Or is that…?

Ms. Cameron: Yes, this shows one of the six, just what that would look like. Thank you for that clarification. And I wanted to walk through with you all, staff had some recommendations, or, I would say, reasons for their recommendation for deferral. And I wanted to walk through each of these with you all, because we do feel like they were adequately addressed, either previously or with the proffers that we did submit to staff that you have in front of you today. So the VDOT comments requested modifications to several of the mitigation measures and asked for additional other information. So in the next couple of slides, I'll just walk through you, with you all what VDOT was asking for and how we think we've adequately mitigated our impacts. So, for this slide, VDOT essentially wants there to be a sixth right turn lane. So he wants this, they want this right turn lane here. And that right turn lane was already proffered by the Burns Corner development. But what subsequently happened is that 7-Eleven was constructed. And so in order to make a sixth right turn lane, you would impact the existing 7-Eleven, and there is a grade difference there. But as I mentioned to you all previously, we are mitigating the impacts, and we are making that Level of Service with what we've proposed better. And we thought it would be helpful maybe to show a graph that shows what that actually looks like. So the first two here, this is the existing Levels of Service today. So what the Level of Service is without this proposal today, and what you see is the delay is a Level of Service F, essentially. So this is the AM peak is yellow, and the PM peak is blue. And if you look at the future in 2030, without our development, that shows the delay. And then the total future with the development shows that we're decreasing that Level of Service, and we're bringing it back down from an F to an E in the PM peak hour. The next slide pertains to additional requests at Sage Lane and Route 1. Essentially, the comment from VDOT was you'll have to do a signal justification warrant when you do your signal and that is something that's a requirement anyways. So anytime you're proposing a signal after your project is approved, at the time of site plan, you have to submit a signal justification to the County and VDOT. And VDOT will review the justification and say, yes, we believe that a signal is justified. Recently, VDOT has been trying to get away from signals, and they've asked if people can look at alternative intersection designs. And what we did, and have proffered are the no through cut here and here, and to do that in advance of the signal, which helps with that intersection. So what we've done is, if… so if this didn't exist today, what you'd be able to do is make, go through. So you'd be able to go straight, and then if we didn't have that with our development, you would be able to go straight that way. And what happens is that gives you an additional traffic phasing. So essentially, everybody would have to stop at Route 1, and then there would be a Sage Lane phase to go left and right, and then there would be – and I might have our transportation person come just to make sure I'm saying it correctly – and then coming out, there would be

a separate phase. So by only allowing the lefts and the rights, you're getting rid of a phase at that traffic signal. So the through lanes are able to move through quicker. And really what you want to do is move people on Route 1 as fast as you can.

Mr. Martinez: How much time does that usually save? If you add the throughput?

Ms Cameron: Twenty-five seconds or so.

Ms. Sellers: *Inaudible, microphone not on*.

Ms. Cameron: Yes, that too. The next comment was at Route 1 and Centreport. One of the comments that VDOT asked us for is to look at potential improvements at Centreport, Route 1, and Enon. And Enon was not part of the scoping study that we had to provide. And what we're showing you on the screen is the improvements at Centreport and Route 1, which is further from our site. Those improvements are actually not changing the Levels of Service, so we're keeping the Levels of Service the same. And so normally what happens is, as long as you're not degrading the Level of Service, you don't have to make any additional improvements. The next staff recommendation pertain to Eskimo Hill Road. And staff mentioned, and Commissioner Barnes, you had questions about Eskimo Hill Road. So the property will be phased with the construction starting at Route 1, moving towards Eskimo Hill Road. Because of the need to go over the RPA, it requires both state and federal permits. And what we proffered was that in the event we cannot do the connector road, so we cannot get permission to do the connector road, the applicant is going to make improvements on Eskimo Hill Road that are in, in alignment with the Comprehensive Plan. So the Comprehensive Plan outlines improvements on Eskimo Hill Road. In addition, we have proffered that we would do a Traffic Impact Analysis again to see what the impacts are to Eskimo Hill Road and make any transportation improvements that are recommended in that Traffic Impact Analysis that would be reviewed and approved by VDOT.

Ms. Caudill: Does that… sorry. Does that mean that all the potholes will stop being potholes on that road?

Ms. Cameron: We would have to pave it as well, yes.

Ms Caudill: Thank you.

Ms. Cameron: You're welcome. The other comment pertained to the Eskimo Hill Road, as we're showing it. It currently goes through, sorry, I can't draw well, it goes through this property here, which is owned by VEPCO. The County Zoning Ordinance specifically has a section that said, if any lot is realigned or is reduced because of a realignment of the road, so we believe that this is a new road that would be accepted into the state system, that lot would then become non-conforming. And so we don't think that there is an issue with the road going through the A-1 lot. However, we have been in conversations that property is owned by Dominion. With Dominion, they are aware of this road alignment, and actually were willing to have their property added into this rezoning application, but it was too late in the process, and we didn't want to delay the process. So if we have to come back to rezone that small portion of the VEPCO property, we would be willing to do that. But I don't think it's needed based on the section that allows for a road to go through an A-1 property or any property. This is a repeat. It was also staff's recommendation about Eskimo Hill Road not being mitigated. So I talked about that with you all. The next comment pertains to staff's recommendation for the inter-parcel connection. So currently we are showing the inter-parcel connection here, and what staff would like is a direct connection like this. And that direct connection cannot occur because of the secured facility and the fencing that is required. We also don't think it's safe to have

a four-way stop. It's safer to have a three-way stop than a four-way stop, which would be what is here. It's really hard to tell at this scale what the dimensions are, but from the property line to the right-of-way that we're providing, it's 25 feet. So essentially, say from here to here is 25 feet, and then there's right-of-way that's being provided. That right-of-way width is going to be 60 feet. That right-of-way with the road itself is only required to be 24 feet, and usually there's a 6-foot shoulder on each side. So that's a 36-foot wide width. So that gives essentially 24 feet or so to play with for a grading. So we do not believe that there would be an impact to the 50-foot buffer that's on the other side of the right-of-way. *Can you help me? I don't know how to get rid of what I did. Sorry. Thank you.* The staff recommendation pertaining to the substation location, so staff went over the various approach zones as you get to the airport. As part of the proposal, you are required… as part of a development, no matter if it's by-right, or if you're going through a rezoning, you have to get FAA approval, and there's a form that's called No Hazard to Air Navigation. And what that form said, what you have to do with that form is you have to show the buildings and a finished floor area and the height. So we submitted for each of the campuses a No Hazard to Air Navigation for the buildings of a build… with the buildings of 105 feet. The FAA came back, they gave us that determination that the buildings at 105 feet do not have any impact, so they came back and said, yes, we agree there's no hazard to air navigation. That FAA form was for the buildings at 105 feet. So if there's not any impact at 105 feet, there would not be an impact at 95 feet. We would have to fill out that form before site plan for every substation and every building. We did it for the building now. If something was to change, you have to update that form, and that is a requirement when you are within the flight paths of an airport. And this was the other location, so it was also the location… so for your reference, here's the substation on this one, and then here is the substation locations on this one.

Mr. Shelteon: Okay, you used the figure 105 feet, but you're actually saying that doesn't include the dog box.

Ms. Cameron: It does not. But what we did here is when we gave the airport the heights, we increased the heights to include potentially mechanical equipment, and then any construction equipment that's needed in order to put the mechanical equipment on top of the floor, on top of the roof. So as you can see on these buildings, like for example, Building A has a finished floor area of 175 feet, and that was what was submitted to the FAA to make sure that anything that is putting stuff on buildings would also not be a hazard to air navigation. The next one of staff's comments was that the exception to the maximum building heights might be too open ended, but the Zoning Ordinance definition of height does not include the mechanical equipment that's on top of the roofs or the parapet walls. So we are actually proffering what is already in the Zoning Ordinance I believe. We just made it very clear as to what does not count. But that is what is, how the Zoning Ordinance defines height is only to the roof.

Mr. Shelton: Okay, hypothetically, our aerial that's located at station two is 105 feet. Mathematically and in a calculation that area will not reach the top of that 105 feet.

Ms. Cameron: And what you're referencing, just for my clarity, is a fire truck?

Mr. Shelton: Aerial unit, yes, ma'am.

Ms. Cameron: Yes. Okay, what we would be willing to do, if you would like, is that commit to any building that's over 90 feet that it would have an exterior ladder that can get to the roof in the event of a fire – stairs, I'm sorry, exterior stairs that can get to the roof in the event of a fire.

Mr. Shelton: Okay, so let me clarify one thing. Any of our firefighters are going to be carrying about 85 pounds worth of weight on their back. Transcending up a stairwell exterior is not the most advantageous way of doing it, so, just from a safety standpoint.

Ms. Cameron: Okay, we'll take that into consideration. The final comment, or one of the final comments, was the request that there's not a, there's a commitment to reutilizing reuse water when available, but we do not establish a timeframe for completion or restrict the amount of development that might use potable water. What we included in the proffers and that you see highlighted, is that the Water Service Agreement will cap the maximum capacity for bridging water and sewer until reuse water becomes available. That Water Service Agreement is negotiated with the Utilities Department, but ultimately it is approved by the Board. So the Water Service Agreement would be the mechanism in which the amount of water to not negatively impact the residents of this community is capped. Staff also had a recommendation pertaining to the sound proffer. So we do have a sound proffer, and what staff asked for is that there be monitoring for a longer period of time. So the applicant is willing, between the Planning Commission and the Board, to add a proffer that has monitoring for five years after the last building is constructed. That is something that the applicant would be willing to do. And finally, you all have proffers in front of you, but I just wanted to quickly summarize what was changed in those proffers. So architectural revisions to match Potomac Church. We added screening adjacent to residential to the south would be both for visual and sound attenuation. We made it clear that the sprinklers are NFPA 13 standard. We updated the Water Service Agreement and reuse water in order to make it clear that that is the mechanism in which the water would be capped until reuse water is available. We updated the transportation improvement on Route 1 to extend from state, to extend from Sage Lane to Blackjack Road. For construction proffers, we mimicked what Potomac Church did. So essentially, there is a construction mitigation plan that will outline construction traffic, any additional mitigations that may be needed for traffic, delivery notifications, providing a Public Liaison during construction, having a joint construction traffic reaction team in the event there is something that occurs, agreeing to pavement damage replacement within a certain timeframe, and then adding an applicant point of contact so that somebody will have a point of contact for the applicant throughout construction. And then there's a third-party contractor in which the County for Potomac Church requested that they be reimbursed for any third-party contractor that may be needed to review plans or implement or enforce a proffer. And that concludes my presentation. I can answer any questions that you have. We do request, we think that we have addressed staff's comments and request action this evening. Thank you.

Mr. Shelton: Questions for the applicant?

Ms. Caudill: I do.

Mr. Shelton: Ms. Caudill.

Ms. Caudill: So on page 5 of this the proffer statement, it says fencing may be provided. What do you mean may be provided? I thought you said there was going to be a…

Ms. Cameron: So, there is fencing that's provided around the data center campus. We, the data center ordinance says that it's 7 feet but there may not be, it might be fencing around each campus. We can say shall be provided around the data center, if that is the preference, but we would be providing fencing around the data centers.

Ms. Caudill: I think it should…

Ms. Cameron: Okay.

Ms. Barnes: Yeah, shall be and may be are vastly different descriptions, so I would…

Ms. Cameron: We're happy to change that.

Ms. Barnes: …definitely do, yeah.

Ms. Caudill: And then I've got another question, if, unless somebody else has one. On page 4, you have enclosures for generators. What do those enclosures look like for the generators?

Ms. Cameron: So we have proffered and let me just grab them.

Ms. Caudill: Yeah, absolutely.

Ms. Cameron: And you're looking at the new proffers?

Ms. Caudill: Yes, in the blue, number 3 all the way down on page 4, under building.

Ms. Cameron: I can get what those look like for you.

Ms. Caudill: Okay. And then my last thing, one more, is the the buffer. So you were saying that some of them are 20, some of them are 50. Why wouldn't we just do a total 100 buffer for like the site? So when you're driving down the road, you can't really see it. Because, you know, the whole visual experience of it is… *inaudible*.

Ms. Cameron: So we did the buffers based on the Zoning Ordinance requirements for buffers, and then laid out the site according to where the buffers would be located.

Ms. Caudill: Okay.

Ms. Cameron: And so, for example, the 20 feet on this side is because it's closer, and I said this side like you can see it, sorry.

Ms. Caudill: That's okay.

Ms. Cameron: The 20 feet on this side, it's because it's closer to like the dump, the jail, and then this property here is A-1… I'm sorry, M-1 and so that is why that had a 20-foot buffer as well.

Ms. Caudill: What about the one, what was the buffer on the potential residential?

Ms. Cameron: Fifty feet.

Ms. Caudill: Fifty. So could we make that 100 if it's going to be a residential, possibly a residential?

Ms. Barnes: That's a pretty skeletal buffer.

Ms. Cameron: I can ask.

Ms. Barnes: Yeah.

Ms. Cameron: So I have two questions to get back to you on.

Ms. Caudill: Yes, thank you.

Ms. Cameron: You're welcome.

Mr. Shelton: Additional questions for Ms. Cameron? I have one. On the dBA output, why is it a stagnet 55? Don't we, shouldn't we have one for the day and one for the night?

Ms. Cameron: So, the Zoning Ordinance for the day is 60 adjacent to residential, and at night it's 55. And we were asked to make it 55 during the day as well.

Mr. Shelton: If we were to emulate the Potomac Church, it's a 55 day and a 50 night.

Ms. Cameron: We can look into that. But I think we did 55 for both.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome.

Mr. Shelton: Additional questions? Hearing none, thank you very much.
Ms. Cameron: Thank you.

Mr. Shelton: Alright, at this time, we'll open it up to the public hearing comment period. This is the opportunity for the public to comment on this issue. Before starting your comments, please state your name and address. The clock starts when the green light appears. Yellow light means you have one minute. Red light means that your time is up. If you would like to speak, please come forward. Do we have anyone that wants to speak on this topic? Seeing none, I'll bring it back to the Commission. What's the favor of the Commission?

Ms. Barnes: I'm going to go ahead and make a recommendation. Let me preface this by saying that there's been a lot of really great work on this. I mean, some excellent work and great presentations. The application, I think, is much improved. A lot of, a lot of work has gone into this, and that's kind of what the Planning Commission does, is we, we take an application, regardless of what happens to it, and we make it better before it goes to the Board of Supervisors. And I think that we've done some work. However, our experts, which is staff, have mentioned some things that, that, that they they think need to be done before this is going to be passed on to the Board of Supervisors. I tend to agree with them. I think that this is probably, and maybe you guys can correct me, probably one of the largest, most impactful projects that we've seen in Stafford County. We've also given the applicant a couple of things to look at and to address, which I know that, I know that you guys will and I'm very, very sure that the next time we see you, that those items will be addressed. But because this is such an important and impactful application and such a huge application, and, quite frankly, a complicated application as well, I think that we need to listen to our experts, and I'm going to recommend that we defer to our July meeting. I don't remember what the date is on that; we only have one in July.

Mr. Shelton: Could I ask you to hold up on that for a moment, because I missed asking the…

Ms. Barnes: Okay.

Mr. Shelton: … the applicant or staff if they had any comments since we had no public service, public comments.

Ms. Cameron: Thank you. So for the buffer, I just wanted to answer Commissioner Caudill's questions before you guys wrap up. For the enclosure, it's a solid enclosure, and we did proffer that if it is adjacent to the proposed residential to the south, because that's the closest residential, that it would be, not only for visual, but it would be a sound enclosure as well. So it would help with sound. And then as far as the buffer, it is a 50-foot buffer, but the distance from the property line to the building is 150 feet, at least 150 feet, because that's what we proffered.

Ms. Sellers: *Inaudible, microphone not on*.

Ms. Cameron: Yes.
Ms. Sellers: This Eskimo Hill, is this suggesting that you guys are maintaining the Eskimo Hill Road through the property?

Ms. Cameron: So the Eskimo Hill Road through the property will be constructed by the applicant, and then it will be dedicated to VDOT for the, to be part of the state system.

Ms. Sellers: So you'll have the connector road through, and then this additional realignment of Eskimo Hill Road.
Ms. Cameron: Correct.

Ms. Sellers: Okay, back into the state system. Okay, through an easement. Okay. Thank you.

Ms. Cameron: You're welcome.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome.

Ms. Caudill: Thank you for that clarification. And I do want to apologize to you guys. I have been so busy at work that I wasn't able to get those couple questions to you.

Ms. Cameron: That's fine; life happens.

Ms. Caudill: So my apologies for real.

Ms. Cameron: Thank you.

Mr. Shelton: Mr. Zuraf, do you have any additional comments or questions? Okay, I'll bring it back to the Commission. Excuse me, Ms. Barnes, go ahead.

Ms. Barnes: Do I have to start over?

Mr. Shelton: No.

Ms. Barnes: So like I was saying, our experts have advised a deferral for the, for the reclassification and for the comprehensive compliance. But all three of these applications are inextricably, they can't be, be split up. So I'm going to recommend, and I'll do it one at a time that we defer to the July meeting, and I have to look at my calendar. What was the, what's the date for July?

Mr. Zuraf: It's July 24th.

Ms. Barnes: July 24th meeting, and we can bring all three of those back, and I think that gives us a lot of time. We have our cutoff times for the second two are September 20th and August 11th, so that still gives us a really decent amount of time to get that in. But like I said, I'm going to recommend deferral for all three of those for our July meeting. That is my motion.

Mr. Shelton: Do we have a second?

Ms. Sellers: Mr. Chairman, I'd like to make a counter motion. I'd like to, I'd like to move… I'd like to actually make a recommendation. I'd actually like to make a recommendation right now, just… we're going to make separate recommendations correct for each of these?

Mr. Shelton: Yes, ma'am.

Ms. Sellers: So I'd like to move forward on them and send them to the Board of Supervisors. And, you know, these are not the last time that we will see them. We are not the final say. The Board of Supervisors is the final say. And some of these are going to be highly political conversations, particularly the things with transportation. I, too, am very interested in those conversations. There's a couple of projects that the state has some money on in there that are going to be impacted, so I'm interested. So I'd like to make a motion on a couple of these separately, with the amendment to the Comprehensive Plan, the first one, I would like to recommend approval of that one.

Mr. Shelton: Do we have a second?

Ms. Caudill: Second.

Mr. Shelton: Discussion? Alright, cast your vote. Tally the vote. Three yes, two no.

Ms. Lucian: Can you reset the vote please?

Mr. Shelton: Please cast your vote. Four yes, two no, one absent (*Ms. Barnes and Mr. Martinez opposed; Mr. Apicella absent*).

Ms. Sellers: Okay, for the rezoning class, the zoning reclassification, I, I'd also like to make a recommendation. I'd like to approve that one and make the recommendation to approve that one, and I'll have a comment on it in a minute.

Mr. Shelton: Do we have a second? We do not have a second?

Ms. Caudill: Second.

Mr. Zuraf: So just to clarify, there were some new proffers.

Ms. Sellers: Yes, with the proffers that were provided up here. But, you know, my comment to that one is, I do think it needs some work on the proffers, and I think the Board of Supervisors needs to sit down and work with you guys on these things and really hash out the details. But I don't believe that's the role of the Planning Commission. I believe that's the role of the politicians. They got elected to do that work, and they need to sit down with you and do that work. And so I think it's time to get it out of here and send it to the Board of Supervisors.

Ms. Caudill: I have a comment as well.

Mr. Shelton: Sure, go ahead, please.

Ms. Caudill: I know that you, a lot of you, have already talked to Supervisor Diggs, at least in my district, so I know that he had mentioned, as long as it, you know, from the road, it's going to look nice and it's not going to impact, you know, residents' view of of the data center. So I would just say I am in support of that as well, just kind of getting with him, because I know he's, he's already told me quite a bit that he's had conversations with you all, so.

Mr. Shelton: Mr. Zuraf.

Mr. Zuraf: For clarification, since the Commission did just receive the proffers this evening, you should also have a first, a separate vote to accept the proffers or not.

Ms. Sellers: We do that first?
Ms. Lucian: Yes, you would have to do that first in order to make that a part of your vote on the rezoning.

Ms. Sellers: Okay, then I make the motion to accept the proffers that we received tonight.

Mr. Shelton: Do I have a second?

Ms. Caudill: I second those proffers, but as long as the fencing gets changed, not maybe. And then maybe a little bit more information on what the enclosures of the generators are going to look like, too. I know that they told us, but have it in there.

Ms. Barnes: Do we need to make, do we need to have some verbiage for that then?

Ms. Lucian: If you want to vote on it that way, yes, you would need to. So it may be a good idea to take a recess for a few minutes to allow you to do that with the applicant.

Mr. Shelton: Okay, if it's in agreement, we'll take a five minute recess.

Meeting recessed: 7:46 PM
Meeting reconvened: 7:51 PM

Mr. Shelton: We'll vote in the change in the proffers first that were presented to us tonight, so I'll entertain a motion.

Ms. Barnes: We already did that, didn't we?

Ms. Sellers: Yeah, I think… *inaudible, microphone not on*.

Mr. Shelton: A change in language.

Mr. Zuraf: The applicant is finishing up the language.

Mr. Shelton: Is the applicant ready?

Ms. Cameron: Almost. There are a lot of pages to initial. Sorry, y'all, I know it was going to be an early night. While he's still initialing the pages, I just wanted to walk through the changes. So we have made a change that, starting on design guidelines, 8, it says sound enclosures for each data center generator. So 8.a.i.3. And then 8b fencing says fencing for data center buildings shall be provided. And it's, we re-dated the proffers so they're dated today, July 12, 2024. June 12, sorry. Okay, that's it.

Mr. Shelton: Okay, did we have a motion to accept the proffers? And a second?

Ms. Sellers: So moved.

Ms. Caudill: Second.

Mr. Shelton: Cast your vote.

Ms. Caudill: And this is for number 2, right?

Mr. Shelton: No, this is for just accepting the proffers.

Ms. Caudill: Oh, yes, okay.

Mr. Shelton: The vote is 3 to 3.

Ms. Lucian: The motion fails.

Mr. Shelton: So the motion is denied.

Unknown speaker: What does that mean?

Ms. Lucian: It's just a failure.

Mr. Shelton: Clarification, fails.

Ms. Sellers: What does that mean?

Ms. Lucian: If you vote on the rezoning, it will not be with the new proffers.

Ms. Sellers: Well, I'd still like to make the motion to, in general, approve, recommend approval for the Stafford Tech Campus to the Board of Supervisors, and I'd like them to negotiate the proffers, as I stated before.

Mr. Shelton: And which one are you talking about, the zoning reclassification?

Ms. Sellers: Yes, number 2, RC23154931.

Mr. Shelton: Do we have a second?

Ms. Caudill: I'm not going to second that without the proffers.

Mr. Shelton: No second, so that also fails. Am I correct?

Ms. Lucian: There is no motion. So does anybody have an alternative motion?

Ms. Barnes: So I will go back to recommending a deferral for this to the meeting in July, and hopefully at that point in time, we'll, we'll make some progress with us, with whatever the, whatever is left with the proffers. It sounds like that they were pretty well established, but, yeah, defer until the end of the July meeting.

Mr. Martinez: Second.

Mr. Shelton: Any discussion amongst the Commission members? Ms. Sellers?

Ms. Sellers: So we're going to defer it, and I'd almost rather make a recommendation to deny the rezoning without the proffers, and still send it forward to the, to the Board of Supervisors, because it's going to come back here and we're going to go through public… it's not like before, where we came back here and we just discussed it. We have to go back through public hearing again and go through the whole process again. And so it's going to be another very long meeting, very long process. So my recommendation is for us to say, let's deny it without, without the proffers. Send it to the Board of Supervisors and let them do the negotiation. That way we don't come back here, put them back through the public hearing process here, put all of us through the public hearing process here. Let's send it to the Board of Supervisors and make it, and streamline this process. So I'd like to make a counter motion to deny the RC23154931, as it is today, because it doesn't have great proffers.

Mr. Shelton: Do we have a second on her substitute motion?

Ms. Caudill: Can I ask a question?

Mr. Shelton: Sure.

Ms. Caudill: On a motion, or do I have to wait till you guys to that and then I ask the questions?

Mr. Shelton: No.

Ms. Lucian: Who's the question for?

Mr. Shelton: Do we have a second to the substitute? Hearing none, we'll revert back to the original motion, and a motion is to deny until July.

Ms. Barnes: Nope, defer.

Mr. Shelton: Defer, excuse me.

Ms. Barnes: So, just a quick clarification. The public hearing part,we can keep that open, but usually that's closed at this point in time.

Ms. Lucian: No, it's not. Due to a change in state code last year, any deferral requires a new public hearing.

Ms. Barnes: Okay.

Ms. Lucian: So it'll be re-advertised, and they'll be the public comments again in July.

Mr. Shelton: Mr Martinez, since you seconded, do you have any comments?

Mr. Martinez: No further comment, thank you.

Mr. Shelton: Ms. Caudill, your comments? Question then.

Ms. Caudill: Okay. I have a question for the applicant. So I know with speaking with my Supervisor for the George Washington District, are any of these proffers changes, stuff that he has talked to you all about or is this just us?

Ms. Cameron: That's just you all, but I will say, with or without those proffer changes, we told you we would make them, and we would make them whether or not you all voted on them tonight or not. We were, we were going to make those changes.
Ms. Caudill: Okay, thank you.

Ms. Cameron: You're welcome.

Mr. Shelton: Okay, so we have a motion on the floor to defer until July. Cast your vote. Three to three. Okay, legal, what do we do?

Ms. Lucian: Motion fails.

Mr. Shelton: Motion fails.

Ms. Sellers: So I put my motion back on the floor that we deny the rezoning and send it to the Board of Supervisors.

Ms. Lucian: If there's a second.

Mr. Bratton: I second it.

Ms. Barnes: Point of clarification – if we take no action tonight then basically it goes to the Supervisors.

Ms. Lucian: You have to take an action.

Ms. Barnes: We have to take an action.

Ms. Lucian: You have to either defer it or make a recommendation.

Ms. Barnes: Okay, folks.

Mr. Martinez: So it just ping-pongs then.

Ms. Barnes: Unless somebody wants to change their mind. I, I personally don't want to deny this. I still think that there's, there's some work that we can do.

Ms. Cameron: Can we take a two minute pause? I have a question for the county attorney, and then.

Mr. Shelton: So granted.

Meeting paused: 8:00 PM
Meeting reconvened: 8:01 PM

Ms. Barnes: Like I said, yes, we're going to have to do this again, but we do this again frequently, we defer things all the time. There are some things our experts have told us, staff has told us, that there, there are some things that need to be worked out. It doesn't sound like there's a lot of things, and then we can, we can send it on up to the Board of Supervisors. I agree with with Ms. Sellers; I'd love to get it up to the Board of Supervisors. They're the ones that are really going to take a stab at this. But right now, our, our professionals, our experts, have told us that on these second two, the reclassification and the compliance plan, they recommend a deferral, and I am inclined to agree.

Mr. Shelton: Do I have a second?
Mr. Martinez: Mr Chair, I have just one quick question about the, for the staff, if I may.

Mr. Shelton: Go ahead, sir.

Mr. Martinez: Mr. Zuraf, the applicant made an attempt to address the, the points that you laid out. Did that, would… was that addressed sufficiently?

Mr. Zuraf: I would not just tonight want to just say everything is okay without…

Mr. Martinez: Thank you.

Mr. Zuraf: … looking at it in a little more detail.

Mr. Martinez: Appreciate it. I second.

Mr. Shelton: We have a motion and a second; any comments Ms. Barnes?

Ms. Barnes: I've made them all.

Mr. Shelton: Mr. Martinez?

Mr. Martinez: No sir.

Mr. Shelton: Anyone else on the Commission? Cast your vote to defer. Four to two (*Ms. Caudill and Ms. Sellers opposed; Mr. Apicella absent*).

Ms. Barnes: That was painful. Next one? We have to do the third one.

Mr. Shelton: We have to do it on the third one also. Alright, on the comprehensive plan compliance review, I entertain a motion.

Ms. Barnes: I'm just going to make a motion to defer based on staff's recommendation. It sounded like we've got some things that really need to be taken care of with, with those electric substations.

Mr. Martinez: Second.

Mr. Shelton: Motion and second. Ms. Barnes, any comments?

Ms. Barnes: Nope.

Mr. Shelton: Mr Martinez, any additional comments?

Mr. Martinez: No sir.

Mr. Shelton: Comments from the remaining Commissioners?

Ms. Sellers: What was the comments specific to the substations?

Ms. Barnes: It was regarding the airport.
Ms. Sellers: Regarding the airport?

Mr. Zuraf: The concern was the potential of the substations being within the Airport Land Use Compatibility zones that have, identified… them not being not compatible.

Ms. Sellers: And that's the gift that keeps on giving. I voted against it in 2015 and it just keeps on giving.

Mr. Shelton: Okay, we have a motion and a second. Please cast your votes to defer. Five to one to defer (*Ms. Sellers opposed; Mr. Apicella absent*). And we will reschedule that for July the… excuse me… the 24th. Thank you very much.

Stafford Technology Campus

COM23154932; Comprehensive Plan Amendment

RC23154931; Reclassification

Stafford County Board of Supervisors

September 17, 2024

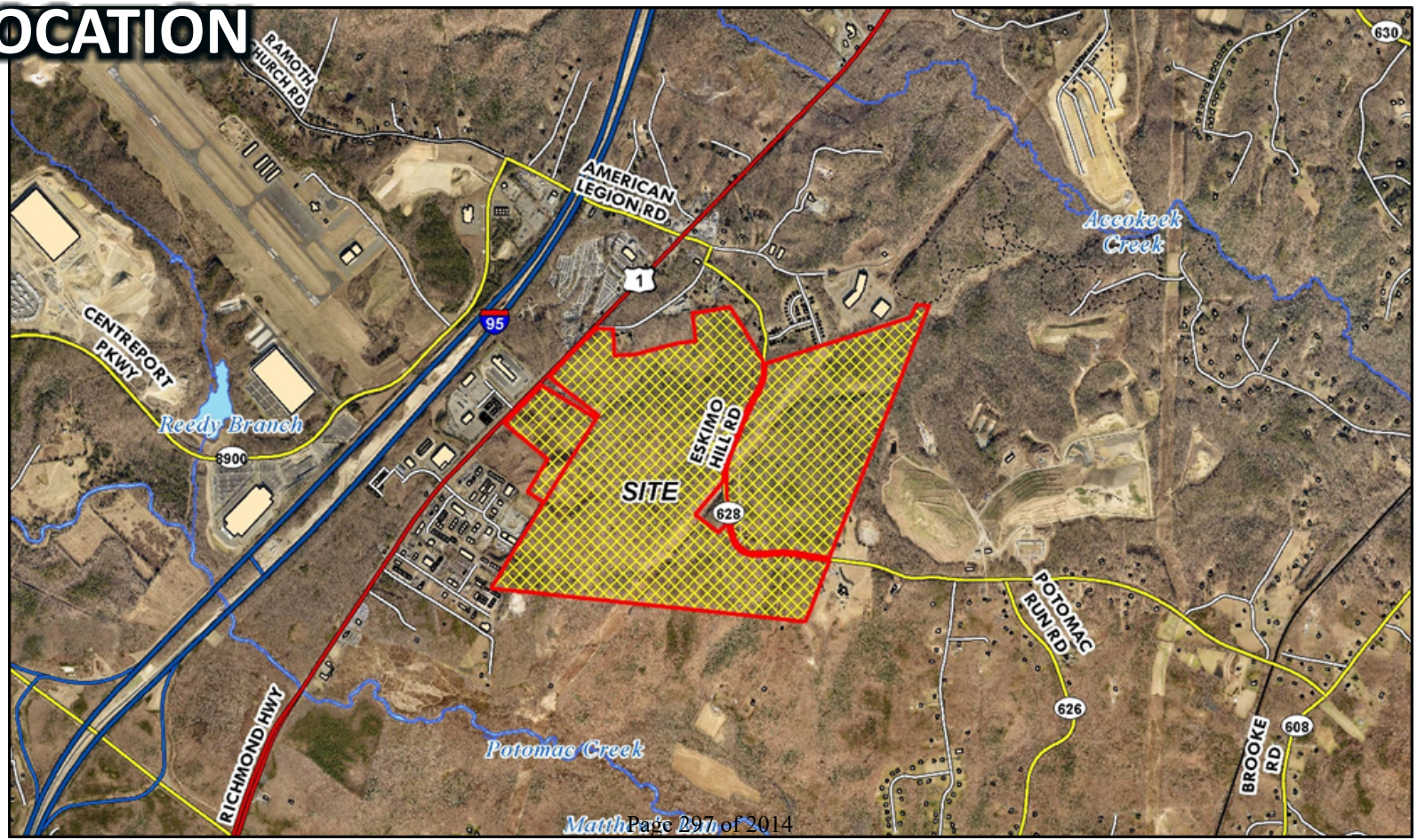
Background

- Requests:
  - COMP PLAN AMENDMENT: Amend Future Land Use Plan maps to expand the Urban Services Area and amend the future land use from Agricultural/Rural to Central Stafford Targeted Development Area, and future land use of Business and Industry
  - REZONING: Rezone from the A-1, Agricultural to M-2, Heavy Industrial Zoning District, with proffers.
- All to permit a data center, public facility/utility, and related accessory uses.

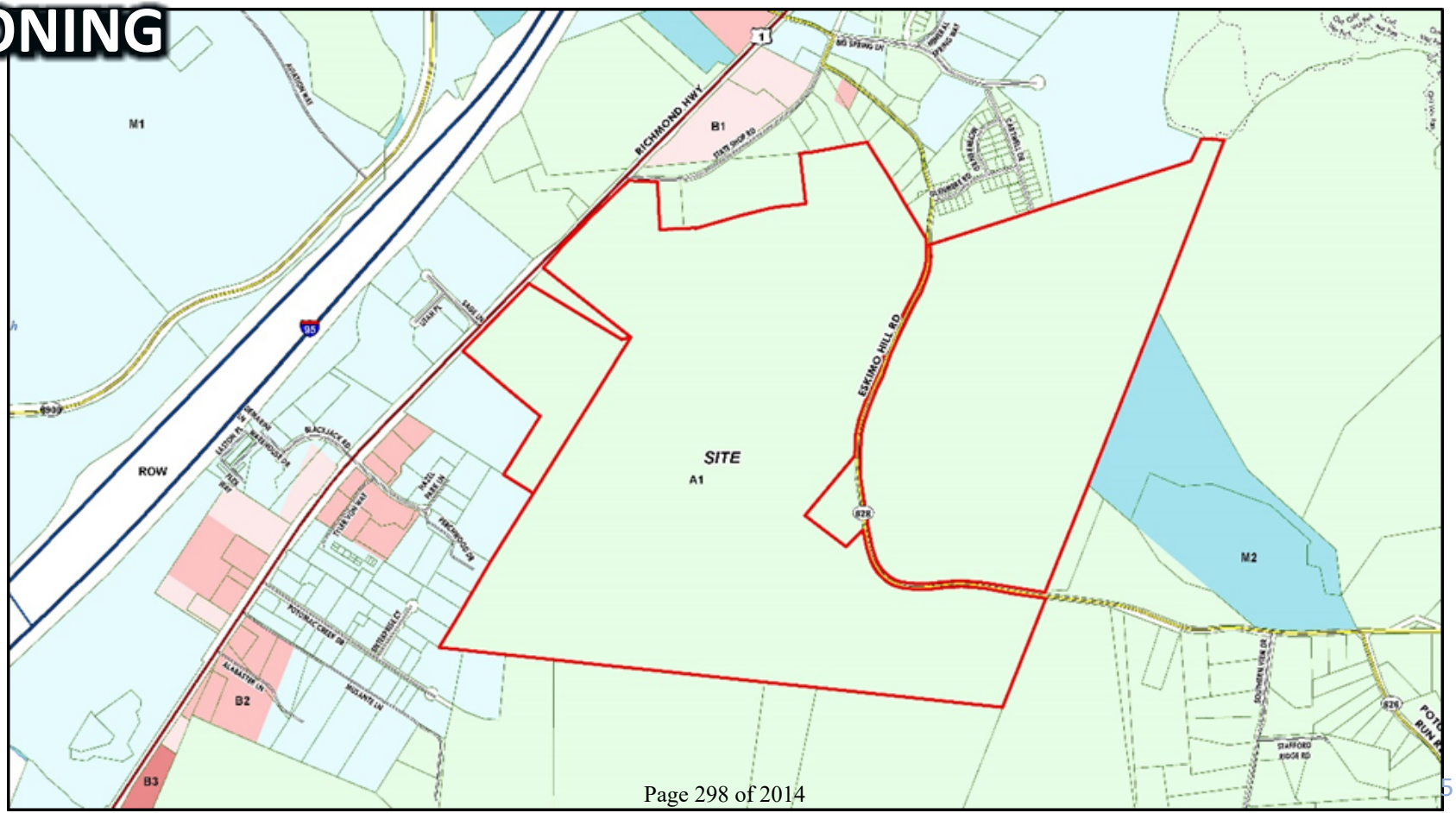
Background

- Tax Map Parcel Nos.: 38-124 & 38-29A
- Area: 503.84 Acres
- District: Falmouth
- Applicant/Owner: Stafford Technology, LC
- Agents: Jonelle Cameron & Jessica Pfeiffer, Walsh, Colucci, Lubeley, & Walsh PC

LOCATION


RAMOTH CHURCH RD
AMERICAN LEGION RD
1
95
Accokeek Creek
630
CENTREPORT PKWY
Reedy Branch
8900
ESKIMO HILL RD
SITE
628
POTOMAC RUN RD
626
608
BROOKE RD
RICHMOND HWY
Potomac Creek

ZONING



COMPREHENSIVE PLAN AMENDMENT

PROPOSED MAP AMENDMENTS

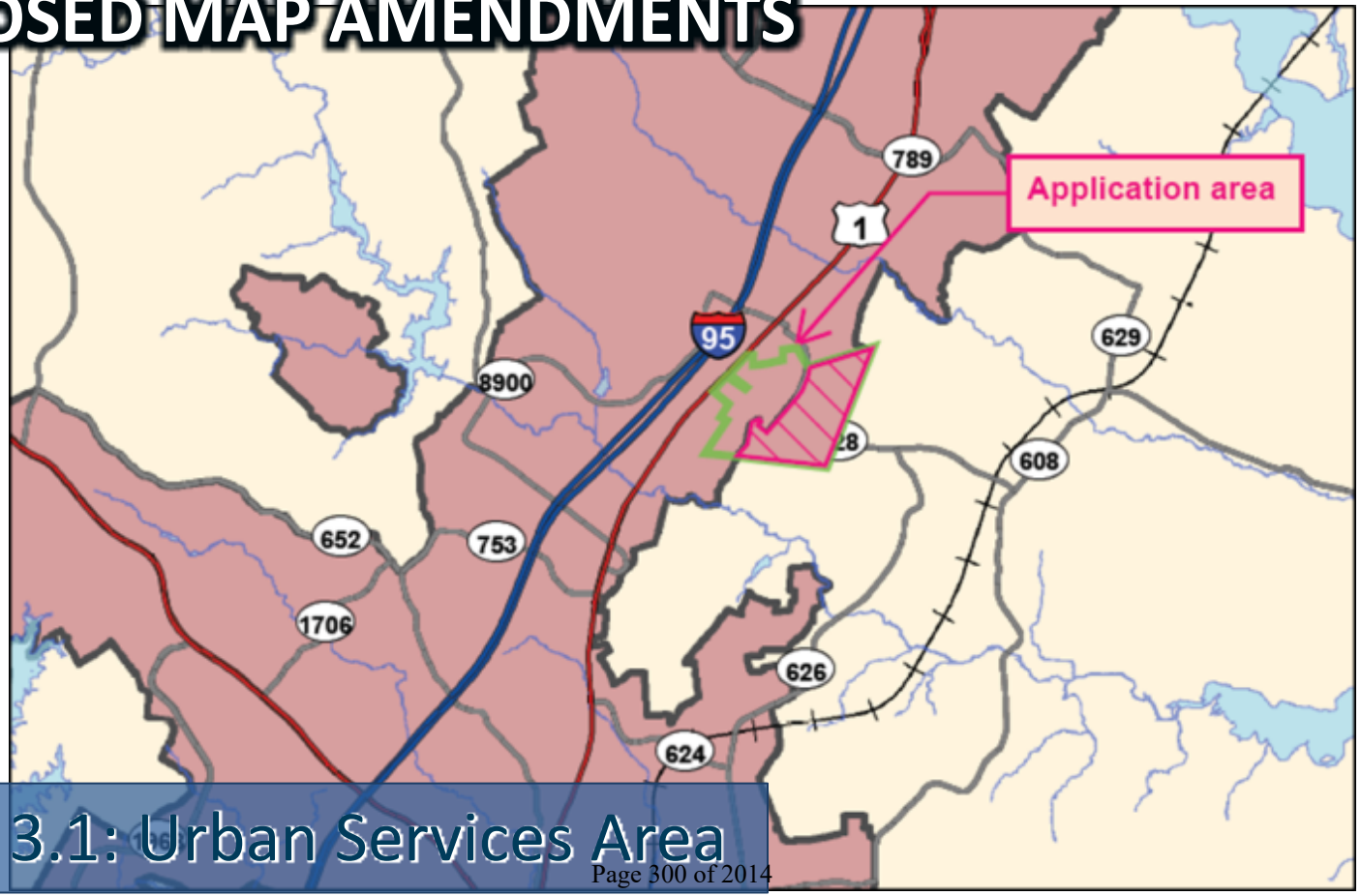


Figure 3.1: Urban Services Area

PROPOSED MAP AMENDMENTS

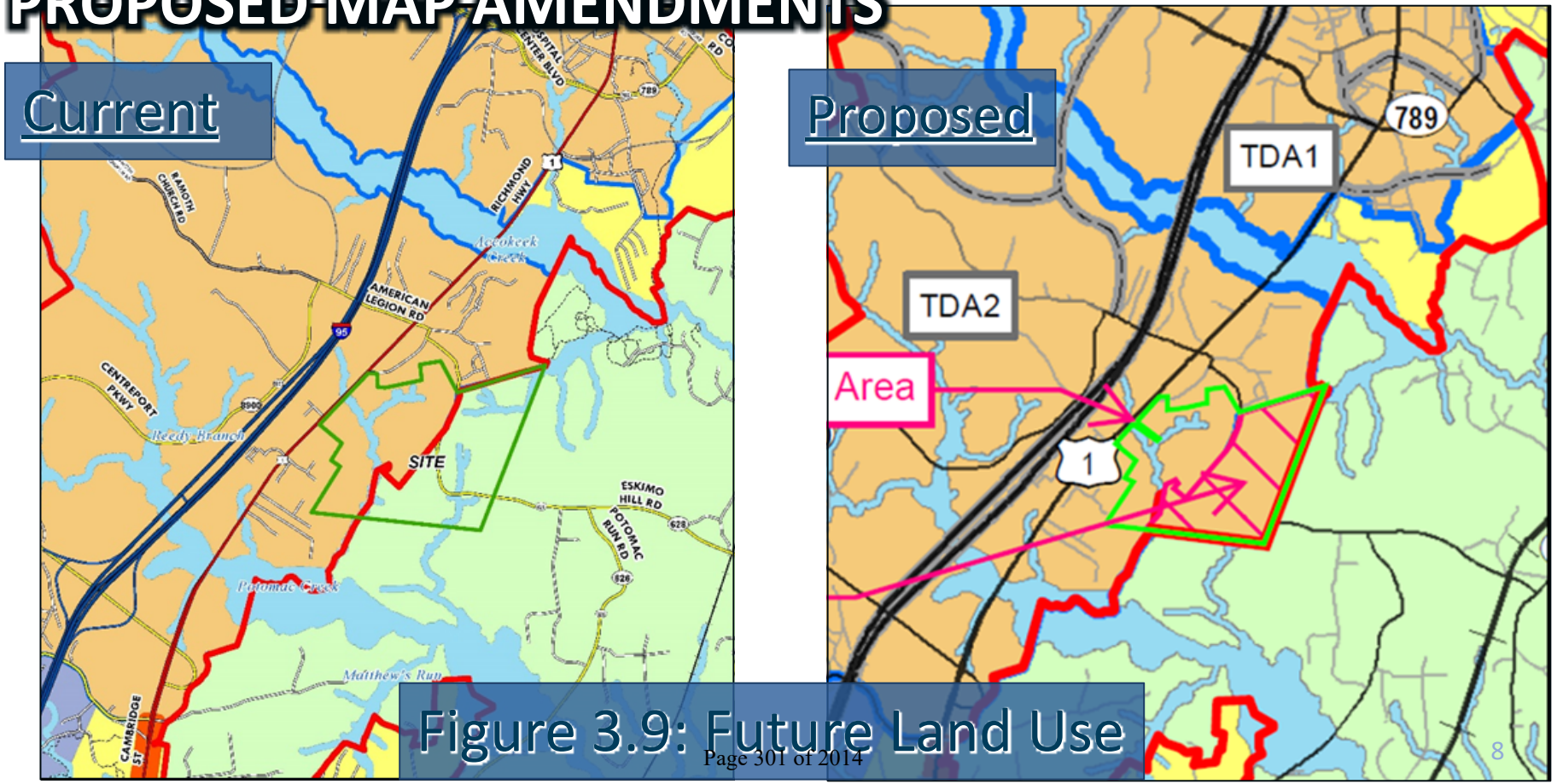
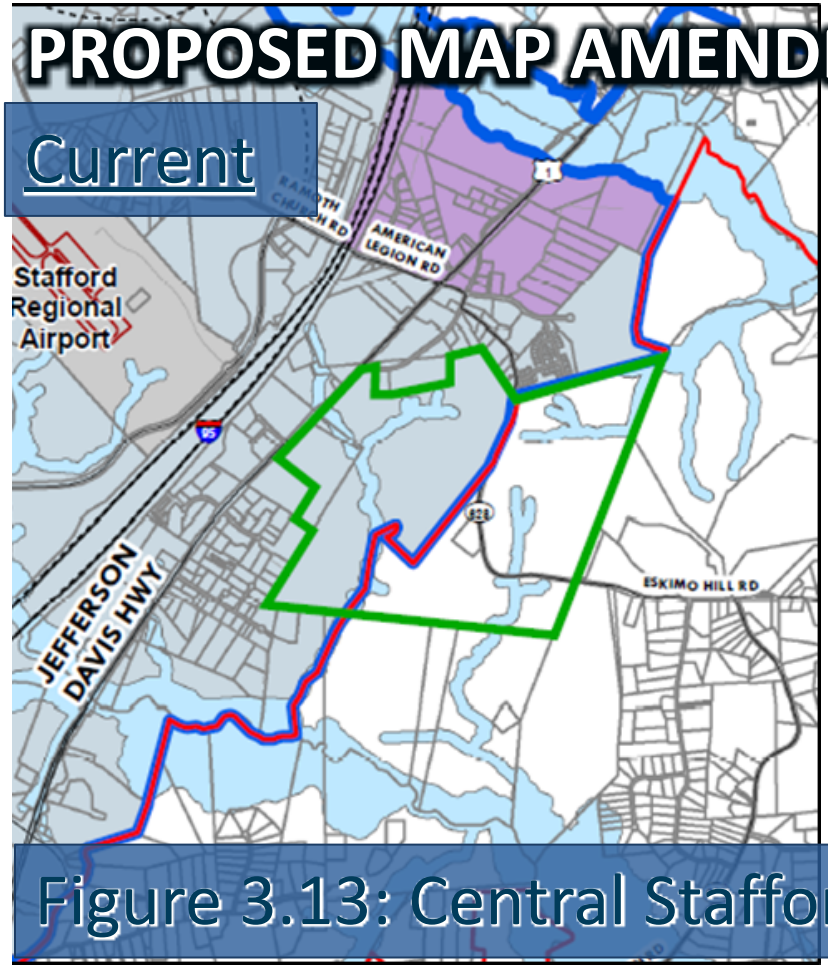


Figure 3.9: Future Land Use

PROPOSED MAP AMENDMENTS

Current



Proposed

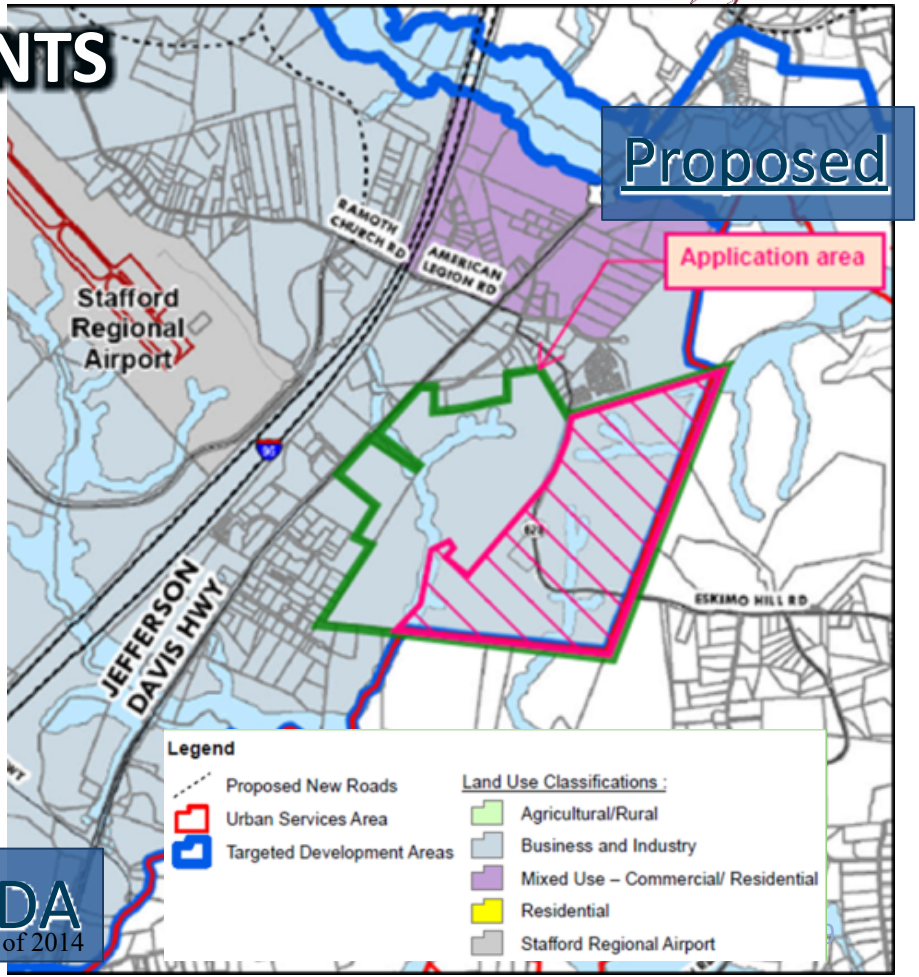


Figure 3.13: Central Stafford TDA

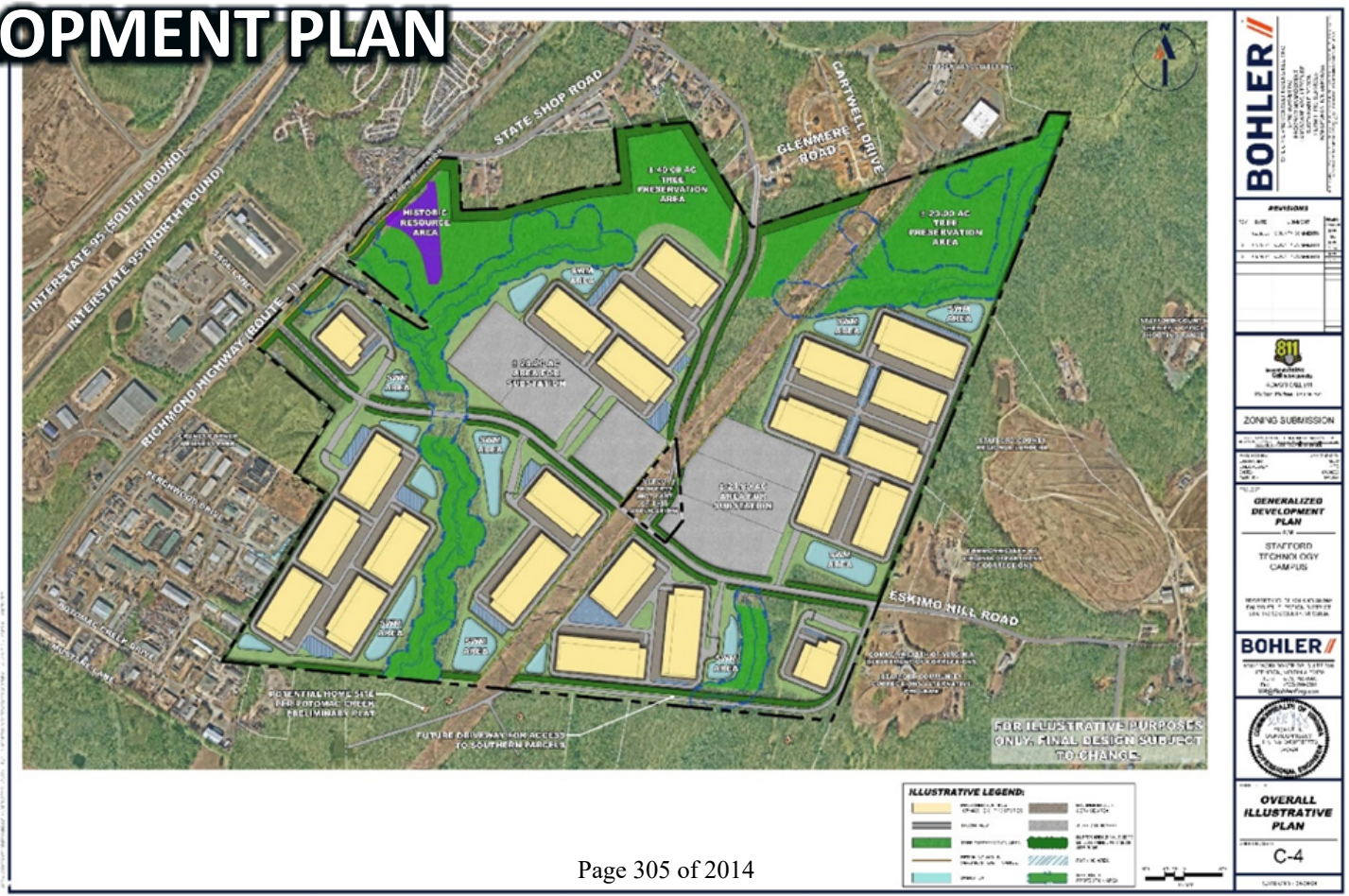
Recommendation – COMP PLAN AMENDMENT

- Staff recommends approval of the proposed amendments to the Comprehensive Plan (application RC23154932), pursuant to proposed Resolution R24-187.

- On June 12, 2024, the Planning Commission voted 4-2 (1 Absent) to recommend approval.

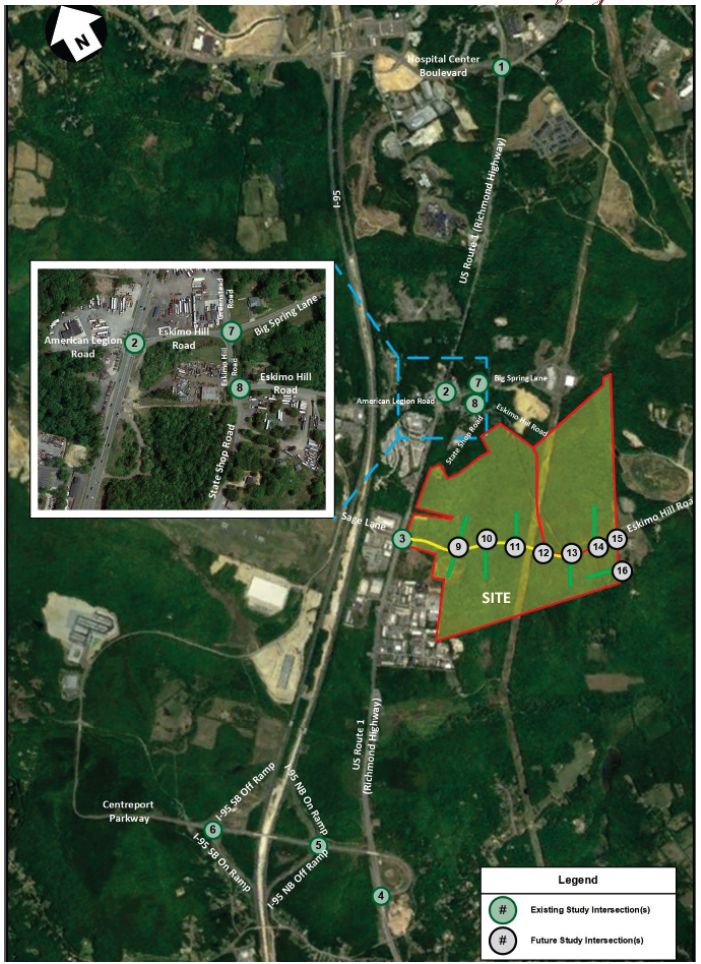
ZONING RECLASSIFICATION

DEVELOPMENT PLAN

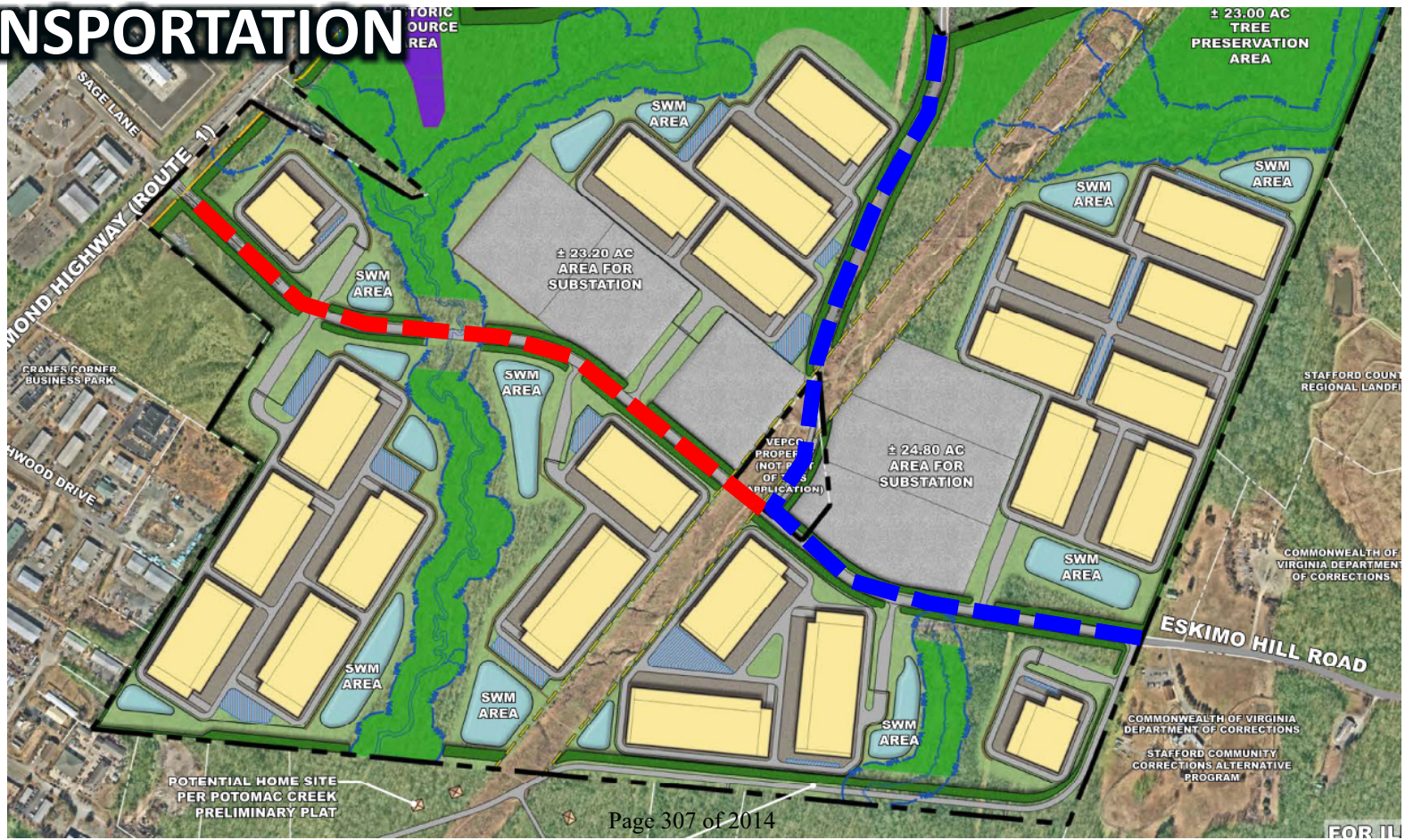


TRANSPORTATION

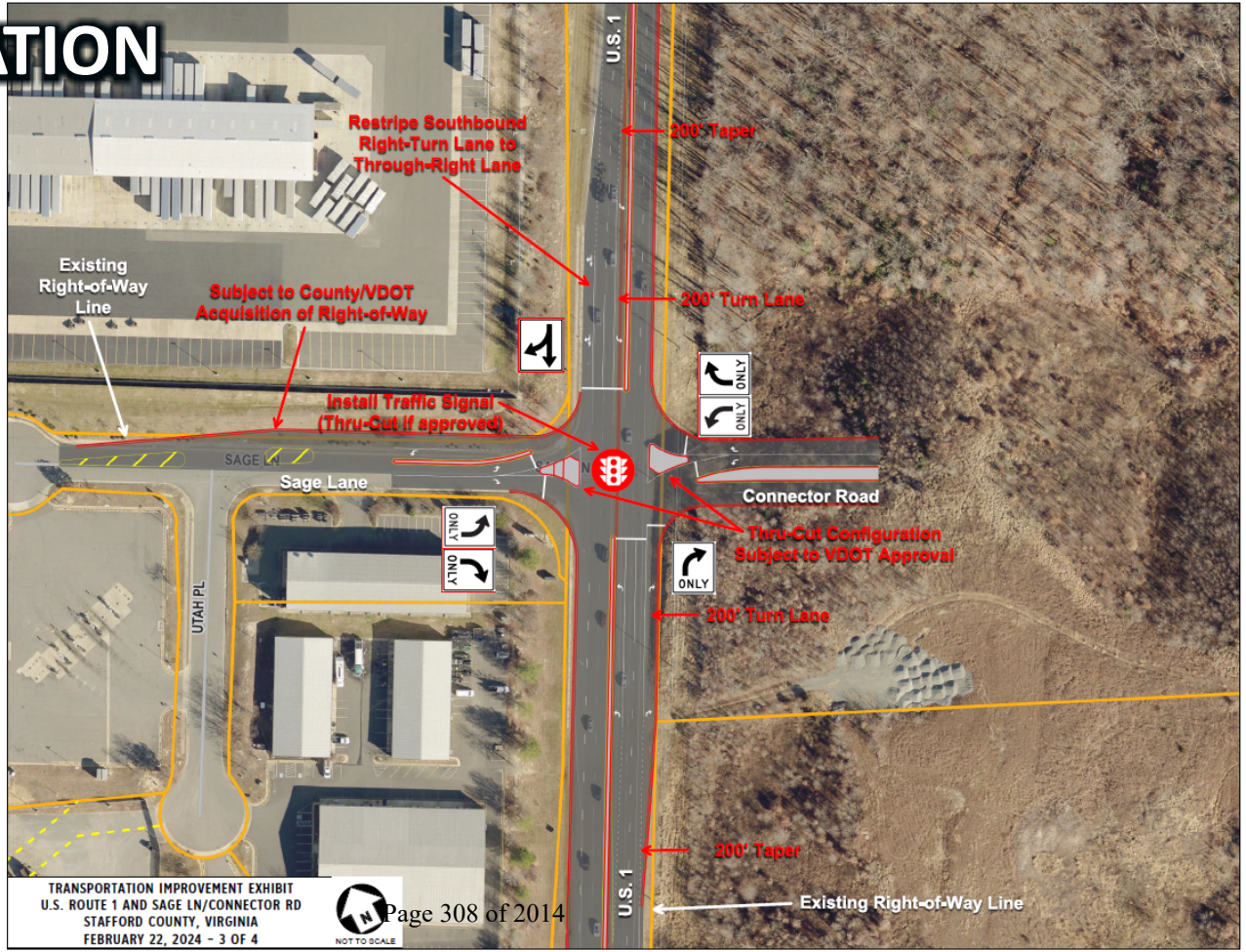
- 4,356 vehicle trips per day
- A TIA evaluated surrounding intersections
- Several mitigation measures identified
- Project would implement recommendations from the Transportation Plan



TRANSPORTATION



TRANSPORTATION



Recommendation – ZONING RECLASSIFICATION

- Staff believes the positive aspects outweigh the negative aspects and recommends approval of the reclassification (RC23154931), pursuant to Ordinance O24-20, subject to approval of the concurrent Comprehensive Plan Amendment.
- Remaining Issues noted by staff:
  - The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers.
  - Recommend phasing of project based on progress of reuse water system construction.

- On July 24, 2024, the Planning Commission voted 6-0 (1 Absent) to recommend approval.

Stafford County
Board of Supervisors Meeting
Agenda Item Report
Meeting Date: September 17, 2024
PUBLIC HEARINGS

Subject:	
PLANNING AND ZONING; CONSIDER A PROPOSED ZONING RECLASSIFICATION, WITH PROFFERS, FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT ON TAX MAP PARCEL NOS. 38-124 AND 38-29A (PROJECT KNOWN AS STAFFORD TECHNOLOGY CAMPUS) PROPOSED ORDINANCE O24-20 (Approve) PROPOSED RESOLUTION R24-189 (Deny) **BACKGROUND SUMMARY:** RECOMMENDS APPROVAL OF ZONING RECLASSIFICATION.	
Recommended Action:	
Staff recommends approval of the reclassification application (RC23154931), pursuant to Ordinance O24-20.	
Committee/Commission Recommendation:	
At its meeting on July 24, 2024, the Planning Commission voted 6-0 (1 absent) to recommend approval of the application.	
Fiscal Impact:	**District:**
	Falmouth
Overview:	
Consider a request for a proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124 (Property), consisting of 503.84 acres to permit a data center, public facilities/utilities, and related accessory uses. The deadline for the Board to decide upon this reclassification request is September 17, 2024.	
Discussion/Analysis:	
The General Development Plan (GDP) submitted by the applicant depicts the site layout for the proposed development. The GDP contemplates 23 buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are	

clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas (CRPA) within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change.

Each building would consist of two or three levels that total 60 to 65 feet in height for 2-level buildings, and up to 110 feet for 3-level buildings. In a data center, each floor is roughly 30 feet high to account for required cooling systems. The maximum building height in M-2 is 65 feet. Any structures exceeding this height would require a conditional use permit (CUP). The applicant has listed the height exception in the proffer statement as a permitted component of the project. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the buildings up to 110 feet tall without the need for a CUP.

The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Site topography includes sloping terrain. There are several perennial streams, wetlands, and CRPA buffer areas across the site. The northeast corner of the site drains to the northeast towards Accokeek Creek. The remainder of the site drains to the south towards Potomac Creek. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west. The undeveloped parcel to the south has an approved subdivision plan for 24 dwelling units (Potomac Creek Overlook).

The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.

The GDP identifies up to six electric substations proposed on the site. The substations will connect to the adjacent high voltage power line that bisects the site. Note that an electric substation is identified as a use that requires a conditional use permit in the M-2 zoning district. The applicant has listed the use in the proffer statement as a permitted use. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the substations without the need for a CUP.

The GDP identifies tree preservation areas and landscape buffers on the site. To screen the project from residential uses to the north, tree preservation zones are identified. These areas provide a buffer ranging from 400 to 1,000 feet in width. Mature trees that exist in this area would be preserved. Transitional buffers would be 20 feet on the east adjacent to the landfill and corrections facility and 50 feet on the south side where

planned residential development exists. Street buffers 50 feet in width are proposed along Eskimo Hill Road and the new road connection. To provide level development pads for this type of use, retaining walls are proposed around the perimeter of each development area due to the sloping terrain.

The Property contains an archeological resource in the northwest corner: DHR ID #44ST0680. The site consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. The site is not proposed to be developed. It is identified on the GDP as being within a proposed tree preservation area.

The project will be required to be served by the public water and sewer system. The Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements, which will require a service agreement with the County.

Detailed staff reports with complete analysis of the project prepared for the June 12, 2024 Planning Commission meeting is included in Attachment 9 and the staff report for the July 24, 2024 Planning Commission meeting is included in Attachment 12.

On June 12, 2024, the Commission recommended approval of the concurrent Comprehensive Plan Amendment application. On July 24, 2024, the Commission approved the concurrent Comprehensive Plan Compliance Review request determining the electric substations to be substantially in accord with the Comprehensive Plan. Resolution PCR24-13 is included in Attachment 8.

APPLICATION UPDATE:
A public hearing was held with the Board of Supervisors on August 20, 2024 and deferred to this meeting. The Board wanted time to consider new proffers that were submitted the day of the hearing.

Subsequent to the August 20th meeting, staff provided comments to the applicant on the August 20th proffer statement. The applicant further amended the proffers, dated September 9, 2024. These are included as Attachments 3 (Red-line) and 4 (Clean/Final).

The remaining issues noted by staff include the following:

- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Although the applicant believes there would be adequate space to accommodate the improvements, this may not be confirmed until detailed engineering occurs. In addition, the proposed alignment would cross a Resource Protection Area buffer in a manner that would create greater impacts than necessary. Staff continues to recommend a more direct inter-parcel connection to parcels to the south be considered.

- Utilities staff recommends the project provide a phased connection of buildings to the potable water system based on the construction progress of the reuse water system and to immediately convert any data center buildings on potable water to reuse water once the reuse water system is operational, and prior to any additional building occupancy, to ensure the health and operability of the County's drinking water system.

Attachments:

1. O24-20 Attachment 1.pln Proposed O24-20 - REZONING APPROVAL
2. O24-20 Attachment 2.pln Proposed R24-189 - REZONING DENIAL
3. O24-20 Attachment 3.pln Proffer Statement 09-09-2024 REDLINE
4. O24-20 Attachment 4.pln Proffer Statement 09-09-2024 CLEAN
5. O24-20 Attachment 5.pln Generalized Development Plan 04-20-24
6. O24-20 Attachment 6.pln Transportation Plan (February 2024)
7. O24-20 Attachment 7.pln Design Elements (February 2024)
8. O24-20 Attachment 8.pln PCR24-13 Comp Plan Compliance Review Approval
9. O24-20 Attachment 9.pln 06-12-24 PC Combined Packet
10. O24-20 Attachment 10.pln 06-12-24 PC Staff Presentation Slides
11. O24-20 Attachment 11.pln 06-12-24 PC Minutes_Stafford Technology
12. O24-20 Attachment 12.pln 07-24-24 PC Combined Packet
13. O24-20 Attachment 13.pln 07-24-24 PC Staff Presentation Slides
14. O24-20 Attachment 14.pln 07-24-24 PC Minutes_DRAFT_Stafford Technology Campus
15. O24-20 Attachment 15.pln BOS Staff Presentation RC and COMP PLAN

Summary/Conclusion:

Staff believes the positive aspects outweigh the negative aspects and recommends approval of the reclassification (RC23154931), pursuant to Ordinance O24-20, subject to approval of the concurrent Comprehensive Plan Amendment.

Positive Aspects:

- Use consistent with the recommended Business and Industry land use and the full site would be in compliance if the concurrent Comp Plan amendment is approved.
- The data centers are an appropriate use within the Airport Overlay district.
- Data centers would be consistent with the adjacent industrial and public facility uses.
- Buffers and building setbacks would limit visual impacts to the adjacent residential uses.

- Siting near electric transmission lines limit the need to extend additional transmission lines.
- The substations would be centrally located on the site, minimizing visual impacts to adjacent properties.
- Ensures the data centers will use reuse water when available, negating any potential impacts to the County's potable water supply.
- The planned connector road is generally consistent with a recommended road connection in the Transportation Plan, improving access to the data centers.
- Promotes Economic Development goals of bringing high paying jobs to the County.

Negative Aspects:

- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers.
- Recommend phasing of project based on progress of reuse water system construction.

Strategic Priorities:

Reviewed By:

Rysheda McClendon, County Attorney (Legal Review Only)
Craig Meadows, Interim County Administrator

O24-20

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

ORDINANCE

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on this the 17th day of September, 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

AN ORDINANCE TO AMEND AND REORDAIN THE STAFFORD COUNTY ZONING ORDINANCE BY AMENDING THE ZONING DISTRICT MAP TO RECLASSIFY FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT TAX MAP PARCEL NOS. 38-29A AND 38-124, ALL LOCATED WITHIN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology LC submitted application RC23154931, requesting a zoning reclassification from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, all located within the Falmouth Election District; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that the requested zoning amendment is compatible with the surrounding land uses and meets the criteria for a rezoning in Stafford County Code Sec. 28-206; and

WHEREAS, the Board finds that public necessity, convenience, general welfare, and good zoning practices require adoption of this Ordinance to reclassify the subject property;

NOW, THEREFORE, BE IT ORDAINED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that the Stafford County Zoning Ordinance be and it hereby is amended and reordained by amending the Zoning District Map to reclassify from the A-1, Agricultural Zoning District to the M-2, Light Industrial Zoning District Tax Map Parcel Nos. 38-29A and 38-124, in the locations shown on the plats entitled "Boundary Survey Stafford Technology LC 1318 Richmond Hwy Aquia Magisterial District Stafford County, Virginia" prepared by Bohler, dated March 22, 2023 and sealed August 29, 2023; and "Boundary Survey Stafford Technology LC 1318 Richmond Hwy Aquia Magisterial District Stafford County, Virginia" prepared by Bohler, dated March 1, 2023 and sealed August 28, 2023, with proffers entitled "Proffer Statement" dated September 9, 2024 and completely signed September 10, 2024.

WHA:MJZ:vs

R24-189

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on this the 17th day of September, 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO DENY A REQUEST TO RECLASSIFY FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT TAX MAP PARCEL NOS. 38-29A AND 38-124, ALL LOCATED WITHIN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology LC submitted application RC23154931, requesting a zoning reclassification from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, located within the Falmouth Election District; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that the requested zoning amendment is incompatible with the surrounding land uses and does not meet the criteria for a rezoning in Stafford County Code Sec. 28-206;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that application RC23154931 be and it hereby is denied.

WHA:MJZ:vs

PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: ~~August 20~~September 9, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 Zoning District (including accessory uses) shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Fleet Parking;

d. Machinery sales and service;

e. Motor Vehicle Rental;

f. Parking and storage of tractor trailers;

g. Public parking lot;

h. Railroad sidings;

i. Recycling facilities;

j. Truck/freight terminals;

k. Truck wash;

l. Adult business;

m. Automobile salvage yard or operations

n. Drive-through;

o. Dwelling for watchman or caretaker on-premises;

p. Feed lots;

q. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district;

r. Junkyard.

s. Sale of motor vehicles of a gross weight greater than five (5) tons or with a capacity to carry more than sixteen (16) passengers;

t. Slaughter and animal product processing.

u. Solar facility other than what is used to provide energy to the buildings or structures on the Property;

v. Truck stop; and

w. Vehicle fuel sales.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 26 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Height shall be measured based on the existing definition of height in the Zoning Ordinance in effect at the time of approval of this rezoning. Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. A maximum of (6) electric substations shall be permitted on the Property without requiring any further conditional use permit(s). In the event seven or more substations are needed on the Property, each additional substation over six (6) shall require a conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) shall provide written notice to the Zoning Administrator of its

intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety-five feet (95') in height. Transmission structures may be taller than ninety-five feet (95').

c. Location - Substations on the Property shall be located adjacent to the new connector Road or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP. In the event a substation is located to the south of the new Connector Road, or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP, the substation may not be located within five hundred and fifty feet (550') from Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. In the event the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

a. Building Facades

i. Principal Building Facades - The building exterior façade design shall include the following architectural features:

1. High albedo or light-colored roof;
2. Parapets;
3. Sound enclosures for each generator;
4. Shrouds for exhaust stacks;
5. Fenestration;
6. Varied building color; and
7. Varied building materials.

ii. Notwithstanding the above, building exterior facades (visible from surrounding roads or properties) will be composed of at least one primary and two secondary building material(s) as outlined below:

1. Primary Building Materials may be:

a. Concrete masonry units (split faced or burnished);
b. Precast concrete;
c. Concrete tilt-wall;
d. Glass (clear);
e. Glass (architectural panels);
f. Metal panels; and/or
g. Secondary materials.

2. Secondary Building Materials will be limited to accents or subordinate elements of the façade. Secondary materials may be:

a. Cement fiber board/cementitious siding;
b. Concrete masonry units (flush/plain, split faced, or burnished);
c. Gypsum reinforced fiber concrete;
d. Metal panels;
e. Pre-cast concrete (for trim elements only);
f. Glass (clear); and/or
g. Glass (architectural panels).

iii. Additional materials and features not listed may be permitted if the Zoning Administrator determines that they are substantially similar in appearance and quality of afore listed features and materials.

b. Fencing - Security fencing shall be provided around the perimeter of the Property, each data center building, or multiple data center buildings. Security fencing shall be at least eight feet (8') in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

c. Roof Design - The roof shall be light colored.

d. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof. In the event Tax Map Parcels 38-125, 38-126, and/or 38-130 are still zoned A-1 and planned for residential uses screening shall address both visual screening and sound attenuation. In addition, generators that are facing the above-mentioned tax map parcels and not screened by buildings shall be screened by a solid wall.

e. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

f. Compliance - Compliance with this Proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area on the Property be less than sixty-three (63) acres. The Applicant shall provide a running tabulation of the total tree preservation areas on the Property on each site plan submitted for the Property (even if the site plan submitted does not contain tree preservation area). Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. Monetary Contribution - The Applicant shall make a monetary contribution to Stafford County Board of Supervisors in the amount of one million five hundred thousand dollars ($1,500,000) to be used for fire and rescue purposes. Said contribution shall be paid at the time of issuance of the building permit for the first data center building on the Property.

13. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

14. Sprinkler System - Any data center building constructed on the Property shall be fully fire sprinklered with floor control valve assemblies on each level. Said sprinklers shall be a NFPA 13 standard or the standard in effect at the time of development of each building.

NOISE

15. Data Center Noise - Notwithstanding and in addition to the applicable Noise Ordinance, Stafford County Code Chapter 16, and as may be amended (the "Stafford County Noise Ordinance") any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most

restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by County government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 16 below.

16. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer 15 above shall be reduced by 3 dBA. The term "prominent discrete tone" shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

    a. 5 dB for center frequencies of 500 Hz and above;

    b. 8 dB for center frequencies between 160 and 400 Hz; or

    c. 15 dB for center frequencies less than or equal to 125 Hz.

17. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 15 or Proffer 16 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

18. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 15 and Proffer 16, six (6) months after a final occupancy permit for each data center building is issued and then annually between the months of June and August. This requirement shall expire five (5) years after the issuance of the final occupancy permit for the final data center building on the Property. Said sound or noise measurements shall be taken at varied locations including those along the north and south property boundaries. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter at the time of any noise measurement. The Acoustical

Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events (for example noise generated from airplanes, traffic, weather, construction, emergency generators). During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer 15 and Proffer 16 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

19. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this Proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 15 and Proffer 16, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

20. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water" and "bridging sewer" for the project as outlined in 20.a. and 20.b. below. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of this rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and

approval of the Water Service Agreement. The Water Service Agreement shall include a capped maximum capacity for bridging water and bridging sewer until reuse water becomes available. The Water Service Agreement shall be approved prior to the issuance of the first occupancy permit (temporary or final) on the Property. For purposes of this Proffer 20 and Proffer 21 "bridging water" shall mean temporary potable water used for data center cooling and "bridging sewer" shall mean the upgrades to the sewer system to support the load from bridging water.

a. Bridging Water Improvements - To allow for public potable water required to be used for industrial cooling in data center buildings prior to and until the Reuse Water System becomes available to the Property (constructed, operational, and located to the Property boundary), the following infrastructure improvements need to be constructed by the Applicant, or others:

    i. Pumping station along Centreport Parkway; and

    ii. Water line connecting from Centreport Parkway to the existing waterline along Richmond Highway.

b. Bridging Sewer Improvements - To allow for sewer required to be used for data center buildings prior and until the Reuse Water System becomes available to the Property (constructed, operational, and located to the Property boundary), the following infrastructure improvements need to be constructed by the Applicant, or others:

    i. Upgrades to the Potomac Creek Sewer Pump Station to increase capacity; and

    ii. Upgrades to the receiving sewer force main exiting from Potomac Creek Sewer Pump.

c. Scope: The scope defining the aforementioned Bridging Water and Bridging Sewer improvements will be defined in the Water Service Agreement and are subject to change at execution or future amendments thereto.

d. Maximum Bridging Water Capacity - The maximum bridging water capacity for the Project shall be limited to the first to occur: (i) the use of a maximum of one million (1,000,000) gallons per day of potable water for industrial cooling of the data center buildings constructed (which includes receipt of a certificate of occupancy permits to operate) on the Property; or (ii) six (6) data center buildings (which includes receipt of a certificate of occupancy permits to operate) that utilize potable water for cooling prior to and until the Reuse Water System becomes

available to the Property (constructed, operational, located to the Property boundary, and connected to the data center buildings). The Water Service Agreement shall further limit the maximum bridging water capacity for the project to five (5) data center buildings. In the event, there is additional capacity the Water Service Agreement may be amended by approval of the Board of Supervisors to allow for six (6) data center buildings.

21. Reuse Water

a. Reuse Water Use: The Applicant agrees that all public water demands required-to be used for industrial cooling for data centers will utilize reuse water as the sole primary water source once the Reuse Water System is completed and extended to the Property boundary. Should the Reuse Water System Project become delayed or unavailable due to necessary repairs or unforeseen disruptions as outlined in the Water Service Agreement, the Applicant must then obtain approval via an amendment of these proffers for any additional Bridging Water and Bridging Sewer needs over the maximum allotted in Proffer 20.d., except as otherwise outlined in Proffer 21.d. below.

b. Reuse Water System: To allow for use of Reuse Water for industrial cooling in data center buildings the following infrastructure improvements ("Reuse Water System" as used throughout this Proffer Statement) shall be completed (constructed, operational, located to the Property boundary, and data center buildings on the Property connected) by the Applicant, or others:

i. Reuse Water and return sewer piping;

ii. Reuse Water storage on the Property;

iii. New Potomac Creek Sewer Pumping Station capable of pumping to the Aquia Waste Water Treatment Facility;

iv. Permanent Cooling Water Infrastructure, as defined in the AWS WATER AND WASTEWATER INFRASTRUCTURE AGREEMENT entered into by Amazon Data Services, Inc. and Stafford County, Virginia, and approved by the Board of Supervisors on July 2, 2024, as may be amended; and

v. Any other improvements outlined and included in the executed Water Service Agreement as may be amended.

c. Timing & Scope: The timing and scope of the above-mentioned improvements shall be outlined in the Water Service Agreement and are subject to change at execution

or future amendments thereto. The Applicant shall include language in the Water Service Agreement that assigns phasing of the development on the Property for data centers requiring potable water for cooling systems that is tied to key milestones in the Reuse Water System's construction and progress.

d. In the event the Reuse Water System construction has not commenced prior to December 31, 2028, and the Applicant requires public water for data center cooling, then the Applicant shall undertake reasonable good faith efforts to assume the responsibility of constructing the Reuse Water System through assignment of the obligation from applicable third parties, which shall be approved by Stafford County. Notwithstanding Proffer 21.a. above, in the event the responsibility is not assigned or the Reuse Water System is not approved, the Applicant shall either (1) provide a monetary contribution to Stafford County for improvements that would provide for sufficient potable water capacity upgrades to Stafford County's water infrastructure system that would allow for the use of potable water for permanent data center cooling; or (2) construct improvements that would provide sufficient potable water capacity upgrades to Stafford County's water infrastructure that would allow for the use of potable water for permanent data center cooling. The monetary contribution amount or required upgrades shall be determined and agreed upon at any period prior to December 31, 2032.

22. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

23. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

24. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may

be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

25. Interparcel Connections

a. Tax Map Parcels 38-125 and 38-130 - In the event Tax Map Parcels 38-125, and 38-130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said parcels with the final location to be determined by the Applicant at final site plan.

b. Tax Map Parcel 38-126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38-126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

26. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

27. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road: If a suitable design per the VDOT Road Design Manual as of July 11, 2024 is permitted by the County, VDOT and/or other federal, state or local agencies the Applicant shall make the following transportation improvements on the Connector Road:

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy-six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be

responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall make the following improvements:

1. Construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary~~, consistent with the County's Major Local Road standard and/or VDOT Local Road System "GS-4" Standard, whichever one is more stringent,~~ between the Property's northern boundary to State Shop Road prior to the issuance of the 2,113th VPD on the Property;

2. Construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary~~, consistent with the County's Major Local Road standard and/or VDOT Local Road System "GS-4" Standard, whichever one is more stringent,~~ along the Property's Eskimo Hill Road frontage prior to the issuance of the 991st VPD on the Property

3. Subject to available right-of-way and Proffer 28 below, construct an additional westbound lane on Eskimo Hill Road at its intersection with Richmond Highway prior to the issuance of the 2,113th VPD on the Property;

4. Subject to available right-of-way and Proffer 28 below, restripe the westbound Eskimo Hill Road approach at its intersection with Richmond Highway and modify the traffic signal and pavement markings prior to the issuance of the 2,113th VPD on the Property;

5. Install a dedicated southbound right turn lane on Eskimo Hill Road at the northernmost driveway prior to the issuance of an occupancy permit for the first data center building served by that access;

6. Subject to available right-of-way and Proffer 28 below, install a dedicated right turn lane on Eskimo Hill Road at the Vandegrift Road/Big Spring Lane intersection prior to the issuance of the occupancy permit for the 991st VPD on the Property;

7. Subject to available right-of-way and Proffer 28 below, construct a westbound right turn lane on Eskimo Hill Road at the State Shop Road intersection prior to the issuance of an occupancy permit for the 2,113th VPD on the Property;

8. Construct the access road to the western portion of the Property as a two-lane roadway with an auxiliary westbound right turn lane at the intersection of Richmond Highway prior to the issuance of an occupancy permit for the first data center building served by that access; and

9. Construct a southbound left turn lane and northbound right turn lane on Richmond Highway consistent with Proffer 27.e.iii.1 and 27.e.iii.3. below.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard ~~and/or VDOT Local Road System "GS-4" Standard~~or the roadway geometric design standard required by the VDOT Road Design Manual and VDOT Road and Bridge standards for a local roadway at the time of design approval, whichever one is more stringent, between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii. The location of said driveways shall be subject to the Minimum Spacing Standards for Commercial Accesses by the VDOT Access Management Regulations for collector roadways at the time of design approval.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway:

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan in the event the Connector Road is approved.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane, extending from Sage Lane to connect to the existing right turn lane at Black Jack Road, prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for 2,113th VPD and 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT in the event the Connector Road is approved. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

28. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 27 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's sole expense. Applicant's request shall be in writing and shall comply in all respects with state, federal, and local laws, and the County's eminent domain practices. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

   i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

   ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney’s Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

29. Construction

a. Construction Mitigation Plan - Prior to final site plan approval for each phase of development of the Property, a construction mitigation plan will be drafted by the Applicant ("Construction Mitigation Plan") and submitted for review and concurrence to the County's Director of Development Services and Director of Capital Projects. The Construction Mitigation Plan will address, at minimum, construction traffic control measures, including any mitigation measures to be implemented during weekday AM and PM peak travel hours and school bus travel times along shared construction truck routes to and from the Property, access points, and dust control.

b. Delivery Notification - The Applicant agrees to provide the County's Director of Development Services & Community Development and Director of Capital Projects with at least forty-eight (48) hours written notice prior to any expected large or oversized deliveries to Property and/or any significant, heavy construction presence on the Property.

c. Public Liaison - The Applicant agrees to designate at least one public liaison and publicize a toll-free phone number and email address during construction on the Property. At minimum, the information must be published on the Applicant's website and provided to the County's Public Information Officer for publication on the County's website and other social media. The liaison must act as a point of contact between citizens and construction crews. The liaison must be available in person and by phone during active construction hours and must respond to any questions related to the project or Property. The liaison role will commence prior to issuance of a land-disturbing permit and must remain a minimum of six (6) months following the issuance of the final certificate of occupancy for each building constructed on the Property.

d. Joint Construction Traffic Reaction Team - If requested by the County, the Applicant must participate in a Joint Construction Traffic Reaction Team, which may include members of County staff and VDOT, the County Sheriff's Office, County Fire and Rescue Department, and the Virginia State Police to identify and expeditiously resolve or mitigate traffic issues that may arise during the construction on the Property. The Applicant agrees to assist in resolving and implementing solutions to traffic issues.

e. Pavement Damage - At the Applicant's expense, damage to pavement on the roads, including shoulders and aprons, attributable to construction on the Property must

be repaired by the Applicant within one hundred and twenty (120) days of the issuance of the final certificate of occupancy for a building on the Property. However, if the Applicant receives notice from the County's Transportation Planner or VDOT staff stating that the damage to roads, including shoulders and aprons, has made a road unsafe, the Applicant will initiate the process of said repairs within forty-eight (48) hours of written notice from the County and/or VDOT.

f. Land Clearing - The Applicant commits to clearing the Property in phases based on development of each campus in accordance with applicable County Code requirements and will not mass grade the entire Property at one time.

30. Applicant Point of Contact - Prior to the first certificate of occupancy permit issued for the Property, the Applicant will provide the County a community point of contact(s) through its "STACK- Public Affairs" department and any other appropriate contact person as determined by the Applicant.

31. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

32. General Development Schedule - The Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the Property for the next thirty-six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 32 shall expire upon the full development of the Property.

33. Third Party Contractors - Should the County determine, in its sole discretion, that the size and scope of the proposal associated with data center buildings requires the County to rely upon contracted, or to other contract with, third parties to meet its obligations as they relate to reviewing, permitting and enforcing any aspect of the Project, the Applicant, after approving the costs for said contractors, will reimburse the County's incurred, reasonable costs or fund the County's reasonable estimates for the said third party contractors as set out in the County Code or other requirements. The Applicant will not unreasonably withhold approval of the costs. The Applicant will fund or reimburse the County's reasonable costs through (1) providing funds to the County upfront based on the County's reasonable estimates prior to the third party work and thereafter supplementing the estimated amounts paid, if necessary, by funding the actual, reasonable costs upon

completion of the work; or (2) by reimbursing the County after the County has expended funds for the third party work, either, both, or a combination thereof, all as determined by the County. In the alternative, the County (after review and verification) may direct its contractors, vendors, and other third parties providing services in support of the County to present to the Applicant with their invoices directly, which the Applicant will review and approve, and thereafter pay on behalf of the County within thirty (30) days of its receipt. The Applicant will not unreasonably withhold approval of the invoices. Any late fees or costs accrued based upon the Applicant's failure to pay invoices timely presented to it by the County will be the responsibility of the Applicant. The third-party costs paid by the Applicant hereunder will not be refunded under any circumstance, except in the event if the County unreasonably refuses to commence, or complete, once begun, the third-party work on the Property for which the third parties were contracted. This Proffer pertains to the initial development of the data centers building on the Property and construction activities on the Property and shall expire after final bonds for the last data center building constructed on the Property have been released.

34. Generator Testing - The testing of data center building generators shall be limited to weekdays between the hours of 7AM and 6PM.

35. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

~~SIGNATURES APPEAR~~ SIGNATURE APPEARS ON FOLLOWING PAGES

PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: September 9, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 Zoning District (including accessory uses) shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Fleet Parking;

d. Machinery sales and service;

e. Motor Vehicle Rental;

f. Parking and storage of tractor trailers;

g. Public parking lot;

h. Railroad sidings;

i. Recycling facilities;

j. Truck/freight terminals;

k. Truck wash;

l. Adult business;

m. Automobile salvage yard or operations

n. Drive-through;

o. Dwelling for watchman or caretaker on-premises;

p. Feed lots;

q. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district;

r. Junkyard.

s. Sale of motor vehicles of a gross weight greater than five (5) tons or with a capacity to carry more than sixteen (16) passengers;

t. Slaughter and animal product processing.

u. Solar facility other than what is used to provide energy to the buildings or structures on the Property;

v. Truck stop; and

w. Vehicle fuel sales.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 26 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Height shall be measured based on the existing definition of height in the Zoning Ordinance in effect at the time of approval of this rezoning. Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. A maximum of (6) electric substations shall be permitted on the Property without requiring any further conditional use permit(s). In the event seven or more substations are needed on the Property, each additional substation over six (6) shall require a conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) shall provide written notice to the Zoning Administrator of its

intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety-five feet (95') in height. Transmission structures may be taller than ninety-five feet (95').

c. Location - Substations on the Property shall be located adjacent to the new connector Road or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP. In the event a substation is located to the south of the new Connector Road, or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP, the substation may not be located within five hundred and fifty feet (550') from Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. In the event the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

a. Building Facades

i. Principal Building Facades - The building exterior façade design shall include the following architectural features:

1. High albedo or light-colored roof;
2. Parapets;
3. Sound enclosures for each generator;
4. Shrouds for exhaust stacks;
5. Fenestration;
6. Varied building color; and
7. Varied building materials.

ii. Notwithstanding the above, building exterior facades (visible from surrounding roads or properties) will be composed of at least one primary and two secondary building material(s) as outlined below:

1. Primary Building Materials may be:

a. Concrete masonry units (split faced or burnished);
b. Precast concrete;
c. Concrete tilt-wall;
d. Glass (clear);
e. Glass (architectural panels);
f. Metal panels; and/or
g. Secondary materials.

2. Secondary Building Materials will be limited to accents or subordinate elements of the façade. Secondary materials may be:

a. Cement fiber board/cementitious siding;
b. Concrete masonry units (flush/plain, split faced, or burnished);
c. Gypsum reinforced fiber concrete;
d. Metal panels;
e. Pre-cast concrete (for trim elements only);
f. Glass (clear); and/or
g. Glass (architectural panels).

iii. Additional materials and features not listed may be permitted if the Zoning Administrator determines that they are substantially similar in appearance and quality of afore listed features and materials.

b. Fencing - Security fencing shall be provided around the perimeter of the Property, each data center building, or multiple data center buildings. Security fencing shall be at least eight feet (8') in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

c. Roof Design - The roof shall be light colored.

d. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof. In the event Tax Map Parcels 38-125, 38-126, and/or 38-130 are still zoned A-1 and planned for residential uses screening shall address both visual screening and sound attenuation. In addition, generators that are facing the above-mentioned tax map parcels and not screened by buildings shall be screened by a solid wall.

e. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

f. Compliance - Compliance with this Proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area on the Property be less than sixty-three (63) acres. The Applicant shall provide a running tabulation of the total tree preservation areas on the Property on each site plan submitted for the Property (even if the site plan submitted does not contain tree preservation area). Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. Monetary Contribution - The Applicant shall make a monetary contribution to Stafford County Board of Supervisors in the amount of one million five hundred thousand dollars ($1,500,000) to be used for fire and rescue purposes. Said contribution shall be paid at the time of issuance of the building permit for the first data center building on the Property.

13. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

14. Sprinkler System - Any data center building constructed on the Property shall be fully fire sprinklered with floor control valve assemblies on each level. Said sprinklers shall be a NFPA 13 standard or the standard in effect at the time of development of each building.

NOISE

15. Data Center Noise - Notwithstanding and in addition to the applicable Noise Ordinance, Stafford County Code Chapter 16, and as may be amended (the "Stafford County Noise Ordinance") any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most

restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by County government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 16 below.

16. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer 15 above shall be reduced by 3 dBA. The term "prominent discrete tone" shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

    a. 5 dB for center frequencies of 500 Hz and above;

    b. 8 dB for center frequencies between 160 and 400 Hz; or

    c. 15 dB for center frequencies less than or equal to 125 Hz.

17. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 15 or Proffer 16 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

18. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 15 and Proffer 16, six (6) months after a final occupancy permit for each data center building is issued and then annually between the months of June and August. This requirement shall expire five (5) years after the issuance of the final occupancy permit for the final data center building on the Property. Said sound or noise measurements shall be taken at varied locations including those along the north and south property boundaries. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter at the time of any noise measurement. The Acoustical

Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events (for example noise generated from airplanes, traffic, weather, construction, emergency generators). During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer 15 and Proffer 16 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

19. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this Proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 15 and Proffer 16, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

20. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water" and "bridging sewer" for the project as outlined in 20.a. and 20.b. below. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of this rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and

approval of the Water Service Agreement. The Water Service Agreement shall include a capped maximum capacity for bridging water and bridging sewer until reuse water becomes available. The Water Service Agreement shall be approved prior to the issuance of the first occupancy permit (temporary or final) on the Property. For purposes of this Proffer 20 and Proffer 21 "bridging water" shall mean temporary potable water used for data center cooling and "bridging sewer" shall mean the upgrades to the sewer system to support the load from bridging water.

a. Bridging Water Improvements - To allow for public potable water required to be used for industrial cooling in data center buildings prior to and until the Reuse Water System becomes available to the Property (constructed, operational, and located to the Property boundary), the following infrastructure improvements need to be constructed by the Applicant, or others:

    i. Pumping station along Centreport Parkway; and

    ii. Water line connecting from Centreport Parkway to the existing waterline along Richmond Highway.

b. Bridging Sewer Improvements - To allow for sewer required to be used for data center buildings prior and until the Reuse Water System becomes available to the Property (constructed, operational, and located to the Property boundary), the following infrastructure improvements need to be constructed by the Applicant, or others:

    i. Upgrades to the Potomac Creek Sewer Pump Station to increase capacity; and

    ii. Upgrades to the receiving sewer force main exiting from Potomac Creek Sewer Pump.

c. Scope: The scope defining the aforementioned Bridging Water and Bridging Sewer improvements will be defined in the Water Service Agreement and are subject to change at execution or future amendments thereto.

d. Maximum Bridging Water Capacity - The maximum bridging water capacity for the Project shall be limited to the first to occur: (i) the use of a maximum of one million (1,000,000) gallons per day of potable water for industrial cooling of the data center buildings constructed (which includes receipt of a certificate of occupancy permits to operate) on the Property; or (ii) six (6) data center buildings (which includes receipt of a certificate of occupancy permits to operate) that utilize potable water for cooling prior to and until the Reuse Water System becomes

available to the Property (constructed, operational, located to the Property boundary, and connected to the data center buildings). The Water Service Agreement shall further limit the maximum bridging water capacity for the project to five (5) data center buildings. In the event, there is additional capacity the Water Service Agreement may be amended by approval of the Board of Supervisors to allow for six (6) data center buildings.

21. Reuse Water

a. Reuse Water Use: The Applicant agrees that all public water demands required-to be used for industrial cooling for data centers will utilize reuse water as the sole primary water source once the Reuse Water System is completed and extended to the Property boundary. Should the Reuse Water System Project become delayed or unavailable due to necessary repairs or unforeseen disruptions as outlined in the Water Service Agreement, the Applicant must then obtain approval via an amendment of these proffers for any additional Bridging Water and Bridging Sewer needs over the maximum allotted in Proffer 20.d., except as otherwise outlined in Proffer 21.d. below.

b. Reuse Water System: To allow for use of Reuse Water for industrial cooling in data center buildings the following infrastructure improvements ("Reuse Water System" as used throughout this Proffer Statement) shall be completed (constructed, operational, located to the Property boundary, and data center buildings on the Property connected) by the Applicant, or others:

i. Reuse Water and return sewer piping;

ii. Reuse Water storage on the Property;

iii. New Potomac Creek Sewer Pumping Station capable of pumping to the Aquia Waste Water Treatment Facility;

iv. Permanent Cooling Water Infrastructure, as defined in the AWS WATER AND WASTEWATER INFRASTRUCTURE AGREEMENT entered into by Amazon Data Services, Inc. and Stafford County, Virginia, and approved by the Board of Supervisors on July 2, 2024, as may be amended; and

v. Any other improvements outlined and included in the executed Water Service Agreement as may be amended.

c. Timing & Scope: The timing and scope of the above-mentioned improvements shall be outlined in the Water Service Agreement and are subject to change at execution

or future amendments thereto. The Applicant shall include language in the Water Service Agreement that assigns phasing of the development on the Property for data centers requiring potable water for cooling systems that is tied to key milestones in the Reuse Water System's construction and progress.

d. In the event the Reuse Water System construction has not commenced prior to December 31, 2028, and the Applicant requires public water for data center cooling, then the Applicant shall undertake reasonable good faith efforts to assume the responsibility of constructing the Reuse Water System through assignment of the obligation from applicable third parties, which shall be approved by Stafford County. Notwithstanding Proffer 21.a. above, in the event the responsibility is not assigned or the Reuse Water System is not approved, the Applicant shall either (1) provide a monetary contribution to Stafford County for improvements that would provide for sufficient potable water capacity upgrades to Stafford County's water infrastructure system that would allow for the use of potable water for permanent data center cooling; or (2) construct improvements that would provide sufficient potable water capacity upgrades to Stafford County's water infrastructure that would allow for the use of potable water for permanent data center cooling. The monetary contribution amount or required upgrades shall be determined and agreed upon at any period prior to December 31, 2032.

22. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

23. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

24. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may

be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

25. Interparcel Connections

a. Tax Map Parcels 38-125 and 38-130 - In the event Tax Map Parcels 38-125, and 38-130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said parcels with the final location to be determined by the Applicant at final site plan.

b. Tax Map Parcel 38-126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38-126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

26. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

27. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road: If a suitable design per the VDOT Road Design Manual as of July 11, 2024 is permitted by the County, VDOT and/or other federal, state or local agencies the Applicant shall make the following transportation improvements on the Connector Road:

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy-six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. <u>Eskimo Hill Road</u>

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be

responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall make the following improvements:

1. Construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary between the Property's northern boundary to State Shop Road prior to the issuance of the 2,113th VPD on the Property;

2. Construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary along the Property's Eskimo Hill Road frontage prior to the issuance of the 991st VPD on the Property

3. Subject to available right-of-way and Proffer 28 below, construct an additional westbound lane on Eskimo Hill Road at its intersection with Richmond Highway prior to the issuance of the 2,113th VPD on the Property;

4. Subject to available right-of-way and Proffer 28 below, restripe the westbound Eskimo Hill Road approach at its intersection with Richmond Highway and modify the traffic signal and pavement markings prior to the issuance of the 2,113th VPD on the Property;

5. Install a dedicated southbound right turn lane on Eskimo Hill Road at the northernmost driveway prior to the issuance of an occupancy permit for the first data center building served by that access;

6. Subject to available right-of-way and Proffer 28 below, install a dedicated right turn lane on Eskimo Hill Road at the Vandegrift Road/Big Spring Lane intersection prior to the issuance of the occupancy permit for the 991st VPD on the Property;

7. Subject to available right-of-way and Proffer 28 below, construct a westbound right turn lane on Eskimo Hill Road at the State Shop Road intersection prior to the issuance of an occupancy permit for the 2,113th VPD on the Property;

8. Construct the access road to the western portion of the Property as a two-lane roadway with an auxiliary westbound right turn lane at the intersection of Richmond Highway prior to the issuance of an occupancy permit for the first data center building served by that access; and

9. Construct a southbound left turn lane and northbound right turn lane on Richmond Highway consistent with Proffer 27.e.iii.1 and 27.e.iii.3. below.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard or the roadway geometric design standard required by the VDOT Road Design Manual and VDOT Road and Bridge standards for a local roadway at the time of design approval, whichever one is more stringent, between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii. The location of said driveways shall be subject to the Minimum Spacing Standards for Commercial Accesses by the VDOT Access Management Regulations for collector roadways at the time of design approval.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway:

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan in the event the Connector Road is approved.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane, extending from Sage Lane to connect to the existing right turn lane at Black Jack Road, prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for 2,113th VPD and 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT in the event the Connector Road is approved. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

28. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 27 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's sole expense. Applicant's request shall be in writing and shall comply in all respects with state, federal, and local laws, and the County's eminent domain practices. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney's Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

29. Construction

a. Construction Mitigation Plan - Prior to final site plan approval for each phase of development of the Property, a construction mitigation plan will be drafted by the Applicant ("Construction Mitigation Plan") and submitted for review and concurrence to the County's Director of Development Services and Director of Capital Projects. The Construction Mitigation Plan will address, at minimum,

construction traffic control measures, including any mitigation measures to be implemented during weekday AM and PM peak travel hours and school bus travel times along shared construction truck routes to and from the Property, access points, and dust control.

b. Delivery Notification - The Applicant agrees to provide the County's Director of Development Services & Community Development and Director of Capital Projects with at least forty-eight (48) hours written notice prior to any expected large or oversized deliveries to Property and/or any significant, heavy construction presence on the Property.

c. Public Liaison - The Applicant agrees to designate at least one public liaison and publicize a toll-free phone number and email address during construction on the Property. At minimum, the information must be published on the Applicant's website and provided to the County's Public Information Officer for publication on the County's website and other social media. The liaison must act as a point of contact between citizens and construction crews. The liaison must be available in person and by phone during active construction hours and must respond to any questions related to the project or Property. The liaison role will commence prior to issuance of a land-disturbing permit and must remain a minimum of six (6) months following the issuance of the final certificate of occupancy for each building constructed on the Property.

d. Joint Construction Traffic Reaction Team - If requested by the County, the Applicant must participate in a Joint Construction Traffic Reaction Team, which may include members of County staff and VDOT, the County Sheriff's Office, County Fire and Rescue Department, and the Virginia State Police to identify and expeditiously resolve or mitigate traffic issues that may arise during the construction on the Property. The Applicant agrees to assist in resolving and implementing solutions to traffic issues.

e. Pavement Damage - At the Applicant's expense, damage to pavement on the roads, including shoulders and aprons, attributable to construction on the Property must be repaired by the Applicant within one hundred and twenty (120) days of the issuance of the final certificate of occupancy for a building on the Property. However, if the Applicant receives notice from the County's Transportation Planner or VDOT staff stating that the damage to roads, including shoulders and aprons, has made a road unsafe, the Applicant will initiate the process of said repairs within forty-eight (48) hours of written notice from the County and/or VDOT.

f. Land Clearing - The Applicant commits to clearing the Property in phases based on development of each campus in accordance with applicable County Code requirements and will not mass grade the entire Property at one time.

30. Applicant Point of Contact - Prior to the first certificate of occupancy permit issued for the Property, the Applicant will provide the County a community point of contact(s) through its "STACK- Public Affairs" department and any other appropriate contact person as determined by the Applicant.

31. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

32. General Development Schedule - The Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the Property for the next thirty-six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 32 shall expire upon the full development of the Property.

33. Third Party Contractors - Should the County determine, in its sole discretion, that the size and scope of the proposal associated with data center buildings requires the County to rely upon contracted, or to other contract with, third parties to meet its obligations as they relate to reviewing, permitting and enforcing any aspect of the Project, the Applicant, after approving the costs for said contractors, will reimburse the County's incurred, reasonable costs or fund the County's reasonable estimates for the said third party contractors as set out in the County Code or other requirements. The Applicant will not unreasonably withhold approval of the costs. The Applicant will fund or reimburse the County's reasonable costs through (1) providing funds to the County upfront based on the County's reasonable estimates prior to the third party work and thereafter supplementing the estimated amounts paid, if necessary, by funding the actual, reasonable costs upon completion of the work; or (2) by reimbursing the County after the County has expended funds for the third party work, either, both, or a combination thereof, all as determined by the County. In the alternative, the County (after review and verification) may direct its contractors, vendors, and other third parties providing services in support of the County to present to the Applicant with their invoices directly, which the Applicant will review and approve, and thereafter pay on behalf of the County within thirty (30) days of its receipt. The Applicant will not unreasonably withhold approval of the invoices. Any late fees or costs accrued based upon the Applicant's failure to pay invoices timely presented to it by

the County will be the responsibility of the Applicant. The third-party costs paid by the Applicant hereunder will not be refunded under any circumstance, except in the event if the County unreasonably refuses to commence, or complete, once begun, the third-party work on the Property for which the third parties were contracted. This Proffer pertains to the initial development of the data centers building on the Property and construction activities on the Property and shall expire after final bonds for the last data center building constructed on the Property have been released.

34. Generator Testing - The testing of data center building generators shall be limited to weekdays between the hours of 7AM and 6PM.

35. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

SIGNATURE APPEARS ON FOLLOWING PAGES

APPLICANT / OWNER ACKNOWLEDGEMENT AND CONSENT

Stafford Technology LC
a Virginia limited liability company

By: MVP Management, LLC
a Virginia limited liability company
its Manager

By: _____
Name: Taylor O. Chess
Title: Authorized Signatory

COMMONWEALTH OF VIRGINIA
COUNTY OF FAIRFAX, to wit:

Subscribed and sworn to before me this 10th day of September, 2024, in my county and state aforesaid, by the aforenamed principal.

Kearsley Rosalind Robin Rand
NOTARY PUBLIC

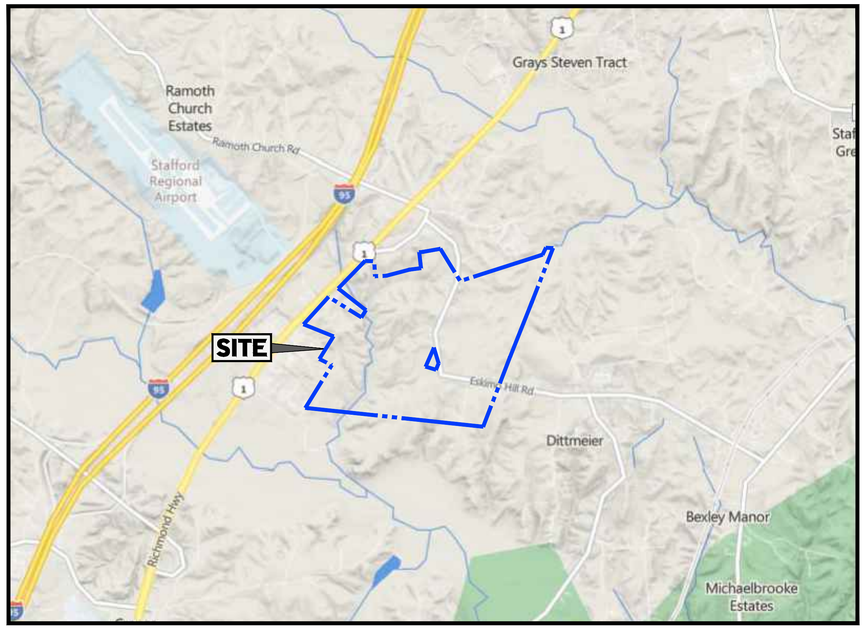
My Commission Expires: 7/31/2028

Kearsley Rosalind Robin Rand
NOTARY PUBLIC
REGISTRATION # 7806864
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES July 31st, 2028

GENERALIZED DEVELOPMENT PLAN (GDP)

ZONING RECLASSIFICATION #RC23154931
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 & 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



VICINITY MAP
SOURCE - BING MAPS
SCALE 1" = 2000'

OWNER / APPLICANT
PARCEL 38 124
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

OWNER / APPLICANT
PARCEL 38 29A
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

LAND USE ATTORNEY
WALSH COLUCCI LUBELEY & WALSH
4310 PRINCE WILLIAM PARKWAY; SUITE 300
PRINCE WILLIAM, VA 22192
CONTACT: JONELLE M. CAMERON
703-680-4664

TRANSPORTATION ENGINEER
GOROVE SLADE
4114 LEGATO ROAD; SUITE 650
FAIRFAX, VA 22033
CONTACT: KEVIN SITZMAN, P.E.
571-261-9718

CIVIL ENGINEER
BOHLER ENGINEERING
12825 WORLDGATE DRIVE; SUITE 700
HERNDON, VA 20170
CONTACT: MICHAEL O'SHAUGHNESSY
703-709-9500

NOTE: THIS GDP HAS NOT BEEN REVIEWED FOR FULL COMPLIANCE WITH THE STAFFORD COUNTY ORDINANCE AT THIS TIME. ALL PROPOSED SITE IMPROVEMENTS SHOWN ON THIS PLAN MAY BE AMENDED BY THE OWNERS TO FULFILL REQUIREMENTS OF FINAL ENGINEERING, OR COMPLIANCE WITH CURRENT STATE AGENCY REGULATIONS AND/OR COUNTY DEVELOPMENT REGULATIONS/STANDARDS IN PACE AT THE TIME OF SITE PLAN SUBMISSION.

NOTE: ALL BUFFERYARDS AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH CURRENT STAFFORD COUNTY DEVELOPMENT STANDARDS IN PLACE AT THE TIME OF SITE PLAN SUBMISSION.

NOTE: ALTHOUGH CERTAIN DESIGN FEATURES MAY BE REFERENCED DURING THE REVIEW, THIS REVIEW DOES NOT COVER ENGINEERING DETAILS. THESE DETAILS, INCLUDING BUT NOT LIMITED TO TUM-LANES, TUM LANE STORAGE LENGTHS AND TRANSITIONS, ENTRANCE WIDTH AND RADII, SPACING STANDARDS, SIGHT DISTANCE, OBTAINING OFF-SITE SIGHT DISTANCE EASEMENTS, AUTO TUM, AND ACCESS MANAGEMENT WILL BE ADDRESSED AT A LATER STAGE OF SITE PLAN DEVELOPMENT REVIEW. THE REVIEW WILL BE BASED ON THE CURRENT VDOT STANDARDS AT THE TIME OF DETAILED SITE PLAN SUBMITTAL.

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	C-1
EXISTING CONDITIONS	C-2
GENERALIZED DEVELOPMENT PLAN	C-3
OVERALL ILLUSTRATIVE PLAN	C-4

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY CONSULTING
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	MW / MO
2	02/22/24	COUNTY COMMENTS	MW / NTG
3	04/24/24	COUNTY COMMENTS	MW / NTG

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ZONING SUBMISSION

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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	CNDS-0

PROJECT:
GENERALIZED DEVELOPMENT PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

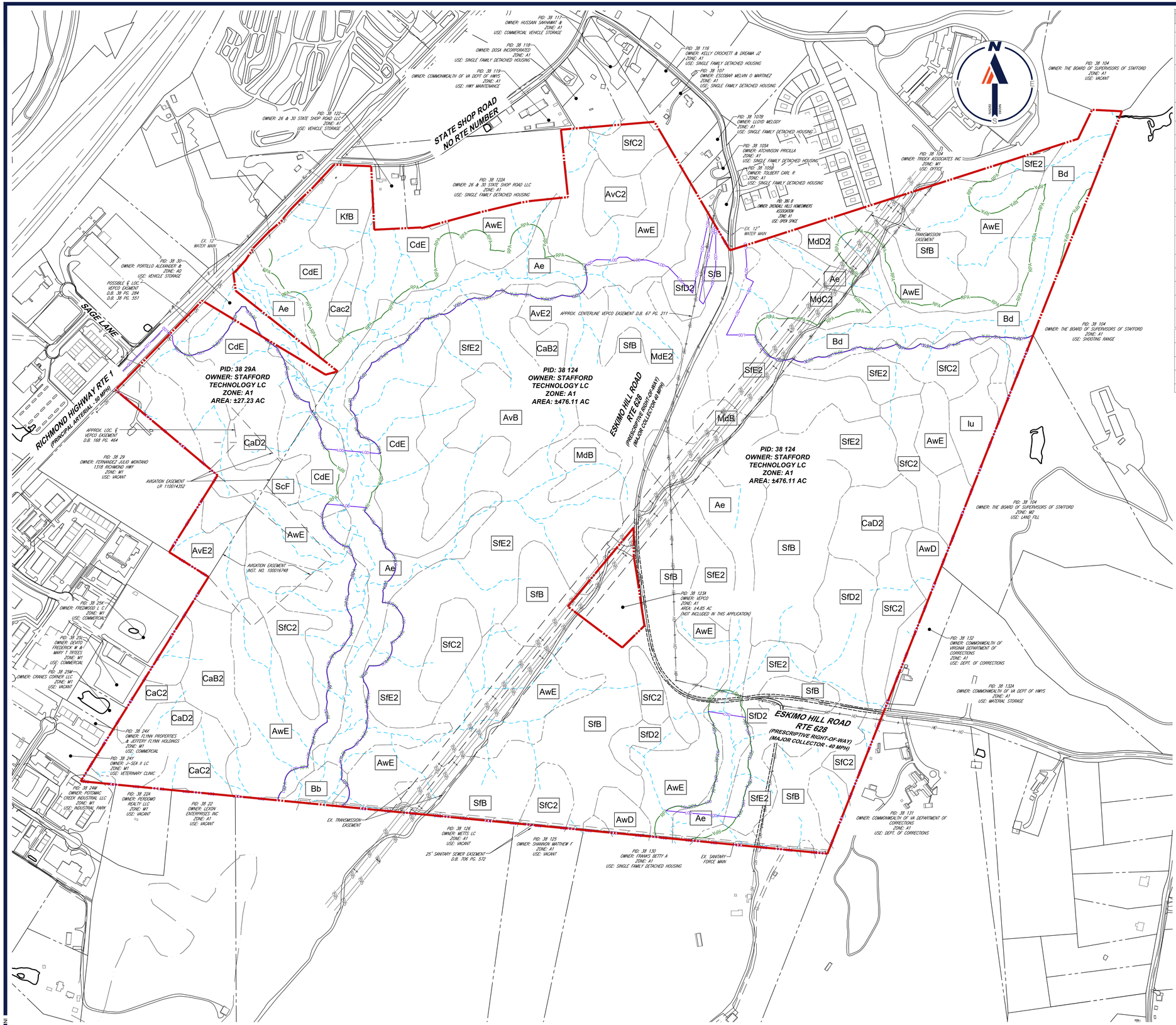
COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
C-1

REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\GDV1 - EXCLUDING VEPCO PARCEL\VAA220232.00-CNDS-0---LAYOUT C-1 - COVER SHEET



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ae	Alluvial land, wet	47.4	9.2%
AvB	Aura gravelly fine sandy loam, 2 to 6 percent slopes	7.8	1.5%
AvC2	Aura gravelly fine sandy loam, 6 to 10 percent slopes, eroded	12.5	2.4%
AvE2	Aura gravelly fine sandy loam, 18 to 35 percent slopes, eroded	14.5	2.8%
AwD	Aura-Galestown-Sassafras complex, 6 to 15 percent slopes	4.0	0.8%
AwE	Aura-Galestown-Sassafras complex, 15 to 30 percent slopes	80.7	15.7%
Bb	Bibb fine sandy loam, 0 to 4 percent slopes	0.6	0.1%
Bd	Bladen loam, 0 to 2 percent slopes	20.5	4.0%
BmB	Bourne fine sandy loam, 2 to 6 percent slopes	0.3	0.0%
CaB2	Caroline fine sandy loam, 2 to 6 percent slopes, eroded	12.3	2.4%
CaC2	Caroline fine sandy loam, 6 to 10 percent slopes, eroded	6.4	1.2%
CaD2	Caroline fine sandy loam, 10 to 18 percent slopes, eroded	12.9	2.5%
CdE	Caroline-Sassafras complex, 15 to 30 percent slopes	41.8	8.1%
Iu	Iuka fine sandy loam, local alluvium, 0 to 4 percent slopes	4.5	0.9%
KfB	Kempsville fine sandy loam, gravelly substratum, 2 to 6 percent slopes	3.9	0.8%
MdB	Marr very fine sandy loam, 2 to 6 percent slopes	5.6	1.1%
MdC2	Marr very fine sandy loam, 6 to 10 percent slopes, eroded	3.5	0.7%
MdD2	Marr very fine sandy loam, 10 to 15 percent slopes, eroded	1.7	0.3%
MdE2	Marr very fine sandy loam, 15 to 30 percent slopes, eroded	4.6	0.9%
ScF	Sandy end dlayey land, steep, Sassafras and Caroline materials	8.8	1.7%
SfB	Sassafras fine sandy loam, 2 to 6 percent slopes	84.8	16.4%
SfC2	Sassafras fine sandy loam, 6 to 10 percent slopes, eroded	33.0	6.4%
SfD2	Sassafras fine sandy loam, 10 to 15 percent slopes, eroded	17.9	3.5%
SfE2	Sassafras fine sandy loam, 15 to 35 percent slopes, eroded	85.7	16.6%
Totals for Area of Interest		**515.7**	**100.0%**

LEGEND

- REZONING AREA
- APPROXIMATE LOCATION OF STREAM CENTERLINE PER COUNTY GIS
- AwE — SOIL MAP UNIT LABEL
- SOIL LINE
- RPA — RPA PER TNT
- LOD — LIMITS OF DISTURBANCE (TO BE ADJUSTED AT TIME OF SITE PLAN)

300 150 75 0 300
1"= 300'

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
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COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

EXISTING CONDITIONS PLAN

SHEET NUMBER:

C-2

REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SET\REZONING\SHT_EXCLUDING VEPCO PARCEL\VAA220232.00-EXST-0---LAYOUT C2 - EXISTING CONDITIONS

GENERALIZED DEVELOPMENT PLAN NOTES

1. THE GENERALIZED DEVELOPMENT PLAN PROPOSES TO REZONE APPROXIMATELY 503.34 ACRES FROM THE A1 ZONING DISTRICT TO THE M-2 ZONING DISTRICT.
2. PUBLIC WATER AND SEWER SERVICE WILL BE AVAILABLE TO THE PROPERTY BY EXTENSION OF EXISTING FACILITIES AND INCORPORATING A PORTION OF THE APPLICATION AREA INTO THE URBAN SERVICES AREA. WATER SERVICE IS AVAILABLE ALONG RICHMOND HIGHWAY AND IN THE ROADWAY OF ESKIMO HILL ROAD. SANITARY SEWER SERVICE IS AVAILABLE ALONG THE SOUTHERN PROPERTY LINE OF THE APPLICATION AREA. ALL NECESSARY APPROVALS FOR CONSTRUCTION OF NECESSARY UTILITY CONNECTIONS WILL BE COORDINATED AND OBTAINED BY THE APPROPRIATE STAFFORD COUNTY AGENCY(S) AT TIME OF SITE PLAN.
3. STORMWATER MANAGEMENT WILL BE PROVIDED PER APPLICABLE STATE AND LOCAL STANDARDS AT TIME OF SITE PLAN.
4. THE PROPERTY CONTAINS NO GRAVES, OBJECTS OR STRUCTURES MARKING BURIAL PLACES AS DETERMINED BY VISUAL SURVEY.
5. THE PROPERTY CONTAINS NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PARTS 16.4, 302.4, AND 355 OR IN VIRGINIA DEPARTMENT OF WASTE MANAGEMENT REGULATIONS.
6. ZONE A FLOODPLAIN INFORMATION PER FEMA FIRM PANEL 5101540143E INFORMATION.
7. RESOURCE PROTECTION AREA IS DELINEATED BY TNT ENVIRONMENTAL DATED JANUARY 21, 2021.
8. THE DEVELOPMENT OF THE PROPERTY MAY BE PHASED THROUGH MULTIPLE SITE PLANS.
9. BUILDING SETBACKS MAY INCLUDE PARKING, FENCE, ACCESSORY BUILDINGS AND OTHER SIMILAR FEATURES.
10. ENTRANCE LOCATIONS SHOWN ARE APPROXIMATE AND TO BE DETERMINED AT TIME OF FINAL SITE PLAN DESIGN. LOCATIONS TO BE IN ACCORDANCE WITH VDOT SPACING REQUIREMENTS. ACCESS POINTS MAY BE ADDED OR ELIMINATED SUBJECT TO VDOT APPROVAL.
11. TRANSITIONAL BUFFERS WILL BE PROVIDED AT TIME OF SITE PLAN IN ACCORDANCE WITH THE REQUIREMENTS OF THE DCSL. THEIR LOCATIONS MAY BE ADJUSTED AT TIME OF SITE PLAN.
12. THIS GDP HAS NOT BEEN REVIEWED FOR FULL COMPLIANCE WITH THE STAFFORD COUNTY ORDINANCE AT THIS TIME. ALL PROPOSED SITE IMPROVEMENTS SHOWN ON THIS PLAN MAY BE AMENDED BY THE OWNERS TO FULFILL REQUIREMENTS OF FINAL ENGINEERING, OR COMPLIANCE WITH CURRENT STATE AGENCY REGULATIONS AND/OR COUNTY DEVELOPMENT REGULATIONS/STANDARDS IN PACE AT THE TIME OF SITE PLAN SUBMISSION.
13. ALL BUFFER YARDS AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH CURRENT STAFFORD COUNTY DEVELOPMENT STANDARDS IN PLACE AT THE TIME OF SITE PLAN SUBMISSION.
14. UNLESS A GREATER BUILDING SETBACK IS SHOWN ON THE GDP, THE BUILDING SETBACKS AT TIME OF SITE PLAN ARE PER THE MINIMUM BUILDING SETBACKS ESTABLISHED BY THE M-2 DISTRICT WITHIN THE ZONING ORDINANCE AND SHOWN BELOW.
15. TREE PRESERVATION AREAS MAY BE ADJUSTED AT TIME OF SITE PLAN PENDING FINAL ENGINEERING, LAND DISTURBANCE FOR UTILITY CROSSINGS OR ROADWAY CONSTRUCTION THROUGH TREE PRESERVATION AREAS MAY OCCUR AT TIME OF SITE PLAN.
16. THE LOCATION OF SECURE PERIMETER FENCING SHOWN IS APPROXIMATE AND MAY BE LOCATED WITHIN BUILDING AND EQUIPMENT SETBACK AREA. THE FINAL LOCATION OF PERIMETER FENCING MAY BE ADJUSTED AND DETERMINED AT THE TIME OF SITE PLAN.

LEGEND

- APPROXIMATE REALIGNMENT OF ESKIMO HILL ROAD, TO BE FULLY DESIGNED AND ADJUSTED AT TIME OF SITE PLAN.
- APPROXIMATE LOCATION OF FUTURE 60' ACCESS EASEMENT AND OR ROW FOR ACCESS TO SOUTHERN PARCELS. DRIVEWAY TO BE CONSTRUCTED BY APPLICANT, FUTURE VDOT ROAD TO BE CONSTRUCTED BY OTHERS
- APPROXIMATE LOCATION OF FUTURE OFFSITE PARCEL ACCESS
- APPROXIMATE LOCATION OF EXISTING PARCEL ACCESS
- APPROXIMATE LOCATION OF PARCEL ACCESS / PRIVATE COMMERCIAL ENTRANCE
- POTENTIAL EMERGENCY ACCESS OR LIMITED ACCESS ENTRANCE
- APPROXIMATE LOCATION OF TREE PRESERVATION AREA(S)
- 20' TRANSITIONAL BUFFER A PER DCSL
- 50' TRANSITIONAL BUFFER C PER DCSL
- 150' BUILDING AND EQUIPMENT SETBACK
- 100' VEGETATIVE BUFFER (EXCLUDING EASEMENTS) AND 100' BUILDING AND EQUIPMENT SETBACK
- ROW DEDICATION (TO OCCUR AT SITE PLAN)
- REZONING AREA (A-1 REZONED TO M-2)
- LIMITS OF DISTURBANCE (TO BE ADJUSTED AT TIME OF SITE PLAN)
- FIELD VERIFIED RESOURCE PROTECTION AREA PER TNT ENVIRONMENTAL
- APPROXIMATE LOCATION OF SECURE PERIMETER FENCING (SEE NOTE 16)

STAFFORD M-2 ZONING DISTRICT REGULATIONS:

- MAXIMUM FLOOR AREA RATIO:	1.0 (21,925,490 SF GFA)
- MINIMUM OPEN SPACE RATIO:	0.25 (5,481,373 SF)
- FRONT YARD:	40 FEET
- SIDE YARD:	40 FEET
- REAR YARD:	40 FEET
- MAXIMUM BUILDING HEIGHT:	105 FEET / 3 STORIES*

*MODIFIED WITH THIS GDP

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SCIENCE
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	MW / MO
2	02/22/24	COUNTY COMMENTS	MW / NTG
3	04/24/24	COUNTY COMMENTS	MW / NTG

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ZONING SUBMISSION

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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	GDVL-0

PROJECT:

GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

GENERALIZED DEVELOPMENT PLAN

SHEET NUMBER:

C-3

REVISION 3 - 04/24/24

Apr 24, 2024
C:\PROGRAMDATA\BOHLERS\2022\CSD\2023TEMP\ACPUBLISH_487001\VAA220232.00-GDVL-0---LAYOUT C-3 - GDP

Page 367 of 2014



ILLUSTRATIVE LEGEND:

PROPOSED BUILDING 105' MAX HEIGHT / 3 STORIES	EQUIPMENT AND SERVICE AREA
TRAVEL WAY	SUBSTATION AREA
TREE PRESERVATION AREA	BUFFER AREA (FINAL SIZE TO BE DETERMINED AT TIME OF SITE PLAN)
RETAINING WALLS (MAXIMUM HEIGHT VARIES)	PARKING AREA
SWM AREA	RESOURCE PROTECTION AREA

300 150 75 0 300
1"= 300'

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2	02/22/24	COUNTY COMMENTS	MW / NTG
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DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	REND-0

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GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

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FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
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VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

OVERALL ILLUSTRATIVE PLAN

SHEET NUMBER:

C-4

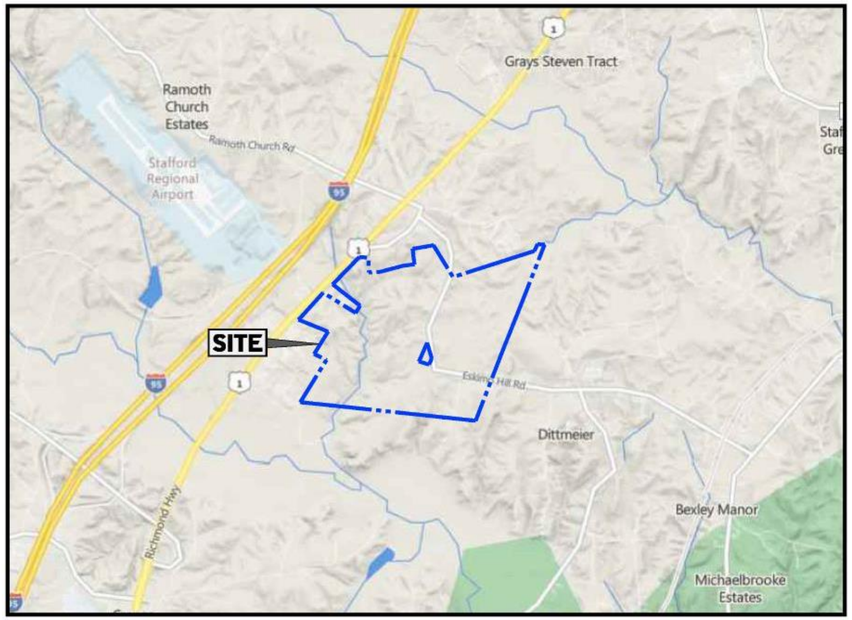
REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\GDVL - EXCLUDING VEPCO PARCEL\VAA220232.00-REND-0----->LAYOUT: C-4 - OVERALL ILLUSTRATIVE
NI

TRANSPORTATION PLAN

ZONING RECLASSIFICATION #RC23154931
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 & 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



VICINITY MAP
SOURCE - BING MAPS
SCALE 1" = 2000'

OWNER / APPLICANT
PARCEL 38 124
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

OWNER / APPLICANT
PARCEL 38 29A
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

LAND USE ATTORNEY
WALSH COLUCCI LUBELEY & WALSH
4310 PRINCE WILLIAM PARKWAY; SUITE 300
PRINCE WILLIAM, VA 22192
CONTACT: JONELLE M. CAMERON
703-680-4664

TRANSPORTATION ENGINEER
GOROVE SLADE
4114 LEGATO ROAD; SUITE 650
FAIRFAX, VA 22033
CONTACT: KEVIN SITZMAN, P.E.
571-261-9718

CIVIL ENGINEER
BOHLER ENGINEERING
12825 WORLDGATE DRIVE; SUITE 700
HERNDON, VA 20170
CONTACT: MICHAEL O'SHAUGHNESSY
703-709-9500

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	T-1
NETWORK IMPROVEMENT SUMMARY	1
U.S.RTE 1 & HOSPITAL CENTER BLVD IMPROVEMENT	2
U.S.RTE 1 & SAGE LN/CONNECTOR RD IMPROVEMENT	3
U.S.RTE 1 & I-95 SOUTHBOUND RAMPS IMPROVEMENT	4

GOROVE SLADE
Transportation Planners and Engineers
4114 Legato Road / Suite 650
Fairfax, VA 22033

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	FS / ML
2	02/22/24	Proffer Revisions	JM / KDS

ZONING SUBMISSION

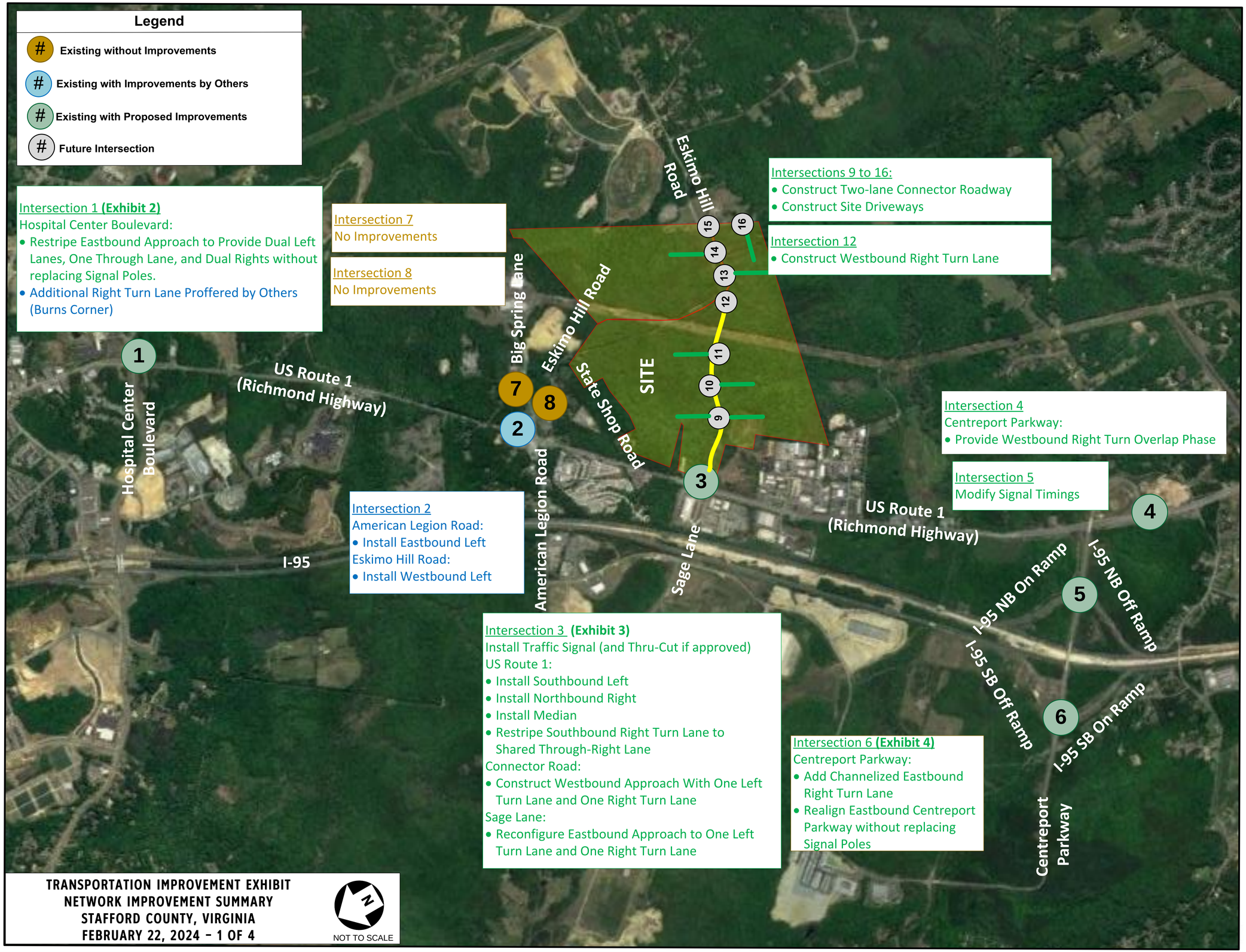
PROJECT No: VAA220232.00
DRAWN BY: JM
CHECKED BY: KDS
DATE: 02/22/2024

PROJECT:
TRANSPORTATION PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

GOROVE SLADE
Transportation Planners and Engineers

COVER SHEET

SHEET NUMBER:
T-1



TRANSPORTATION IMPROVEMENT EXHIBIT
NETWORK IMPROVEMENT SUMMARY
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 – 1 OF 4

NOT TO SCALE

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Fairfax, VA 22033

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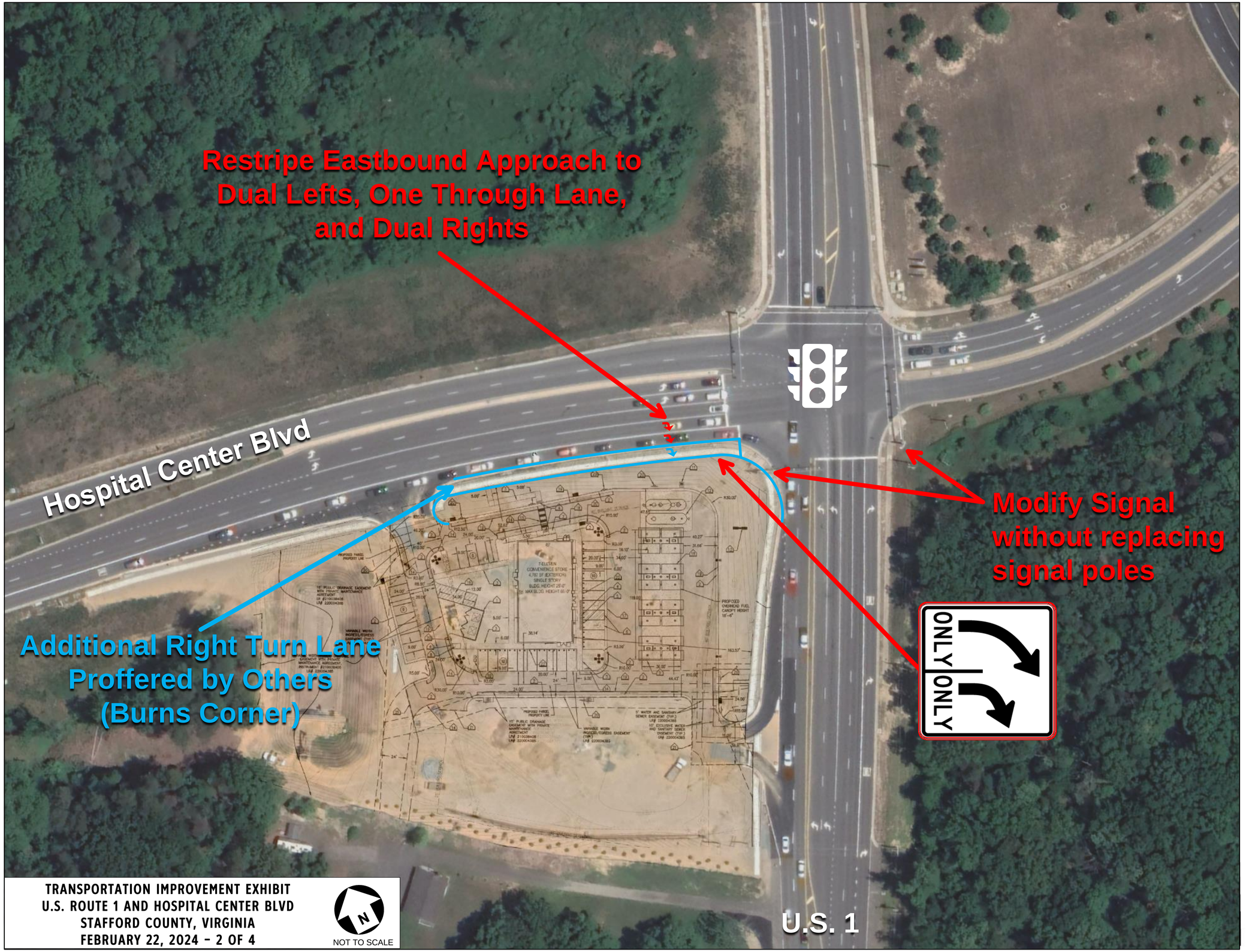

TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND HOSPITAL CENTER BLVD
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 - 2 OF 4

N
NOT TO SCALE

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DATE:	02/22/2024

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FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

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Transportation Planners and Engineers

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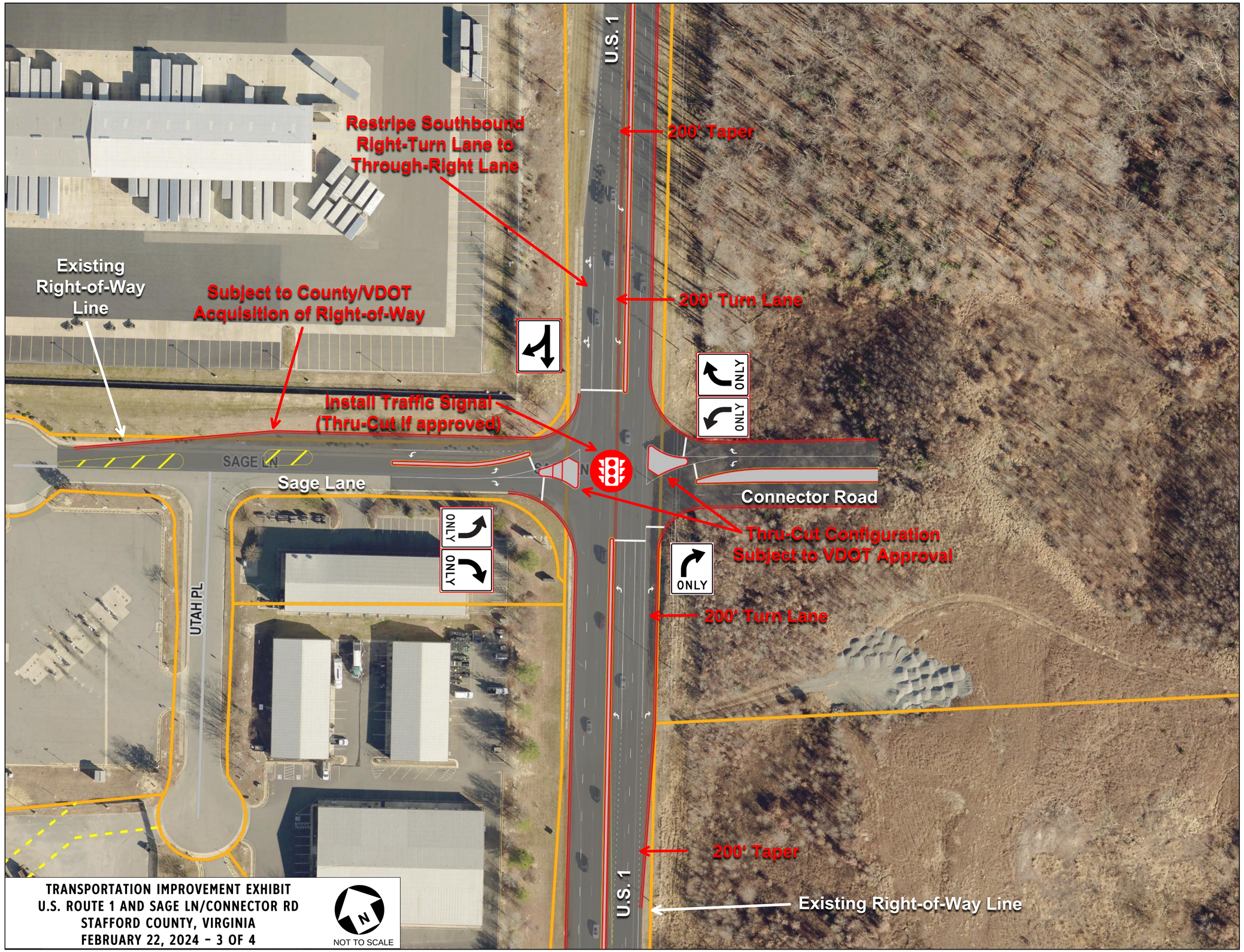
2



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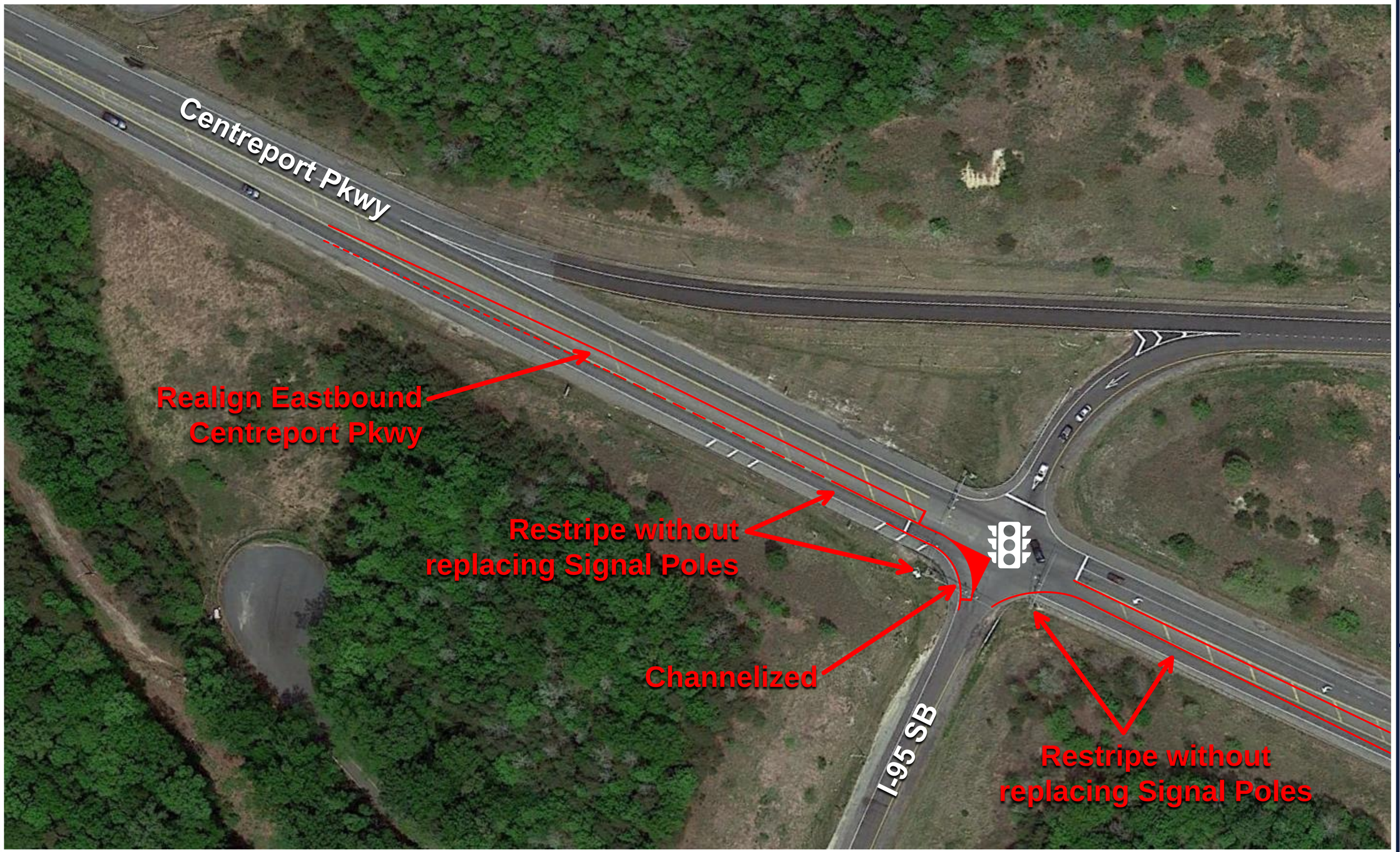
3



TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND I-95 SOUTHBOUND RAMPS
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 - 4 OF 4

N
NOT TO SCALE

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STAFFORD COUNTY, VIRGINIA

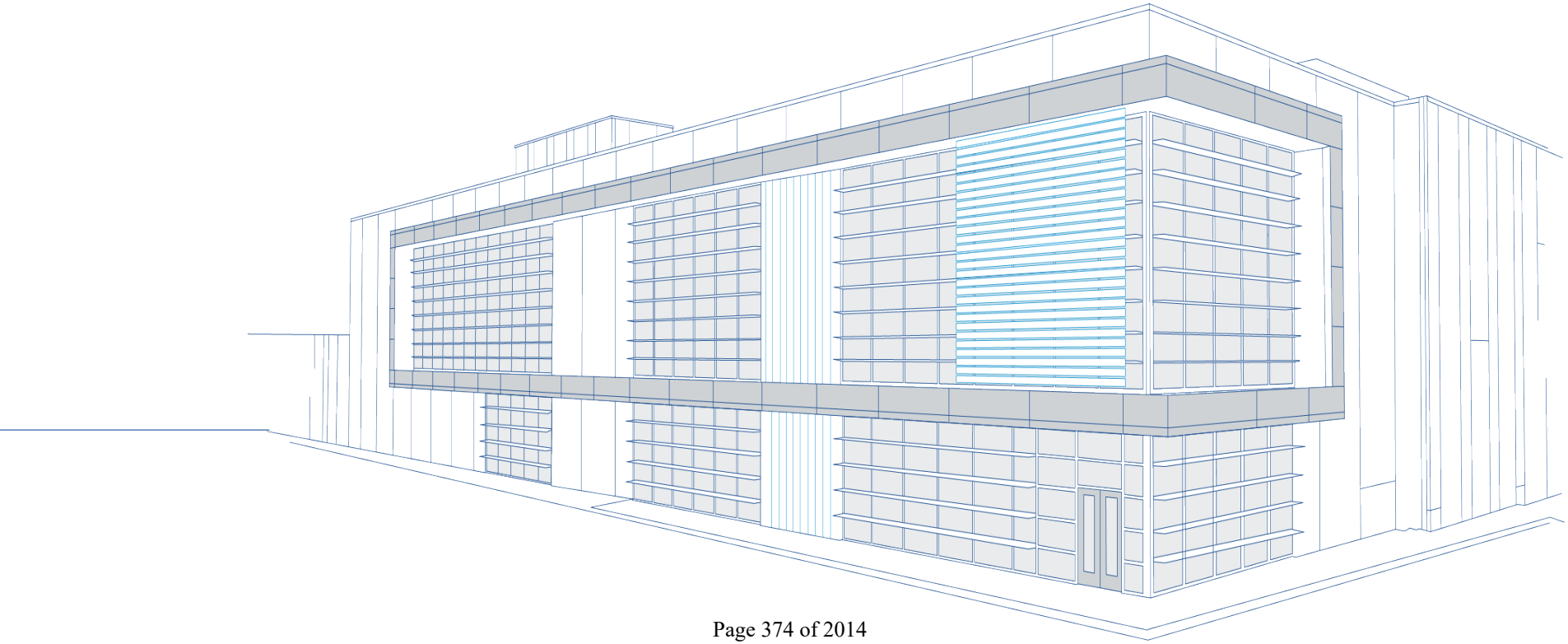
GOROVE SLADE
Transportation Planners and Engineers

SHEET NUMBER:
4

STAFFORD TECHNOLOGY CAMPUS

DESIGN COMPONENTS

FEBRUARY, 2024



Data Center Design Elements

Data Center Fenestrations, material changes



Change in step-backs, recesses and change in color



Change in height



PLANNING COMMISSION
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a public hearing of the Stafford County Planning Commission (Commission) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 24th day of July, 2024, regarding a request for a Comprehensive Plan Compliance Review that had been advertised for hearing by the Commission:

MEMBERS:	VOTE:
Steven Apicella, Chairman	Yes
Willie Shelton, Jr., Vice Chairman	Yes
Kristen Barnes	Yes
Carlos M. Bratton	Yes
Kelsey V. Caudill	Absent
Martin Martinez	Yes
Laura Sellers	Yes

On motion of Mr. Apicella, seconded by Ms. Sellers, which carried by a vote of 6 to 0, the following was adopted:

A RESOLUTION FINDING THE REQUEST FOR THE PLACEMENT OF UP TO SIX (6) ELECTRIC SUBSTATIONS ON TAX MAP PARCEL NO. 38-124, SUBSTANTIALLY IN ACCORD WITH THE COMPREHENSIVE PLAN, PURSUANT TO VIRGINIA CODE SECTION 15.2-2232

WHEREAS, Stafford Technology, LC, applicant, has requested a determination of compliance with the Comprehensive Plan, in accordance with Virginia Code Sec. 15.2-2232, for the placement of up to six (6) electric substations on Tax Map Parcel No. 38-124; and

WHEREAS, the Commission duly advertised and held a public hearing for the request, and has carefully considered the merits of the request, the public testimony received at the public hearing, and the recommendations of County staff; and

WHEREAS, the Commission believes that the request is consistent with coordinated, adjusted, and harmonious development of Stafford County, Virginia, and which will in accordance with the present and probable future needs and resources of Stafford County, Virginia, best promote the health, safety, morals, order, convenience, prosperity, and general welfare of the citizens of Stafford County, Virginia, including the elderly and persons with disabilities;

WHEREAS, the Planning Commission finds that the request is substantially in accord with the Comprehensive Plan;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Planning Commission on this the 24th day of July, 2024, that this request for the placement of up to six (6) electric substations on Tax Map Parcel No. 38-124 as applied for in application COM24155687, be and it hereby is found to be substantially in accord with the Comprehensive Plan for Stafford County.

Steven Apicella, Chairman

SA:MJZ:mjz

Stafford County
Planning Commission Meeting
Agenda Item Report
Meeting Date: June 12, 2024
PUBLIC HEARINGS

Subject:	
PLANNING AND ZONING; CONSIDER A PROPOSED ZONING RECLASSIFICATION, WITH PROFFERS, FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT ON TAX MAP PARCEL NOS. 38-124 AND 38-29A (PROJECT KNOWN AS RC23154931; STAFFORD TECHNOLOGY CAMPUS) Proposed Ordinance O24-20 **(Time Limit: September 20, 2024)** **BACKGROUND SUMMARY:** Approves zoning reclassification.	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
	Falmouth
Overview:	
Consider a request for a proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124 (Property), consisting of 503.84 acres to permit a data center, public facilities/utilities, and related accessory uses.	
Discussion/Analysis:	
The General Development Plan (GDP) submitted by the applicant depicts the site layout for the proposed development. The GDP contemplates 23 buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change. Each building would consist of two or three levels that total 60 to 65 feet in height for 2-level buildings, and up to 110 feet for 3-level buildings. In a data center, each floor is roughly 30 feet high to account for required cooling systems. The maximum building height in M-2 is 65 feet. Any structures exceeding this height would require a conditional use permit (CUP). The applicant has listed the height exception in the proffer statement as a permitted component of the project. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the buildings up to 110 feet tall without the need for a CUP.	

The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Site topography includes sloping terrain. There are several perennial streams, wetlands, and CRPA buffer areas across the site. The northeast corner of the site drains to the northeast towards Accokeek Creek. The remainder of the site drains to the south towards Potomac Creek. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west. The undeveloped parcel to the south has an approved subdivision plan for 24 dwelling units (Potomac Creek Overlook).

The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.

The GDP identifies up to six electric sub-stations proposed on the site. The substations will connect to the adjacent high voltage power line that bisects the site. Note that an electric substation is identified as a use that requires a conditional use permit in the M-2 zoning district. The applicant has listed the use in the proffer statement as a permitted use. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the substation without the need for a CUP.

The GDP identifies tree preservation areas and landscape buffers on the site. To screen the project from residential uses to the north, tree preservation zones are identified. These areas provide a buffer ranging from 400 to 1,000 feet in width. Mature trees that exist in this area would be preserved. Transitional buffers would be 20 feet on the east adjacent to the landfill and corrections facility and 50 feet on the south side where planned residential development exists. Street buffers 50 feet in width are proposed along Eskimo Hill Road and the new road connection. To provide level development pads for this type of use, retaining walls are proposed around the perimeter of each development area due to the sloping terrain.

The Property contains an archeological resource in the northwest corner: DHR ID #44ST0680. The site consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. The site is not proposed to be developed. It is identified on the GDP as being within a proposed tree preservation area.

The project will be required to be served by the public water and sewer system. The Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements, which will require a service agreement with the County.

A detailed staff report and analysis is included in Attachment 1. The applicant is proposing proffers to help mitigate potential impacts (Attachment 5).

Attachments:

1. O24-20 Attachment 1.pln PC Staff Report
2. O24-20 Attachment 2.pln Impact Statement 04-20-24

3. O24-20 Attachment 3.pln Proposed O24-20 - REZONING APPROVAL
4. O24-20 Attachment 4.pln Proposed R24-189 - REZONING DENIAL
5. O24-20 Attachment 5.pln Proffer Statement 05-15-24
6. O24-20 Attachment 6.pln Generalized Development Plan 04-20-24
7. O24-20 Attachment 7.pln Transportation Plan (February 2024)
8. O24-20 Attachment 8.pln Design Elements (February 2024)
9. O24-20 Attachment 9.pln Cross section Exhibits (February 2024)
10. O24-20 Attachment 10.pln Boundary Survey 9-11-23
11. O24-20 Attachment 11.pln VDOT Comments_RC23154931_05-24-24
12. O24-20 Attachment 12.pln Traffic Impact Study 9-8-23
13. O24-20 Attachment 13.pln Utility Impact Assessment 9-11-23
14. O24-20 Attachment 14.pln Application Stafford Technology Campus REZONING 2-27-23

Summary/Conclusion:

Although there are several positive aspects, staff recommends deferral of the application (RC23154991), as there are unresolved issues that should be considered, as specified in the staff report. The issues for consideration by the Commission include:

- VDOT comments request modifications to several of the mitigation measures and request other additional information.
- The realignment of Eskimo Hill Road is shown through an off-site property owned by VEPCO. Furthermore, the parcel is zoned A-1, Agricultural and may not be able to be subdivided to provide for right-of-way and meet the minimum 6 acre per lot density requirement.
- Proffers leave open the possibility that the connector road may not be constructed, leaving uncertainty as to how impacts to Eskimo Hill Road would be mitigated.
- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Staff would recommend a more direct inter-parcel connection to parcels to the south be considered.
- The electric substations may be in conflict with the Airport Compatibility guidelines in the Comprehensive Plan and as a result, operations of the Stafford Regional Airport. Further evaluation of this issue is recommended.
- The exception to the maximum building heights may be too open-ended, creating potential visual impacts on adjacent properties.
- Although there is a commitment to utilizing re-use water when available, the proffers do not establish a timeframe for completion or restrict the amount of development that might use potable water. This would be a concern if the reuse line construction experiences delays.
- Staff would recommend additional sound measurement criteria, including sound measurements at specific months of the year and several years after occupancy.

Strategic Priorities:

Reviewed By:

Michael J. Zuraf, AICP, Director of Planning and Zoning

Board of Supervisors

Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica Gary
Crystal L. Vanuch
Dr. Pamela Yeung

F. Craig Meadows
Interim County Administrator

PLANNING COMMISSION STAFF REPORT

Meeting Date: June 12, 2024

Project: ***RC23154931; Zoning Reclassification – Stafford Technology Campus***

Request: The Planning Commission is to consider a request for a proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124 (Property).

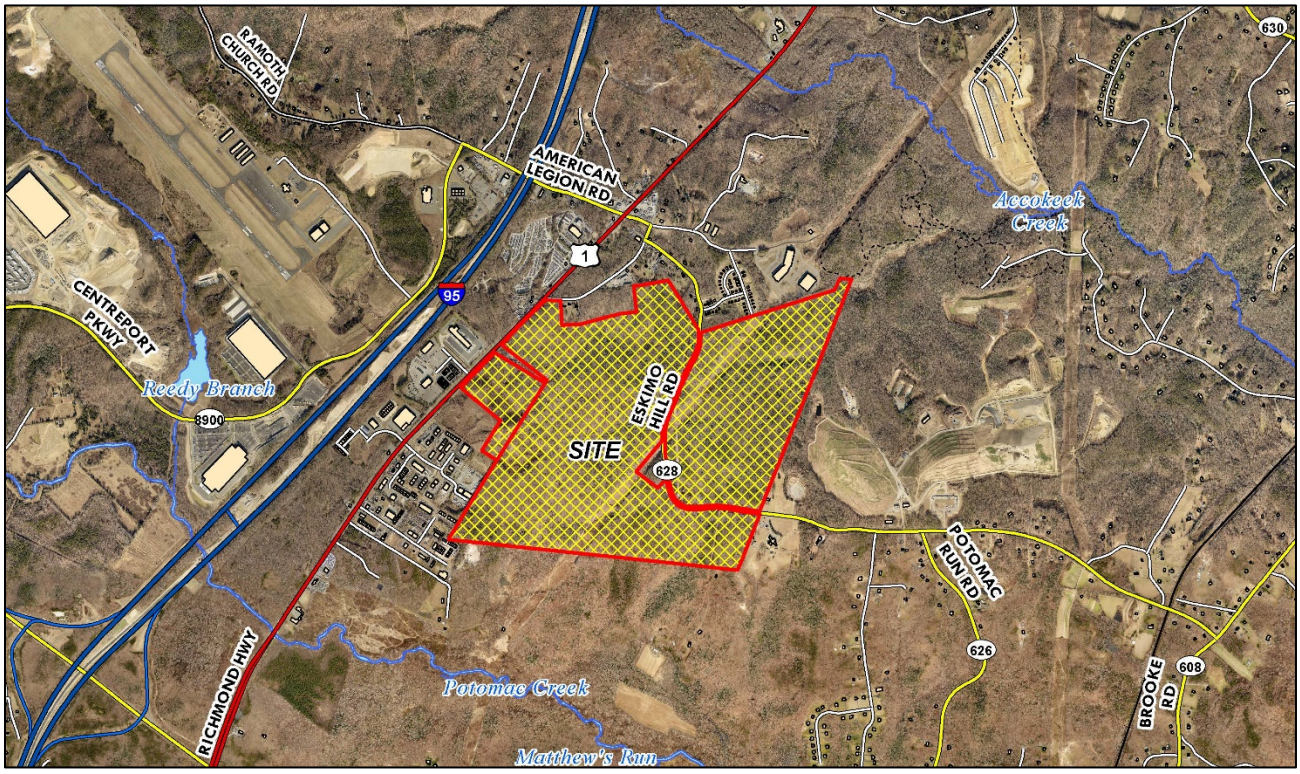
Tax Map Parcels: 38-29A & 38-124	**Acreage:** 503.84 Acres
Location: East side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road (Falmouth Election District)	**Application Date:** March 2, 2023 (Complete Application: September 11, 2023)
Advertisement Dates: May 29, 2024 and June 5, 2024	**Time Limit:** September 20, 2024 (PC 100-day limit) September 11, 2024 (BOS)
Applicant: Stafford Technology, LC	**Owner:** Stafford Technology, LC
Agent/Primary Contact: Jonelle Cameron & Jessica Pfeiffer, Walsh, Colucci, Lubeley, & Walsh PC	
Current Use: Undeveloped	**Proposed Use:** Data center, public facilities/utilities, and related accessory uses.
Future Land Use Designation: Central Stafford Targeted Development Area	**Zoning Overlay Districts:** AD, Airport Impact Overlay District
Staff Recommendation: Deferral	**Staff Project Manager:** Michael Zuraf

STAFF REPORT SECTIONS

LOCATION
PROJECT SUMMARY
SITE CHARACTERISTICS, & ZONING
STAFF ANALYSIS SUMMARY
ZONING HISTORY
ZONING ORDINANCE EVALUATION CRITERIA
SUMMARY OF POSITIVE AND NEGATIVE FEATURES
RECOMMENDATION
APPENDIX – STAFF ANALYSIS
IMPACT ON PUBLIC FACILITIES AND SERVICES EVALUATION
COMPREHENSIVE PLAN EVALUATION

LOCATION:

Location: The site is located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road.



Location Map

PROJECT SUMMARY:

The applicant is requesting a zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, consisting of 503.84 acres to permit a data center, public facilities/utilities, and related accessory uses.

Generalized Development Plan (GDP) - Attachment 6

The GDP submitted by the applicant depicts the site layout for the proposed development. The GDP contemplates twenty-three (23) buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change.

Each building would consist of two or three levels that total 60 to 65 feet in height for 2-level buildings, and up to 110 feet for 3-level buildings. In a data center, each floor is roughly 30 feet high to account for required cooling systems. The maximum building height in M-2 is 65 feet. Any structures exceeding this height would require a conditional use permit (CUP). The applicant has listed the height exception in the proffer statement as a permitted component of the project. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the buildings up to 110 feet tall without the need for a CUP.

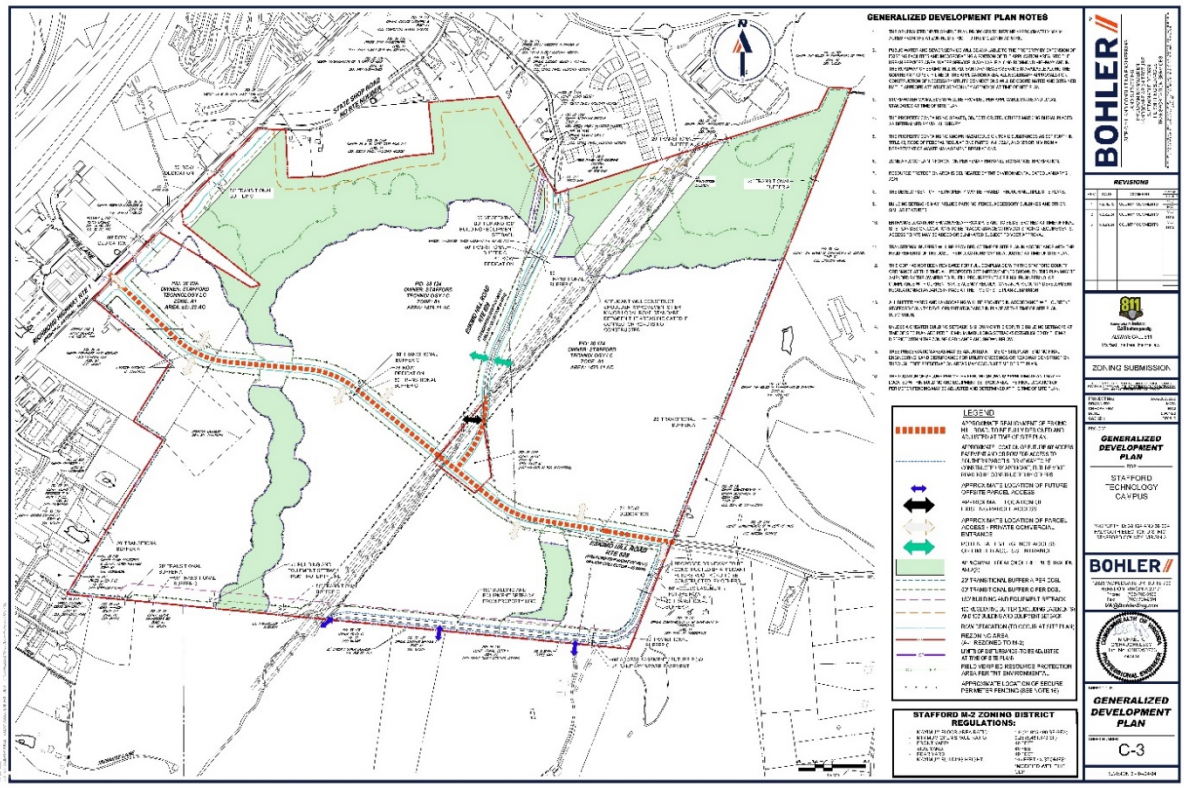
The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.

The GDP identifies up to six (6) electric substations proposed on the site. The substations will connect to the adjacent high voltage power line that bisects the site. Note that an electric substation is identified as a use that requires a conditional use permit in the M-2 zoning district. The applicant has listed the use in the proffer statement as a permitted use. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the substations without the need for a CUP.

The GDP identifies tree preservation areas and landscape buffers on the site. To screen the project from residential uses to the north, tree preservation zones are identified. These areas provide a buffer ranging from 400 to 1,000 feet in width. Mature trees that exist in this area would be preserved. Transitional buffers would be 20 feet on the east adjacent to the landfill and corrections facility and 50 feet on the south side where planned residential development exists. Street buffers 50 feet in width are proposed along Eskimo Hill Road and the new road connection. To provide level development pads for this type of use, retaining walls are proposed around the perimeter of each development area due to the sloping terrain.



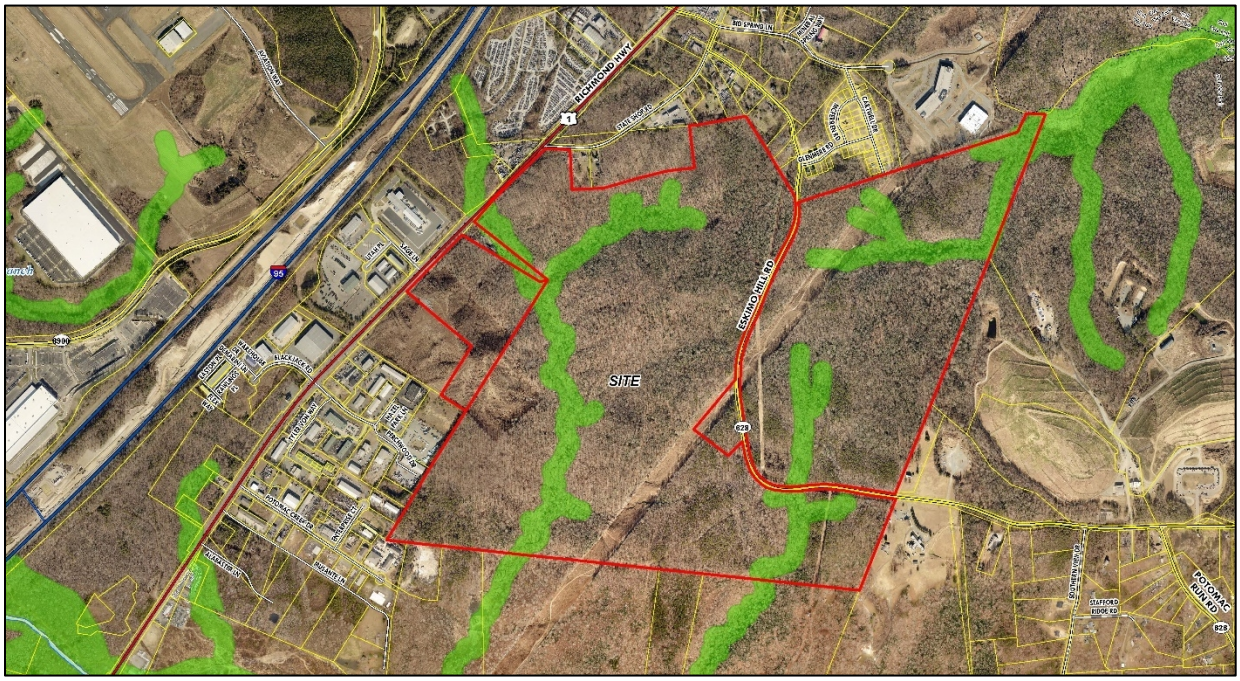
Generalized Development Plan – Concept Plan



Generalized Development Plan – Buffers and Preservation Areas

SITE CHARACTERISTICS AND ZONING:

The subject property totals 503.84 acres. The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Site topography includes sloping terrain. There are several perennial streams, wetlands, and CRPA buffer areas across the site. The northeast corner of the site drains to the northeast towards Accokeek Creek. The remainder of the site drains to the south towards Potomac Creek. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west. The undeveloped parcel to the south has an approved subdivision plan for 24 dwelling units (Potomac Creek Overlook). A Comprehensive Plan Amendment application has also been submitted for that same parcel.

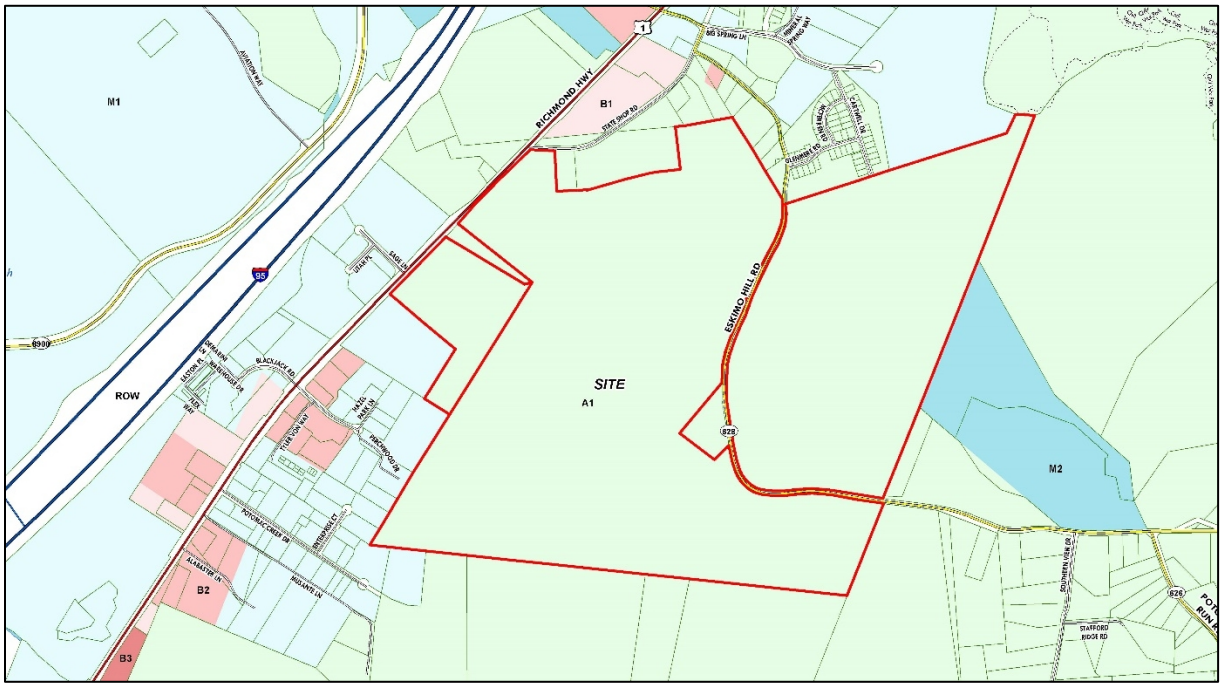


Existing Conditions - Aerial View

Cultural Resources

The Property contains an archeological resource in the northwest corner: DHR ID #44ST0680. The site consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. The site is not proposed to be developed. It is identified on the GDP as being within a proposed tree preservation area.

Zoning Classification: A-1, Agricultural



Zoning Map

Abutting Properties:

Location	**Zoning**	**Existing Use**	**Comprehensive Plan**
North	A-1, Agricultural M-1, Light Industrial	Undeveloped Residential	Central Stafford Targeted Development Area (TDA) (Business and Industry Future Land Use)
South	A-1, Agricultural M-1, Light Industrial	Residential Undeveloped	Central Stafford TDA (Business and Industry Future Land Use) Agricultural/Rural
East	A-1, Agricultural M-2, Heavy Industrial	Landfill Corrections Facility	Agricultural / Rural
West	A-1, Agricultural M-1, Light Industrial	Industrial Auto salvage yard Undeveloped	Central Stafford TDA (Business and Industry Future Land Use)

STAFF ANALYSIS

Approval of the reclassification would allow for the development of a data center campus with up to 5.8 million square feet of floor area. Proffers included with the request would:

- Require the development to be served by a water reuse line, once constructed to the site;
- Require the construction of several transportation improvements including a new east-west connector road between Eskimo Hill Road and Richmond Highway, as identified in the Comprehensive Plan;
- Ensure building design provide certain design features; and
- Requires sound studies and testing to ensure compliance with noise standards.

The proposed M-2 zoning is in general conformance with the recommended Future Land Use designation of Business and Industry. The applicant is also requesting the Comprehensive Plan be amended to include the same Business and Industry designation on the entire site. This staff report identifies positive and negative features with this proposal, including several issues that have yet to be resolved. At this point, staff recommends deferral until the outstanding issues are resolved.

Comprehensive Plan

Land Use: The Comprehensive Plan identifies the western half of the Property within the Central Stafford Targeted Development Area, and designated as Business and Industry Future Land Use. The eastern portion of this site is designated as Agricultural/Rural and outside of the Urban Services Area. A data center campus would be an appropriate use in a Business and Industry future land use area. The concurrent Comprehensive Plan Amendment request would need to be approved for the entire site to be in conformance with the Future Land Use Plan. The site is surrounded by other industrial uses and non-residential uses such as the regional landfill, corrections facility and auto salvage yard. Several single-family residences are located to the north and south, including an approved 24 lot subdivision to the south. The Comprehensive Plan does not contemplate additional residential development on surrounding parcels.

Transportation: The proposal would significantly reduce the vehicle trips to and from the site. The data center is estimated to generate approximately 4,356 vehicle trips per day (VPD). A Traffic Impact Analysis (TIA) submitted with the proposal identified several mitigation measures which are being proffered as part of the project, and identified on the Transportation Plan (Attachment 7). Some additional mitigation is still being recommended. The project would also implement recommendations from the Transportation Plan, including right-of-way dedication and construction of a new east-west connector road from Richmond Highway to Eskimo Hill Road. Staff has cited concerns with unknown impacts should the road not be constructed.

Building Design: Representative images depicting the required design features of the buildings has been provided within the application (Attachment 8). The architectural standards in the Neighborhood Design Standards (NDS) Plan does not address data center uses. The proffers require buildings incorporate a variety of façade design treatments.

Public Facilities

The site is partially located within the Urban Services Area, with the remainder proposed to be added. The project will be required to be served by the public water and sewer system. A data center use requires more water than other commercial and industrial development. To limit impacts on the County's potable water resources, the Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements. The line is proposed to be constructed from the Aquia Wastewater Treatment Plant. The applicant is working on a water service agreement with the Utilities Department to outline how and when the reuse line will be constructed. The agreement would require approval by the Board of Supervisors. Temporary use of potable water will be required as the reuse line may take several years to complete. The proffers do not set a limit on the number of buildings that can utilize potable water. Staff recommends some limit be established. In addition, the applicant is proposing to construct other off-site potable water improvements that the buildings will still require.

Proposed Proffers

The Proffer Statement is included in Attachment 5. The Applicant is proposing the following proffers which would:

- require the Property be developed in general accordance with the generalized development plan (GDP);
- prohibit several uses that would otherwise be permitted in the M-2 zoning district;
- calculate floor area and open space requirements on a cumulative basis and not within each subdivided parcel;
- permit building heights of 105 feet, above the 65-foot maximum permitted in the zoning ordinance;
- permit electric substations on the property, with height and location standards;
- require a 150-foot data center building setback from the southern property line with 50-foot buffer, unless any of the parcels are rezoned for a non-residential use;
- require data center building facade design variety;
- require security fence to be at least 7 feet in height, if provided;
- require screening of roof-top mechanical equipment;
- establish tree preservation areas;
- establish fire and rescue standards;
- require the following sound standards:
  - for prominent discreet tones, the Sound Standard shall be reduced by 3 dB(A);
  - require sound measurements six (6) months after final occupancy permit to confirm compliance;
  - require a sound analysis prior to the approval of each final site plan for the property;
- require the following transportation improvements:
  - provide access to properties to the south;
  - construct a two-lane public connector road from Eskimo Hill Road to Richmond Highway;
  - dedicate right-of-way along Eskimo Hill Road;
  - construct shoulder improvements on Eskimo Hill Road if the connector road is not

permitted by the County or VDOT;
  - modify traffic signal timings and provide lane restriping at the I-95 ramps on Centerport Parkway;
  - modify signal timings at Richmond Highway and Centerport Parkway;
  - provide intersection improvements to Richmond Highway and Hospital Center Boulevard;
  - provide several improvements to the Richmond Highway and Sage Lane / Connector Road intersection;
  - provide right-of-way dedication along Richmond Highway;
- limit the combined uses on the property to no more than 4,356 vehicle trips per day;
- develop a construction management plan;
- develop an emergency management action plan; and
- provide an annual general development schedule if requested by the County.

ZONING HISTORY

The Property has been zoned A-1, Agricultural since before 1978, and no proffers exist for the site. A preliminary subdivision plan for 145 residential lots was approved in 2005 and is still valid. No development has occurred for this project.

ZONING ORDINANCE EVALUATION CRITERIA:

County Code Sec. 28-206 lists 12 criteria to be considered at each public hearing for reclassification.

1. Compliance of the request with the stated requirements of the district or districts involved – *The request is in compliance with most of the stated requirements of the M-2 Zoning District. An accepted proffer would permit the maximum building heights to be exceeded.*

2. The existing use and character of the property and the surrounding property – *The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Several perennial streams run through the property. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west.*

3. The suitability of the property for various uses – *The size of the site makes the site suitable for various commercial and industrial uses. The proximity to industrial uses, the landfill, and corrections facility, and airport approach pattern make the site less conducive for residential uses.*

4. The trend of growth and development in the surrounding area – *General surrounding uses include: Residential and undeveloped uses to the north and south; The regional landfill and corrections facility to the east; and Industrial and auto salvage yard uses to the west side of the property.*

5. The current and future requirements of the County for land – *A new road segment recommended in the Comprehensive Plan is proposed to be constructed as part of the project. Right-of-way is also proposed to be dedicated to allow for future improvements to Richmond Highway and Eskimo Hill Road.*

6. The transportation requirements of the project and the County, and the impact of the proposed land-use on the County's transportation network –*The proposed development is proffering to mitigate many of the identified impacts and provide recommended road network improvements. Some additional mitigation measures are still recommended.*

7. Requirements for schools, parks, recreational lands and facilities, and other public services, potentially generated by the proposed classification –*The use would require new public water and sewer infrastructure to serve the site. The rezoning would reduce the potential demand on schools, parks and other facilities as the potential for residential development would be negated.*

8. The conservation of property values in the surrounding area – *The proposed amendment should not have a negative effect on any property values in the surrounding area. The use will be required to be screened and/or setback from the closest adjacent residential uses, as identified in the GDP.*

9. The preservation of natural resources and the impact of the proposed uses on the natural environment – *The site is wooded. The development plan identifies that the Resource Protection Areas along the perennial streams will be preserved and a tree preservation area will retain the northern portion of the site in open space, including an identified cultural resource.*

10. The most appropriate use of land – *The proposed data center campus is an appropriate use of the land. The Future land Use map in the Comprehensive Plan recommends Business and Industry land use. The surrounding land uses and characteristics make the land suitable for a data center. The data center use generates much lower traffic impacts than other industrial uses.*

11. The timing of the development of utilities and public facilities, and the overall public costs of the development – *The applicant is proffering to construct at their expense the transportation improvements and several of the utility improvements. The proposed water reuse line will be constructed with private funding however the timing of completion is unknown. Other site improvements will be borne by the applicant.*

12. The consistency, or lack thereof, of the proposed rezoning with the Stafford County Comprehensive Plan as in effect at that time – *The proposed data center is consistent with the recommended Business and Industry Future Land Use on this site. Approval of the concurrent Comp Plan Amendment would make the entire site consistent. The use would mitigate many of the identified transportation impacts and implements recommendations from the Transportation Plan. However, additional mitigation measures are still being recommended. The proposed building facades would be required to incorporate design features to ensure varied façade details.*

SUMMARY OF POSITIVE AND NEGATIVE FEATURES:

POSITIVE:

1. Use consistent with the recommended Business and Industry land use and the full site would be in compliance if the concurrent Comp Plan amendment is approved.
2. The data centers are an appropriate use within the Airport Overlay district.
3. Data centers would be consistent with the adjacent industrial and public facility uses.
4. Buffers and building setbacks would limit visual impacts to the adjacent residential uses.
5. Siting near electric transmission lines limit the need to extend additional transmission lines.
6. The substations would be centrally located on the site, minimizing visual impacts to adjacent properties.
7. Ensures the data centers will use reuse water when available, negating any potential impacts to the County's potable water supply.
8. The planned connector road is generally consistent with a recommended road connection in the Transportation Plan, improving access to the data centers.
9. Promotes Economic Development goals of bringing high paying jobs to the County.

NEGATIVE:

1. Several transportation issues remain unresolved.
2. The electric substations may be in conflict with the Airport Compatibility guidelines.
3. Taller maximum building heights may create potential visual impacts on adjacent properties.
4. There are no limitations to the amount of potable water that may be used for data center cooling, or corresponding timeframes for the completion of the water reuse line.
5. Sound measurement proffers may not provide adequate standards.

RECOMMENDATION:

Although there are several positive aspects, staff recommends deferral of the application (RC23154991), as there are unresolved issues that should be considered.

The issues for consideration by the Commission include:

- VDOT comments request modifications to several of the mitigation measures and request other additional information.
- The realignment of Eskimo Hill Road is shown through an off-site property owned by VEPCO. Furthermore, the parcel is zoned A-1, Agricultural and may not be able to be subdivided to provide for right-of-way and meet the minimum 6 acre per lot density requirement.
- Proffers leave open the possibility that the connector road may not be constructed, leaving uncertainty as to how impacts to Eskimo Hill Road would be mitigated.
- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Staff would recommend a more direct inter-parcel connection to parcels to the south be considered.

- The electric substations may be in conflict with the Airport Compatibility guidelines in the Comprehensive Plan and as a result, operations of the Stafford Regional Airport. Further evaluation of this issue is recommended.
- The exception to the maximum building heights may be too open-ended, creating potential visual impacts on adjacent properties.
- Although there is a commitment to utilizing re-use water when available, the proffers do not establish a timeframe for completion or restrict the amount of development that might use potable water. This would be a concern if the reuse line construction experiences delays.
- Staff would recommend additional sound measurement criteria, including sound measurements at specific months of the year and several years after occupancy.

APPENDIX

IMPACT ON PUBLIC FACILITIES AND SERVICES:

Transportation

The site is located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road. Richmond Highway is a 4-lane undivided facility with a posted speed limit of 55 miles per hour in this location and 19,500 average annual daily vehicle trips. Eskimo Hill Road is a 2-lane undivided facility with a posted speed limit of 40 miles per hour in this location and 3,500 average annual daily vehicle trips.

A Transportation Impact Analysis (TIA) has been provided to evaluate the overall impacts to the transportation network (Attachment 12). The submittal of a TIA is required when the estimated trip generation for the proposed use exceeds 1,000 vehicle trips per day (VPD). The TIA estimates the development would generate approximately 4,356 VPD. The TIA evaluated impacts on the signalized and unsignalized intersection along Richmond Highway from Hospital Center Boulevard, south to Centreport Parkway, and along Eskimo Hill Road and the proposed new connector road.

The County Comprehensive Plan Policy 7.7.7 addresses development impacts on the road network, and states:

> *Transportation facility improvements to be constructed with development projects should be designed to maintain a Level of Service (LOS) C for impacted intersections and/or road segments. Where achieving a LOS C is not practical given exiting transportation deficiencies, improvements should be designed to not further degrade the LOS.*

The TIA has been provided to VDOT for their review. VDOT's latest comments are provided in Attachment 11. They have several unresolved comments. The following points provide a general overview of their comments:

- Concern with the proposed mitigation at Richmond Highway and Hospital Center Boulevard;
- Requested additional studies for the proposed connector road intersection with Richmond Highway;
- Additional mitigation measures suggested at this same intersection;
- Impacts to Richmond Highway / Eskimo Hill intersection not mitigated; and
- Additional mitigation measures recommended along Richmond Highway at the Centreport Parkway and Enon Road intersections.

In consideration of the County's Comprehensive Plan Policy and comments from VDOT, the cited issues should be addressed. Attachment 15 includes a letter from the applicant in response to the VDOT comments. It notes that they intend on submitting a revised TIA by the public hearing date.

Transportation recommendations in the Comprehensive Plan recommend: (1) A future 2-lane road from Eskimo Hill Road to Richmond Highway; (2) A future 6-lane divided upgrade for Richmond Highway; and (3) A future 2-lane upgrade to Eskimo Hill Road. The applicant is proffering to construct the connector road and dedicate right-of-way consistent with the Comprehensive Plan recommendations.

Staff has identified the following concerns with the proposed transportation improvements:

- The realignment of Eskimo Hill Road is shown through an off-site property owned by VEPCO. Furthermore, the parcel is zoned A-1, Agricultural and may not be able to be subdivided and meet the minimum 6 acre per lot density requirement.
- Proffers leave open the possibility that the connector road may not be constructed, leaving uncertainty as to how impacts to Eskimo Hill Road would be mitigated.
- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Staff would recommend a more direct inter-parcel connection to parcels to the south be considered.

Utilities

The site is partially located within the Urban Services Area, with the remainder proposed to be added. The project will be required to be served by the public water and sewer system. A data center use requires more water than other commercial and industrial development. To limit impacts on the County's potable water resources, the Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements. The line is proposed to be constructed from the Aquia Wastewater Treatment Plant. The applicant is working on a water service agreement with the Utilities Department to outline how and when the reuse line will be constructed. The agreement would require approval by the Board of Supervisors. Temporary use of potable water will be required as the reuse line may take several years to complete. The proffers do not set a limit on the number of buildings that can utilize potable water. Staff recommends some limit be established. In addition, the applicant is proposing to construct other off-site potable water improvements that the buildings will still require.

Schools

There would be a potential reduction in impacts to the County School System as the previously approved subdivision of 145 dwelling units would be void with the approval of this reclassification.

Parks & Recreation

There would be a potential reduction in impacts on the County Park system as the previously approved subdivision of 145 dwelling units would be void with the approval of this reclassification.

Fire and Rescue

The Property is within the first response area of the Courthouse Fire and Rescue Station (No. 2), which is located approximately 3 miles from the Property to the north on Courthouse Road. The applicant addressed all comments provided by Fire and Rescue during the application review.

Noise Impacts

Data centers include the potential for creating noise impacts. The facilities require consistent climate control which is handled with cooling systems that operate more frequently, especially in warmer months. The uses can generate consistent low-level sound that can be audible from adjacent properties. In addition, backup generators are a necessary component to ensure consistent power. These only operate during power outages and for periodic testing.

To mitigate this issue, the applicant is proposing proffers to: Require the Sound Standard be reduced by 3 dB(A) for prominent discreet tones; Require sound measurements six (6) months after final occupancy permit to confirm compliance; and Require a sound analysis prior to the approval of each final site plan for the property.

Light Impacts

No significant impacts are noted. The proposed site lighting would be installed in compliance with Section 28-87 of the Zoning Ordinance, for Outdoor Lighting Standards.

COMPREHENSIVE PLAN EVALUATION:

Future Land Use Plan

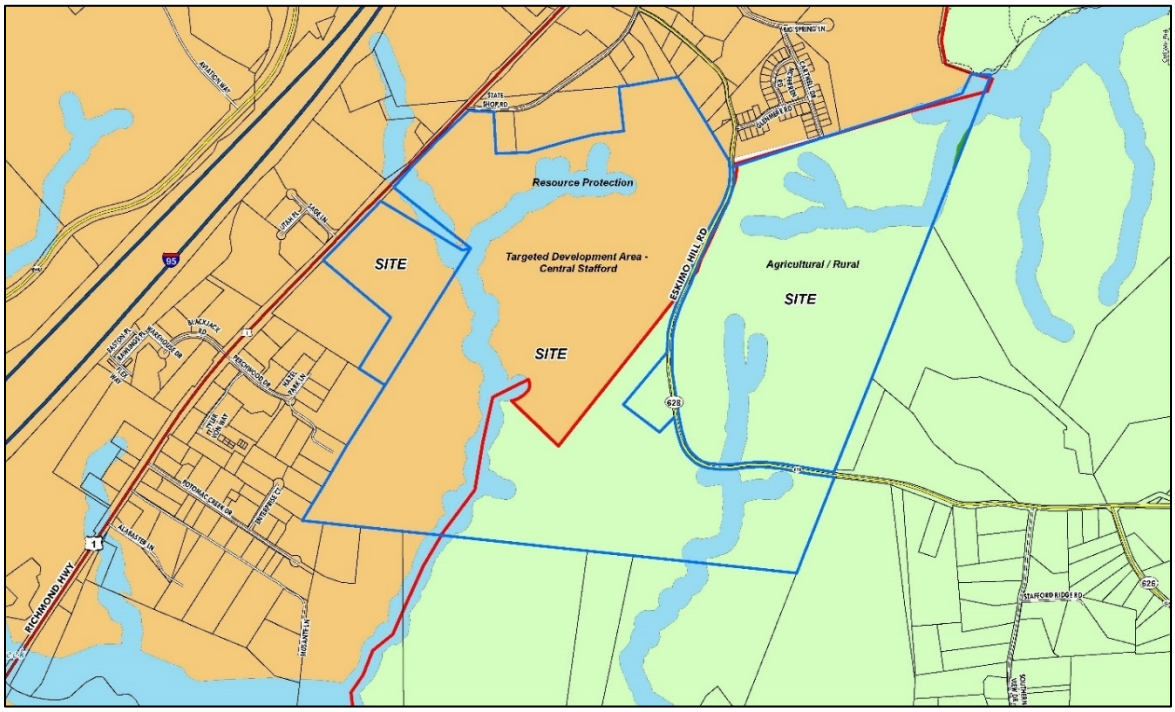
Future Land Use:

The Comprehensive Plan identifies the western half of the Property within the Central Stafford Targeted Development Area, and designated as Business and Industry Future Land Use. The eastern portion of this site is designated as Agricultural/Rural and outside of the Urban Services Area. In addition, Resource Protection is identified where CRPA buffers are present. The property is subject to a concurrent Comp Plan Amendment to amend the future land use in the eastern half to include it in the Central Stafford TDA with Business and Industry land use.

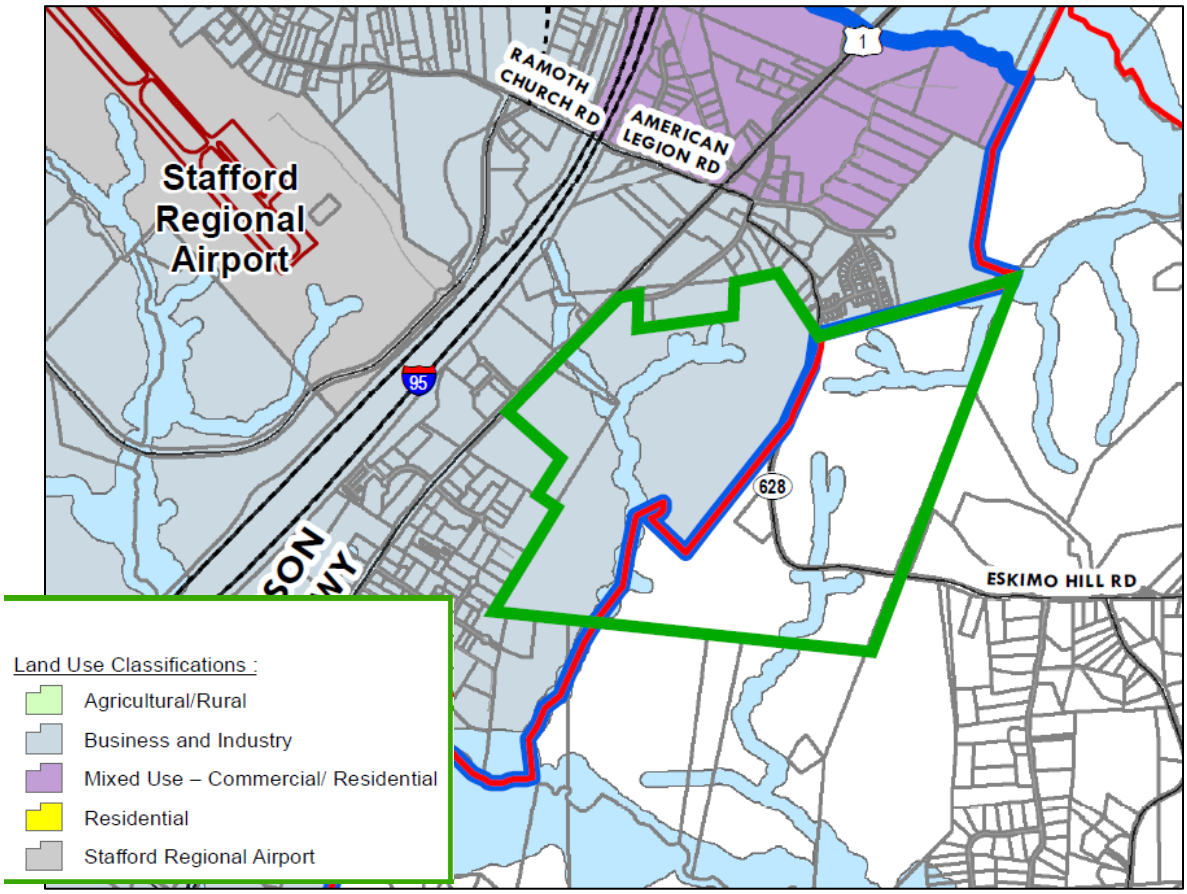
Targeted Development Areas (TDAs) are areas of the County where a significant amount of development or redevelopment is expected to occur. More specifically, TDAs emphasize where development will be targeted, and may include a mix of development such as residential, mixed-use, commercial, and industrial. Designated TDA areas are where concentrated urban or higher density suburban development is most appropriate.

The proposed data center use is consistent with this specific Business and Industry land use recommendation. The Business and Industry land use designation in the Comprehensive Plan describes Business and Industry areas as: *Areas of the county where large-scale business and industry activities are encouraged. These areas are to be the primary economic engines for the*

County. Such businesses and industries would primarily serve markets that stretch beyond the County borders. The general character of the area is primarily industrial, including two industrial parks, an auto salvage yard, regional landfill, and corrections facility. There are also some residential development to the north and a few existing residences and planned residential to the south. The design of the site provides enhanced buffers and setbacks from the closest residential uses.



Future Land Use Map



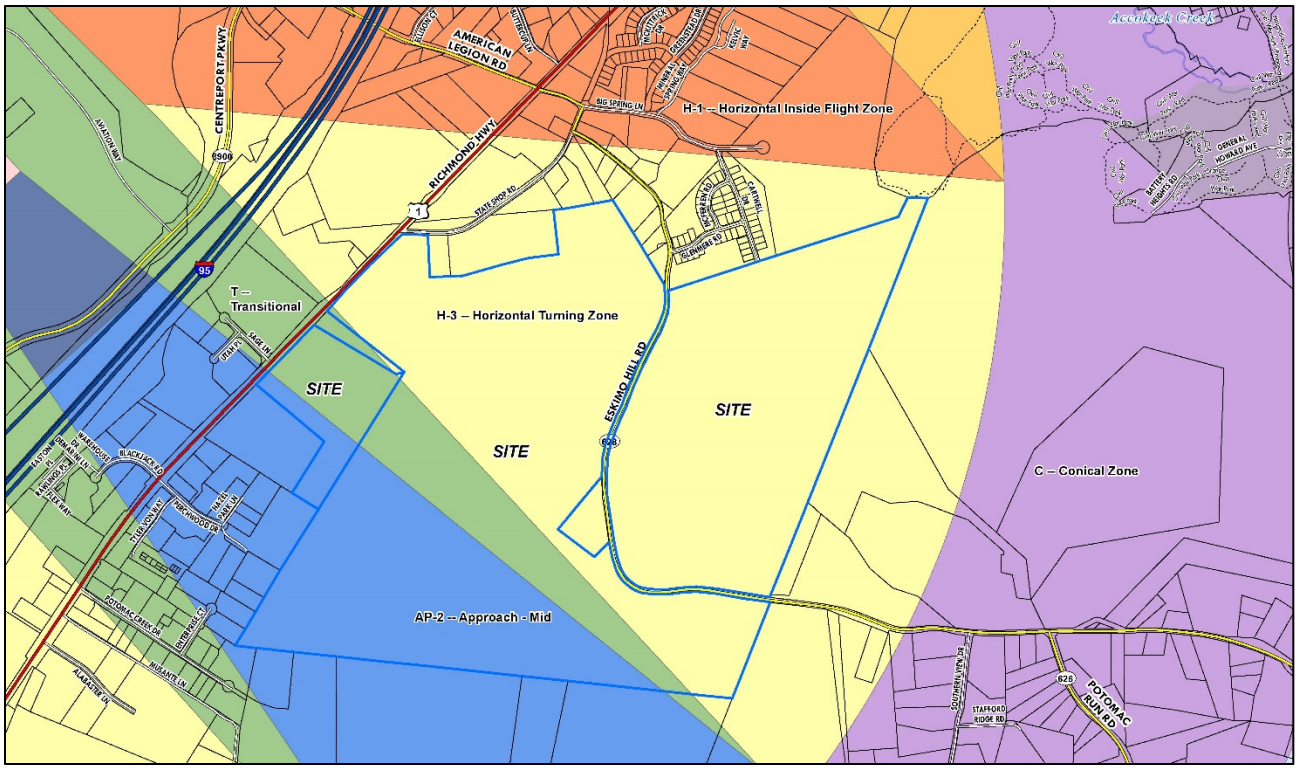
Central Stafford TDA Future Land Use Concept Plan

Airport Land Use Compatibility

The site is within the Airport Impact Overlay for Stafford Regional Airport, and is specifically located within the AP-2, Approach-Mid Zone, T, Transitional Zone, and H-3, Horizontal Turning Zone. The plan addresses airport compatible land uses, an identifies if uses are Compatible, require Additional Review or are Not Compatible, based on the different zoned around the airport.

Data centers are not specifically defined in the compatibility table but may be most similar to Light industrial / storage warehouse. This use is defined as needing Additional Review in the AP-2 zone, Additional Review in the T zone, and Compatible in the H-3 zone.

The electric substations are classified as Vertical Infrastructure. This use is defined as Not Compatible in the AP-2 zone, Not Compatible in the T zone, and Additional Review in the H-3 zone.



Airport Land Use Compatibility Zones

Design Standards

Representative images depicting the required design features of the buildings has been provided within the application (Attachment 8). The architectural standards in the Neighborhood Design Standards (NDS) Plan does not address data center uses. The proffers require buildings incorporate a variety of façade design treatments, as the following images illustrate.

Data Center Fenestrations, material changes



Change in step-backs, recesses and change in color



Change in height



STAFFORD TECHNOLOGY CAMPUS
IMPACT STATEMENT
April 24, 2024

INTRODUCTION

The applicant, Stafford Technology LC (the "Applicant") is the owner of the properties identified as Tax Map Number 38 124 and Tax Map Number 38 29A which are comprised of approximately 503.84 acres (collectively the "Property"). The proposal is to reclassify the Property from A-1, Agricultural, to M-2, Heavy Industrial.

The Applicant's proposal includes a phased data center campus which will contain approximately 5.8 million square feet of data center uses at full buildout. An Overall Illustrative Plan is included with the GDP package and shows how the property could potentially be developed.

CAPACITY

Highways. Access to the Property will be provided from both Richmond Highway and a Connector Road that will extend from Eskimo Hill Road to Richmond Highway. A traffic impact analysis was submitted with this application. Based on the traffic impact analysis, the proposal is anticipated to generate approximately 523 net new total trips during the AM peak hour, 175 net new trips during the PM peak hour and 4,356 net new trips during a typical weekday. The Traffic Impact Analysis concluded that

> *Based on the capacity and queueing analysis results, the proposed development will not have a substantial impact to the surrounding transportation and roadway network under 2030 conditions, assuming that all planned designs and recommended mitigation measures discussed in this report are implemented.*

The following is a list of proffered transportation improvements based on the recommendations outlined in the Traffic Impact Analysis.

a. Connector Road

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard, along the Property's Eskimo Hill Road frontage. In addition, the Applicant shall conduct another traffic impact analysis to determine the impacts to Eskimo Hill Road and provide such improvements recommended from the northern Property boundary on Eskimo Hill Road to the Eskimo Hill Road / Route 1 intersection. Said improvements shall be constructed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for the 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT. Said improvement shall be completed prior to the issuance of the 2,113th VPD on the Property.

Utilities. The Property will be served by public water and sewer. The Applicant is in discussions with the County's Department of Utilities to review the utility infrastructure and looking at ways in which the surrounding infrastructure can be improved through a partnership with the Applicant. The Applicant has provided a proffer for public utilities.

- Water – The Property is partially located within the Central and Falmouth Pro Rata Water Pressure Zones. Public water for the Property will be provided by existing public water infrastructure and the proposed new public water infrastructure, including recycled water infrastructure. The need to upgrade offsite water infrastructure will be determined prior to the issuance of site plan approval. More information, including gallons per day, can be provided in connection with site plan and building permit review.

- Sewer – The Property is partially located within the Potomac Creek Sewershed. Public sewer for the Property not currently located within the Potomac Creek Sewershed is proposed to be provided by extending sewer infrastructure to the unserved area of the Property and expanding the Urban Service Area. More information, including gallons per day, can be provided in connection with site plan and building permit review.

Storm Drainage. The proposed development of the Property will be constructed in accordance with local, state and federal regulations. For stormwater management purposes, the Virginia Department of Environmental Quality regulations for both quality and quantity will be met as required by local and state code. Final design for both quality and quantity treatment will be shown in connection with site plan review.

Schools. The Property currently has an approved residential subdivision plan. The existing approved use on the site has an impact to the schools. However, the proposed reclassification will have no impact on the school facilities in Stafford County and therefore, is a reduced impact to the County school system over what is currently permitted on the Property by-right.

Recreational Facilities. The Property currently has an approved residential subdivision plan. The existing approved use on the site has an impact to recreational facilities. However, the proposed reclassification will have no impact on the recreational facilities in Stafford County and therefore, is a reduced impact over what is currently permitted on the Property by-right.

ENVIRONMENTAL IMPACT

TNT Environmental, Inc. ("TNT") has determined the boundaries of the jurisdictional wetlands and other waters of the U.S. (i.e., streams) on the referenced study area with a wetland delineation, which was confirmed by the U.S. Army Corps of Engineers through a preliminary jurisdictional determination (PJD) dated January 13, 2023. Additionally, Critical Resource Protection Area

("CRPA") core components on and within 100 feet of the study area were evaluated to determine the extent of the CRPA on the project study area. Based upon this wetland delineation, there are three main wetland and stream systems that run across the study area and tie into larger waterways offsite.

Based on TNT's field work, the limits of the field-verified CRPA on the study area are shown on the Generalized Development Plan. In accordance with Section 28-62 of the Stafford County Zoning Ordinance, the perennial streams (i.e., unnamed perennial tributaries to Potomac Creek) and all wetlands and ponds that are contiguous and connected by surface flow to the perennial streams are components of the CRPA, and the field-verified CRPA extends 100 feet landward of these features. The CRPA delineation will be submitted during the site plan stage and confirmed upon approval of an Environmental Site Assessment ("ESA") by Stafford County. Wetland and stream areas outside of the CPRA may be disturbed and mitigated per all Federal and State requirements at the time of site plan.

The U.S. Department of Agriculture ("USDA"), Natural Resources Conservation Service ("NRCS"), Web Soil Survey ("WSS") depicts that the site is underlain primarily by Alluvial land (Ae), Aura gravelly sandy loam (AvB, AvC2, and AvE2), Aura-Galestown-Sassafras complex (AwD, AwE), Bibb fine sandy loam (Bb), Bladen loam (Bd), Bourne fine sandy loam (BmB), Caroline fine sandy loam (CaB2, CaC2, and CaD2), Caroline- Sassafras complex (CdE), Luka fine sandy loam (Iu), Kempsville fine sandy loam (KfB), Marr very fine sandy loam (MdB, MdC2, MdD2, and MdE2), Sandy and clayey land (ScF), and Sassafras fine sandy loam (SfB, SfC2, SfD2, and SfE2). Alluvial land (Ae), Bibb fine sandy loam (Bb), Bladen loam (Bd), and Luka fine sandy loam (Iu) are classified by the NRCS as hydric. The GDP identifies the location of the soil map units.

FISCAL IMPACT

The proposed development will have a positive fiscal impact on Stafford County, as follows.

- It is anticipated that there will be approximately 130 data center jobs with each of the five phases.
- The real property investment is anticipated to be $1.5 billion.
- The business personal property investment is estimated to be $3.024 billion in data center equipment.
- The state and local tax revenue for construction for each phase is anticipated to be $36.9 million.
- The annual fiscal impact to Stafford County for each 1.2 million square foot phase is estimated to be $27.78 million annually.

- The tax revenue once all five phases are developed is estimated to be $127 million annually.

HISTORIC SITES

There is one historical site that has been identified on the property, Site 44ST0680. The site is located on Parcel 38 124 and consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. This site is not proposed to be developed and will remain undisturbed. Site 44ST0680 is potentially eligible for listing in the NRHP under Criteria D.

IMPACT ON ADJACENT PROPERTY

The proposed development will have minimal impact on the adjacent properties. The development is near the County's law enforcement academy shooting range and landfill, which are located to the east of the Property. There are also M-1 zoned properties adjacent to the Property along Richmond Highway. To mitigate any potential impacts, the Applicant has provided 100 ft. buffers adjacent to the residential developments to the north and south, proffered to Design Standards for data center buildings visible from Eskimo Hill Road, Richmond Highway and adjacent residential zoned, and proffered minimum noise requirements.

NOISE, DUST & SMOKE EMISSIONS

Any noise emissions shall comply with the applicable provisions of Chapter 16 of the Stafford County Code of Ordinances. Similarly, any dust and smoke emissions shall comply with the applicable State and Federal standards in final buildout, and to the Virginia Erosion and Sediment Control Handbook ("VESCH") during construction.

P1418929.DOCX

O24-20

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

ORDINANCE

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the day of 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

AN ORDINANCE TO AMEND AND REORDAIN THE STAFFORD COUNTY ZONING ORDINANCE BY AMENDING THE ZONING DISTRICT MAP TO RECLASSIFY FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT TAX MAP PARCEL NOS. 38-29A AND 38-124, ALL LOCATED WITHIN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology, LC submitted application RC23154931, requesting a zoning reclassification from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, all located within the Falmouth Election District; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that the requested zoning amendment is compatible with the surrounding land uses and meets the criteria for a rezoning in Stafford County Code Sec. 28-206; and

WHEREAS, the Board finds that public necessity, convenience, general welfare, and good zoning practices require adoption of this Ordinance to reclassify the subject property;

NOW, THEREFORE, BE IT ORDAINED by the Stafford County Board of Supervisors on this the day of 2024, that the Stafford County Zoning Ordinance be and it hereby is amended and reordained by amending the Zoning District Map to reclassify from the A-1, Agricultural Zoning District to the M-2, Light Industial Zoning District Tax Map Parcel Nos. 38-29A and 38-124, in the location shown on the plat entitled "Boundary Survey Stafford Technology LC" prepared by Bohler Engineering & Design Studio, dated March 22, 2023 and sealed August 29, 2023, with proffers entitled "Proffer Statement" dated April 24, 2024 and completely signed , 2024.

FCM:MJZ:ss

R24-189

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the day of 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO DENY A REQUEST TO RECLASSIFY FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT TAX MAP PARCEL NOS. 38-29A AND 38-124, LOCATED WITHIN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology, LC submitted application RC23154931, requesting a zoning reclassification from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, located within the Falmouth Election District; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that the requested zoning amendment is incompatible with the surrounding land uses and does not meet the criteria for a rezoning in Stafford County Code Sec. 28-206; and

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the day of 2024, that application RC23154931 be and it hereby is denied.

FCM:MJZ:ss

PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: April 24, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 zoning district shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Machinery sales and service;

d. Railroad sidings;

e. Adult business;

f. Boat sales;

g. Drive-through;

h. Dwelling for watchman or caretaker on-premises;

i. Recycling facilities;

j. Truck stop; and

k. Vehicle fuel sales.

l. Automobile salvage yard or operations.

m. Feed lots.

n. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district.

o. Junkyard.

p. Slaughter and animal product processing.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be

relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 21 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Roof structures, mechanical equipment, equipment platforms, parapet walls, screen walls, elevator shafts, stair wells, penthouses, antennas and/or enclosures may exceed one hundred and five feet (105'). Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. Electric substations shall not require any further conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

    a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) will provide written notice to the County of its intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

    b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety five feet (95') in height. This height limitation shall not apply to transmission structures.

    c. Location - Substations on the Property shall be located adjacent to the new connector Road. In the event the substation is located to the south of the new Connector Road, the substation may not be located within five hundred and fifty feet (550') `from Tax Map Parcels 38 22, 38 125, 38 126, and 38 130. In the event

the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38 22, 38 125, 38 126, and 38 130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

a. Principal Building Facades - Principal building façades (i.e., building façades that face adjacent major arterials or interstates) shall be generally consistent in terms of design, materials, details, and treatment. Said principal building façade shall avoid the use of undifferentiated surfaces and include at least three (3) of the following design elements: (i) change in building height; (ii) building step-backs or recesses; (iii) fenestration; (iv) change in building material, pattern texture, color; or (v) use of accent materials.

b. Fencing - Fencing may be provided. If provided, security fencing shall be at least seven (7) feet in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

c. Roof Design - The roof shall be light colored.

d. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof.

e. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

f. Compliance - Compliance with this proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area be less than sixty three (63) acres. The Applicant shall provide a running tabulation of the tree preservation areas on each site plan submitted for the Property. Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

13. Sprinkler System - Any data center building constructed on the Property shall be fully fire

sprinklered with floor control valve assemblies on each level.

NOISE

14. Noise - Notwithstanding and in addition to the applicable Noise Ordinance, any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 60 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by county government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 15 below.

15. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer 12 above shall be reduced by 3 dBA. The term “prominent discrete tone” shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

    a. 5 dB for center frequencies of 500 Hz and above;

    b. 8 dB for center frequencies between 160 and 400 Hz; or

c. 15 dB for center frequencies less than or equal to 125 Hz.

16. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 14 or Proffer 15 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

17. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 14 and Proffer 15, six (6) months after a final occupancy permit is issued and then, upon request of the County, whenever there has been a change in the operations or use of the buildings on the Property that could reasonably be expected to affect compliance with Proffer 14 and Proffer 15. There will be no sound or noise measurements required after the initial measurement mentioned above unless there is a change in the operations or use of a building(s) on the Property. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter the time of any noise measurement. The Acoustical Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events. During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer 12 and Proffer 13 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

18. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior

to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 14 and Proffer 15, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

19. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water/sewer" for the project. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and approval of the Water Service Agreement.

20. Resue Water - The Applicant agrees that all industrial cooling water demands required for the Project will utilize reuse water as the sole primary water source once the reuse water system is completed and extended to the property boundary.

21. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

22. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility

Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the

parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

23. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

24. Interparcel Connections

    a. Tax Map Parcels 38 125 and 38 130 - In the event Tax Map Parcels 38 125, and 38 130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said Tax Map Parcels with the final location to be determined by the Applicant at final site plan.

    b. Tax Map Parcel 38 126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38 126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

25. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

26. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way

dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard, along the Property's Eskimo Hill Road frontage. In addition, the Applicant shall conduct another traffic impact analysis to determine the impacts to Eskimo Hill Road and provide such improvements recommended from the northern Property boundary on Eskimo Hill Road to the Eskimo Hill Road / Route 1 intersection. Said improvements shall be constructed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation

Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for the 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT. Said improvement shall be completed prior to the issuance of the 2,113th VPD on the Property.

27. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 22 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's expense. Applicant's request shall be in writing and shall comply in all respects with the County's Eminent Domain Policy. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney's Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

28. Construction Mitigation Plan - The Applicant shall develop a construction management plan in consultation with the County and VDOT. Said construction management plan shall be submitted prior to the issuance of a land disturbance permit that is associated with final site plan approval. For the purposes of this proffer, a land disturbance permit associated with a grading plan shall not be subject to this proffer.

29. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

30. General Development Schedule - If requested by the County annually, the Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the Project for the next thirty six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 30 shall expire upon the full development of the Property.

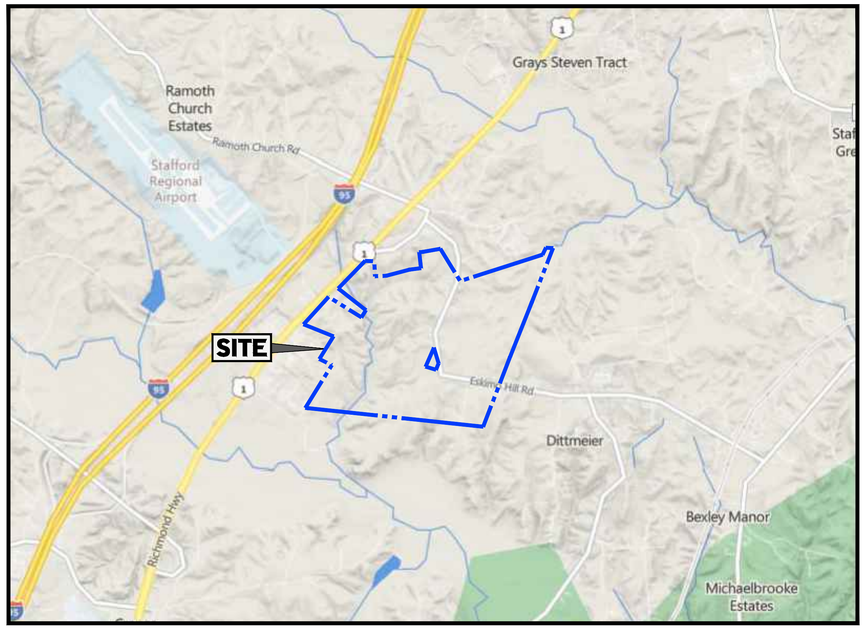
31. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

P1427935.DOCX

GENERALIZED DEVELOPMENT PLAN (GDP)

ZONING RECLASSIFICATION #RC23154931
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 & 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



VICINITY MAP
SOURCE - BING MAPS
SCALE 1" = 2000'

OWNER / APPLICANT
PARCEL 38 124
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

OWNER / APPLICANT
PARCEL 38 29A
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

LAND USE ATTORNEY
WALSH COLUCCI LUBELEY & WALSH
4310 PRINCE WILLIAM PARKWAY; SUITE 300
PRINCE WILLIAM, VA 22192
CONTACT: JONELLE M. CAMERON
703-680-4664

TRANSPORTATION ENGINEER
GOROVE SLADE
4114 LEGATO ROAD; SUITE 650
FAIRFAX, VA 22033
CONTACT: KEVIN SITZMAN, P.E.
571-261-9718

CIVIL ENGINEER
BOHLER ENGINEERING
12825 WORLDGATE DRIVE; SUITE 700
HERNDON, VA 20170
CONTACT: MICHAEL O'SHAUGHNESSY
703-709-9500

NOTE: THIS GDP HAS NOT BEEN REVIEWED FOR FULL COMPLIANCE WITH THE STAFFORD COUNTY ORDINANCE AT THIS TIME. ALL PROPOSED SITE IMPROVEMENTS SHOWN ON THIS PLAN MAY BE AMENDED BY THE OWNERS TO FULFILL REQUIREMENTS OF FINAL ENGINEERING, OR COMPLIANCE WITH CURRENT STATE AGENCY REGULATIONS AND/OR COUNTY DEVELOPMENT REGULATIONS/STANDARDS IN PACE AT THE TIME OF SITE PLAN SUBMISSION.

NOTE: ALL BUFFERYARDS AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH CURRENT STAFFORD COUNTY DEVELOPMENT STANDARDS IN PLACE AT THE TIME OF SITE PLAN SUBMISSION.

NOTE: ALTHOUGH CERTAIN DESIGN FEATURES MAY BE REFERENCED DURING THE REVIEW, THIS REVIEW DOES NOT COVER ENGINEERING DETAILS. THESE DETAILS, INCLUDING BUT NOT LIMITED TO TUM-LANES, TUM LANE STORAGE LENGTHS AND TRANSITIONS, ENTRANCE WIDTH AND RADII, SPACING STANDARDS, SIGHT DISTANCE, OBTAINING OFF-SITE SIGHT DISTANCE EASEMENTS, AUTO TUM, AND ACCESS MANAGEMENT WILL BE ADDRESSED AT A LATER STAGE OF SITE PLAN DEVELOPMENT REVIEW. THE REVIEW WILL BE BASED ON THE CURRENT VDOT STANDARDS AT THE TIME OF DETAILED SITE PLAN SUBMITTAL.

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	C-1
EXISTING CONDITIONS	C-2
GENERALIZED DEVELOPMENT PLAN	C-3
OVERALL ILLUSTRATIVE PLAN	C-4

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY CONSULTING
PERMITTING SERVICES
TRANSPORTATION SERVICES
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	MW / MO
2	02/22/24	COUNTY COMMENTS	MW / NTG
3	04/24/24	COUNTY COMMENTS	MW / NTG

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ZONING SUBMISSION

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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	CNDS-0

PROJECT:

GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

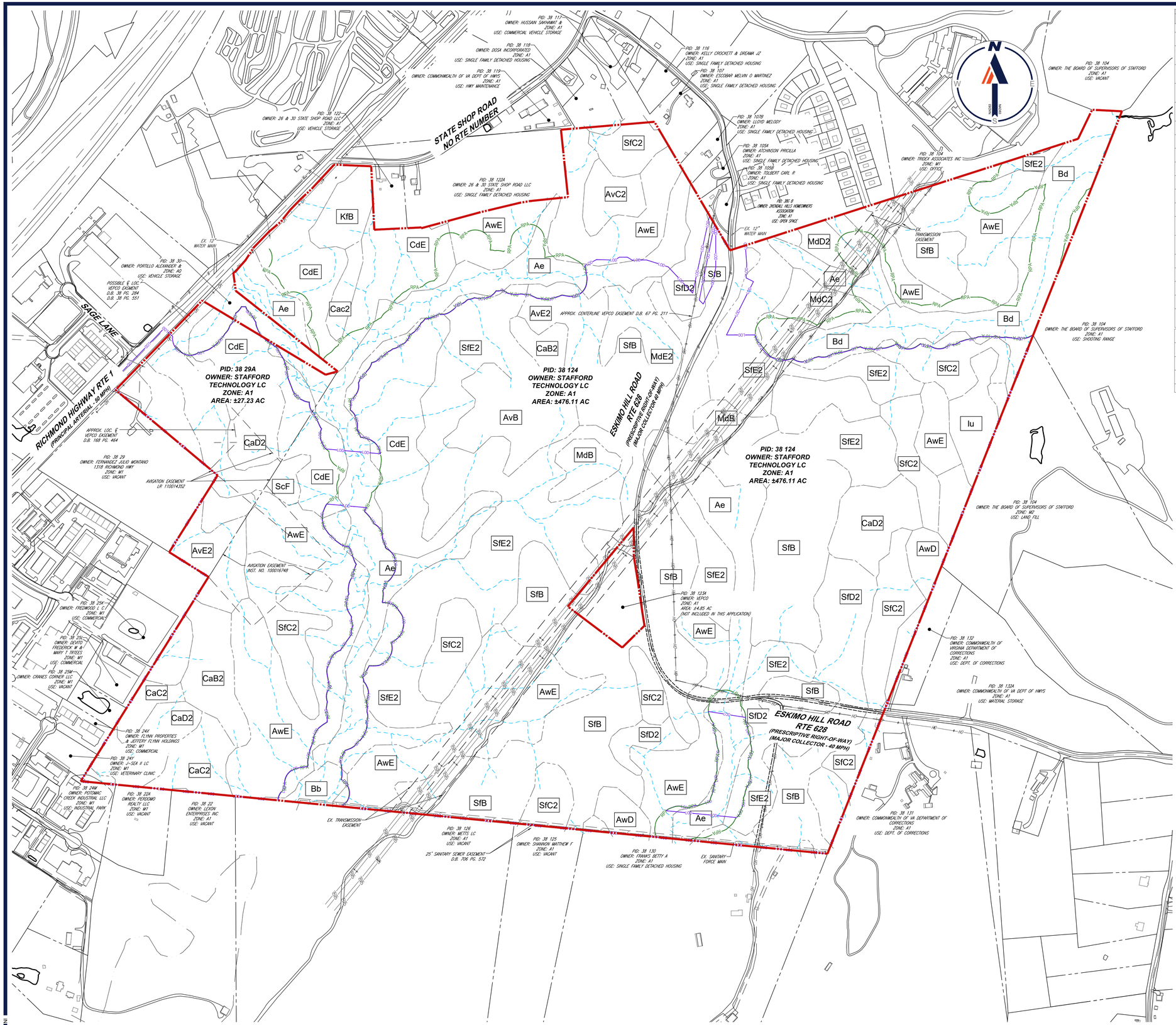
COVER SHEET

SHEET NUMBER:

C-1

REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\GDV1 - EXCLUDING VEPCO PARCEL\VAA220232.00-CNDS-0---LAYOUT C1 - COVER SHEET



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ae	Alluvial land, wet	47.4	9.2%
AvB	Aura gravelly fine sandy loam, 2 to 6 percent slopes	7.8	1.5%
AvC2	Aura gravelly fine sandy loam, 6 to 10 percent slopes, eroded	12.5	2.4%
AvE2	Aura gravelly fine sandy loam, 18 to 35 percent slopes, eroded	14.5	2.8%
AwD	Aura-Galestown-Sassafras complex, 6 to 15 percent slopes	4.0	0.8%
AwE	Aura-Galestown-Sassafras complex, 15 to 30 percent slopes	80.7	15.7%
Bb	Bibb fine sandy loam, 0 to 4 percent slopes	0.6	0.1%
Bd	Bladen loam, 0 to 2 percent slopes	20.5	4.0%
BmB	Bourne fine sandy loam, 2 to 6 percent slopes	0.3	0.0%
CaB2	Caroline fine sandy loam, 2 to 6 percent slopes, eroded	12.3	2.4%
CaC2	Caroline fine sandy loam, 6 to 10 percent slopes, eroded	6.4	1.2%
CaD2	Caroline fine sandy loam, 10 to 18 percent slopes, eroded	12.9	2.5%
CdE	Caroline-Sassafras complex, 15 to 30 percent slopes	41.8	8.1%
Iu	Iuka fine sandy loam, local alluvium, 0 to 4 percent slopes	4.5	0.9%
KfB	Kempsville fine sandy loam, gravelly substratum, 2 to 6 percent slopes	3.9	0.8%
MdB	Marr very fine sandy loam, 2 to 6 percent slopes	5.6	1.1%
MdC2	Marr very fine sandy loam, 6 to 10 percent slopes, eroded	3.5	0.7%
MdD2	Marr very fine sandy loam, 10 to 15 percent slopes, eroded	1.7	0.3%
MdE2	Marr very fine sandy loam, 15 to 30 percent slopes, eroded	4.6	0.9%
ScF	Sandy end dlayey land, steep, Sassafras and Caroline materials	8.8	1.7%
SfB	Sassafras fine sandy loam, 2 to 6 percent slopes	84.8	16.4%
SfC2	Sassafras fine sandy loam, 6 to 10 percent slopes, eroded	33.0	6.4%
SfD2	Sassafras fine sandy loam, 10 to 15 percent slopes, eroded	17.9	3.5%
SfE2	Sassafras fine sandy loam, 15 to 35 percent slopes, eroded	85.7	16.6%
Totals for Area of Interest		**515.7**	**100.0%**

LEGEND

- REZONING AREA
- APPROXIMATE LOCATION OF STREAM CENTERLINE PER COUNTY GIS
- AwE — SOIL MAP UNIT LABEL
- SOIL LINE
- RPA — RPA PER TNT
- LOD — LIMITS OF DISTURBANCE (TO BE ADJUSTED AT TIME OF SITE PLAN)

300 150 75 0 300
1"= 300'

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
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HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

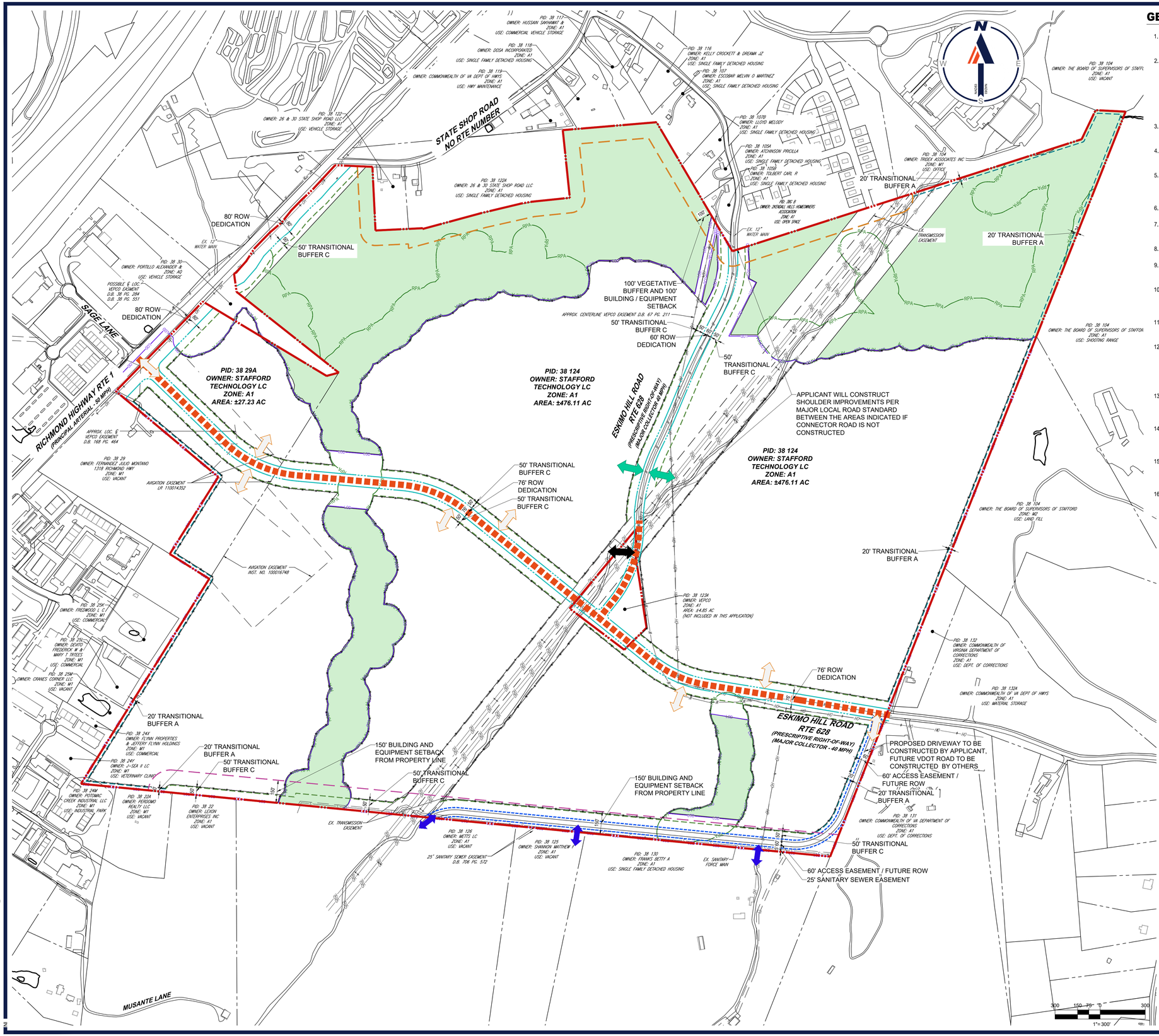
EXISTING CONDITIONS PLAN

SHEET NUMBER:

C-2

REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\SHT_-_EXCLUDING VEPCO PARCEL\VAA220232.00-EXST-0_-_LAYOUT C2 - EXISTING CONDITIONS



GENERALIZED DEVELOPMENT PLAN NOTES

1. THE GENERALIZED DEVELOPMENT PLAN PROPOSES TO REZONE APPROXIMATELY 503.34 ACRES FROM THE A1 ZONING DISTRICT TO THE M-2 ZONING DISTRICT.
2. PUBLIC WATER AND SEWER SERVICE WILL BE AVAILABLE TO THE PROPERTY BY EXTENSION OF EXISTING FACILITIES AND INCORPORATING A PORTION OF THE APPLICATION AREA INTO THE URBAN SERVICES AREA. WATER SERVICE IS AVAILABLE ALONG RICHMOND HIGHWAY AND IN THE ROADWAY OF ESKIMO HILL ROAD. SANITARY SEWER SERVICE IS AVAILABLE ALONG THE SOUTHERN PROPERTY LINE OF THE APPLICATION AREA. ALL NECESSARY APPROVALS FOR CONSTRUCTION OF NECESSARY UTILITY CONNECTIONS WILL BE COORDINATED AND OBTAINED BY THE APPROPRIATE STAFFORD COUNTY AGENCY(S) AT TIME OF SITE PLAN.
3. STORMWATER MANAGEMENT WILL BE PROVIDED PER APPLICABLE STATE AND LOCAL STANDARDS AT TIME OF SITE PLAN.
4. THE PROPERTY CONTAINS NO GRAVES, OBJECTS OR STRUCTURES MARKING BURIAL PLACES AS DETERMINED BY VISUAL SURVEY.
5. THE PROPERTY CONTAINS NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PARTS 16.4, 302.4, AND 355 OR IN VIRGINIA DEPARTMENT OF WASTE MANAGEMENT REGULATIONS.
6. ZONE A FLOODPLAIN INFORMATION PER FEMA FIRM PANEL 5101540143E INFORMATION.
7. RESOURCE PROTECTION AREA IS DELINEATED BY TNT ENVIRONMENTAL DATED JANUARY 21, 2021.
8. THE DEVELOPMENT OF THE PROPERTY MAY BE PHASED THROUGH MULTIPLE SITE PLANS.
9. BUILDING SETBACKS MAY INCLUDE PARKING, FENCE, ACCESSORY BUILDINGS AND OTHER SIMILAR FEATURES.
10. ENTRANCE LOCATIONS SHOWN ARE APPROXIMATE AND TO BE DETERMINED AT TIME OF FINAL SITE PLAN DESIGN. LOCATIONS TO BE IN ACCORDANCE WITH VDOT SPACING REQUIREMENTS. ACCESS POINTS MAY BE ADDED OR ELIMINATED SUBJECT TO VDOT APPROVAL.
11. TRANSITIONAL BUFFERS WILL BE PROVIDED AT TIME OF SITE PLAN IN ACCORDANCE WITH THE REQUIREMENTS OF THE DCSL. THEIR LOCATIONS MAY BE ADJUSTED AT TIME OF SITE PLAN.
12. THIS GDP HAS NOT BEEN REVIEWED FOR FULL COMPLIANCE WITH THE STAFFORD COUNTY ORDINANCE AT THIS TIME. ALL PROPOSED SITE IMPROVEMENTS SHOWN ON THIS PLAN MAY BE AMENDED BY THE OWNERS TO FULFILL REQUIREMENTS OF FINAL ENGINEERING, OR COMPLIANCE WITH CURRENT STATE AGENCY REGULATIONS AND/OR COUNTY DEVELOPMENT REGULATIONS/STANDARDS IN PACE AT THE TIME OF SITE PLAN SUBMISSION.
13. ALL BUFFER YARDS AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH CURRENT STAFFORD COUNTY DEVELOPMENT STANDARDS IN PLACE AT THE TIME OF SITE PLAN SUBMISSION.
14. UNLESS A GREATER BUILDING SETBACK IS SHOWN ON THE GDP, THE BUILDING SETBACKS AT TIME OF SITE PLAN ARE PER THE MINIMUM BUILDING SETBACKS ESTABLISHED BY THE M-2 DISTRICT WITHIN THE ZONING ORDINANCE AND SHOWN BELOW.
15. TREE PRESERVATION AREAS MAY BE ADJUSTED AT TIME OF SITE PLAN PENDING FINAL ENGINEERING, LAND DISTURBANCE FOR UTILITY CROSSINGS OR ROADWAY CONSTRUCTION THROUGH TREE PRESERVATION AREAS MAY OCCUR AT TIME OF SITE PLAN.
16. THE LOCATION OF SECURE PERIMETER FENCING SHOWN IS APPROXIMATE AND MAY BE LOCATED WITHIN BUILDING AND EQUIPMENT SETBACK AREA. THE FINAL LOCATION OF PERIMETER FENCING MAY BE ADJUSTED AND DETERMINED AT THE TIME OF SITE PLAN.

LEGEND

- APPROXIMATE REALIGNMENT OF ESKIMO HILL ROAD, TO BE FULLY DESIGNED AND ADJUSTED AT TIME OF SITE PLAN.
- APPROXIMATE LOCATION OF FUTURE 60' ACCESS EASEMENT AND OR ROW FOR ACCESS TO SOUTHERN PARCELS. DRIVEWAY TO BE CONSTRUCTED BY APPLICANT, FUTURE VDOT ROAD TO BE CONSTRUCTED BY OTHERS
- APPROXIMATE LOCATION OF FUTURE OFFSITE PARCEL ACCESS
- APPROXIMATE LOCATION OF EXISTING PARCEL ACCESS
- APPROXIMATE LOCATION OF PARCEL ACCESS / PRIVATE COMMERCIAL ENTRANCE
- POTENTIAL EMERGENCY ACCESS OR LIMITED ACCESS ENTRANCE
- APPROXIMATE LOCATION OF TREE PRESERVATION AREA(S)
- 20' TRANSITIONAL BUFFER A PER DCSL
- 50' TRANSITIONAL BUFFER C PER DCSL
- 150' BUILDING AND EQUIPMENT SETBACK
- 100' VEGETATIVE BUFFER (EXCLUDING EASEMENTS) AND 100' BUILDING AND EQUIPMENT SETBACK
- ROW DEDICATION (TO OCCUR AT SITE PLAN)
- REZONING AREA (A-1 REZONED TO M-2)
- LIMITS OF DISTURBANCE (TO BE ADJUSTED AT TIME OF SITE PLAN)
- FIELD VERIFIED RESOURCE PROTECTION AREA PER TNT ENVIRONMENTAL
- APPROXIMATE LOCATION OF SECURE PERIMETER FENCING (SEE NOTE 16)

STAFFORD M-2 ZONING DISTRICT REGULATIONS:

- MAXIMUM FLOOR AREA RATIO:	1.0 (21,925,490 SF GFA)
- MINIMUM OPEN SPACE RATIO:	0.25 (5,481,373 SF)
- FRONT YARD:	40 FEET
- SIDE YARD:	40 FEET
- REAR YARD:	40 FEET
- MAXIMUM BUILDING HEIGHT:	105 FEET / 3 STORIES*

*MODIFIED WITH THIS GDP

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SERVICES
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	MW / MO
2	02/22/24	COUNTY COMMENTS	MW / NTG
3	04/24/24	COUNTY COMMENTS	MW / NTG

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ZONING SUBMISSION

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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	GDVL-0

PROJECT:

GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

GENERALIZED DEVELOPMENT PLAN

SHEET NUMBER:

C-3

REVISION 3 - 04/24/24

Apr 24, 2024
C:\PROGRAMDATA\BOHLER\2022\C3D2022\TEMP\ACPUBLISH_48760\VAA220232.00-GDVL-0---LAYOUT C-3 - GDP.DWG



ILLUSTRATIVE LEGEND:

- PROPOSED BUILDING 105' MAX HEIGHT / 3 STORIES
- TRAVEL WAY
- TREE PRESERVATION AREA
- RETAINING WALLS (MAXIMUM HEIGHT VARIES)
- SWM AREA
- EQUIPMENT AND SERVICE AREA
- SUBSTATION AREA
- BUFFER AREA (FINAL SIZE TO BE DETERMINED AT TIME OF SITE PLAN)
- PARKING AREA
- RESOURCE PROTECTION AREA

300 150 75 0 300
1"= 300'

Apr 23, 2024
I:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\GDP(A) - EXCLUDING VEPCO PARCEL\VAA220232.00-REND-0_---LAYOUT C-4 - OVERALL ILLUSTRATIVE

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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3	04/24/24	COUNTY COMMENTS	MW / NTG

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DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	REND-0

PROJECT:

GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

OVERALL ILLUSTRATIVE PLAN

SHEET NUMBER:

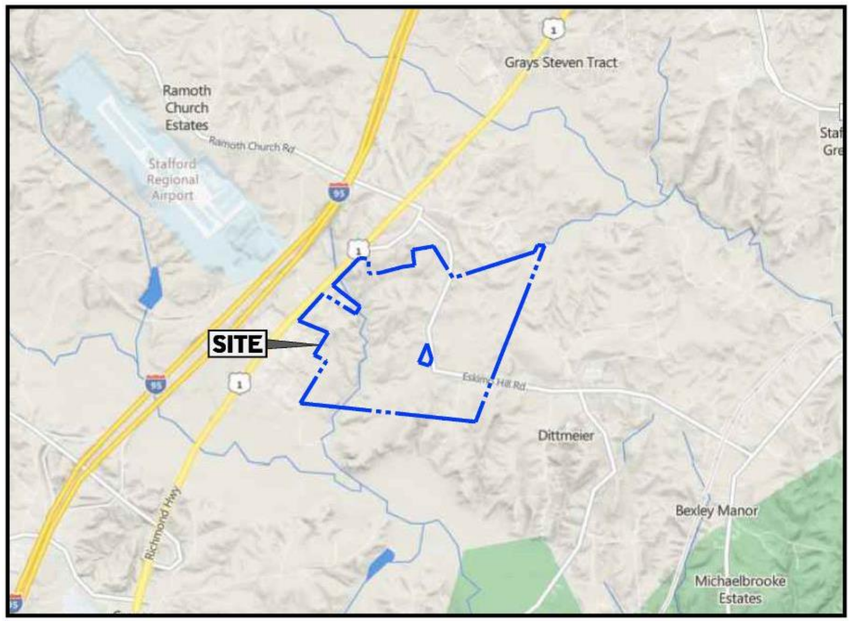
C-4

REVISION 3 - 04/24/24

TRANSPORTATION PLAN

ZONING RECLASSIFICATION #RC23154931
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 & 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



VICINITY MAP
SOURCE - BING MAPS
SCALE 1" = 2000'

OWNER / APPLICANT
PARCEL 38 124
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

OWNER / APPLICANT
PARCEL 38 29A
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

LAND USE ATTORNEY
WALSH COLUCCI LUBELEY & WALSH
4310 PRINCE WILLIAM PARKWAY; SUITE 300
PRINCE WILLIAM, VA 22192
CONTACT: JONELLE M. CAMERON
703-680-4664

TRANSPORTATION ENGINEER
GOROVE SLADE
4114 LEGATO ROAD; SUITE 650
FAIRFAX, VA 22033
CONTACT: KEVIN SITZMAN, P.E.
571-261-9718

CIVIL ENGINEER
BOHLER ENGINEERING
12825 WORLDGATE DRIVE; SUITE 700
HERNDON, VA 20170
CONTACT: MICHAEL O'SHAUGHNESSY
703-709-9500

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	T-1
NETWORK IMPROVEMENT SUMMARY	1
U.S.RTE 1 & HOSPITAL CENTER BLVD IMPROVEMENT	2
U.S.RTE 1 & SAGE LN/CONNECTOR RD IMPROVEMENT	3
U.S.RTE 1 & I-95 SOUTHBOUND RAMPS IMPROVEMENT	4

GOROVE SLADE
Transportation Planners and Engineers
4114 Legato Road / Suite 650
Fairfax, VA 22033

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	FS / ML
2	02/22/24	Proffer Revisions	JM / KDS

ZONING SUBMISSION

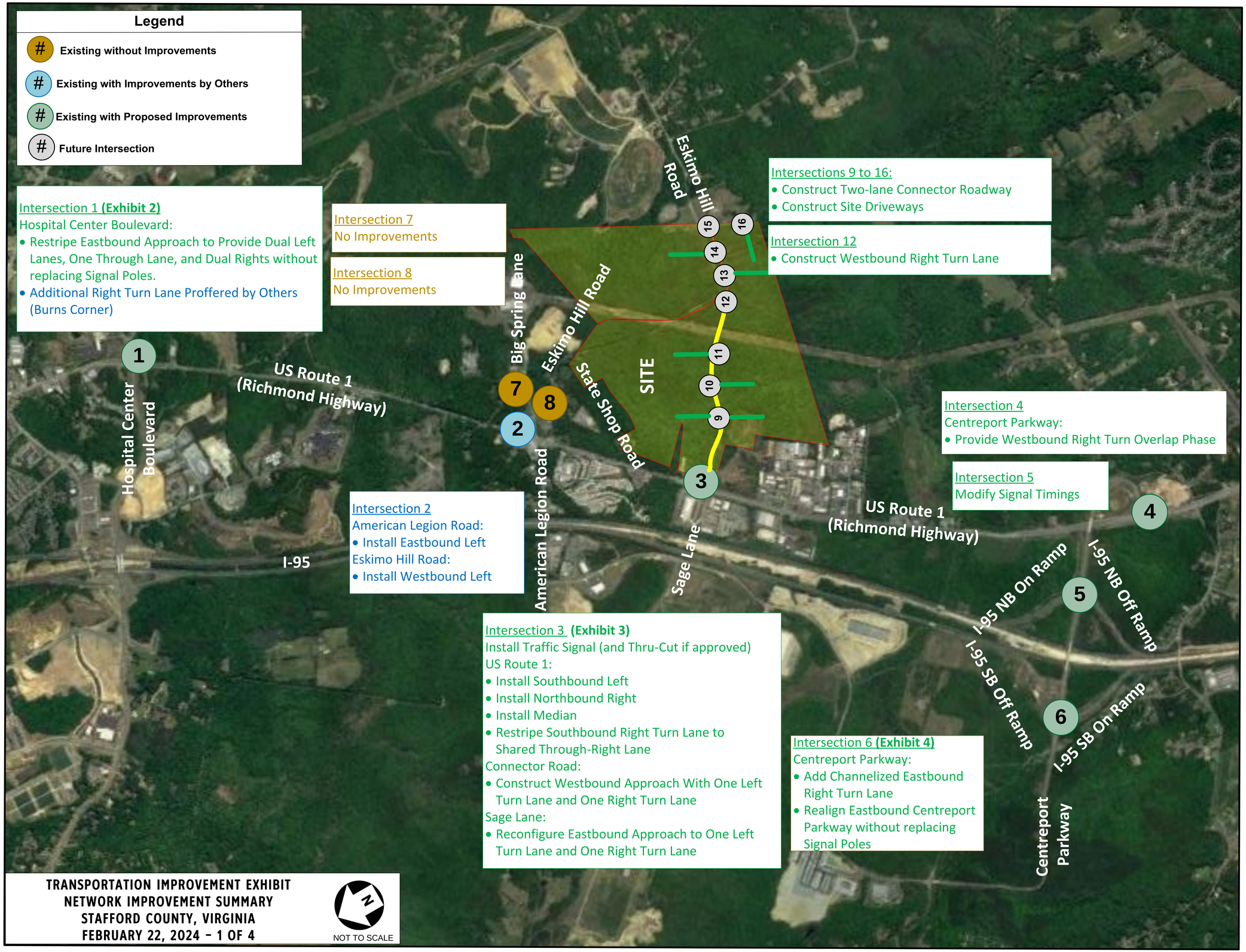
PROJECT No: VAA220232.00
DRAWN BY: JM
CHECKED BY: KDS
DATE: 02/22/2024

PROJECT:
TRANSPORTATION PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

GOROVE SLADE
Transportation Planners and Engineers

COVER SHEET

SHEET NUMBER:
T-1



TRANSPORTATION IMPROVEMENT EXHIBIT
NETWORK IMPROVEMENT SUMMARY
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 – 1 OF 4

NOT TO SCALE

GOROVE SLADE
Transportation Planners and Engineers
4114 Legato Road / Suite 650
Fairfax, VA 22033

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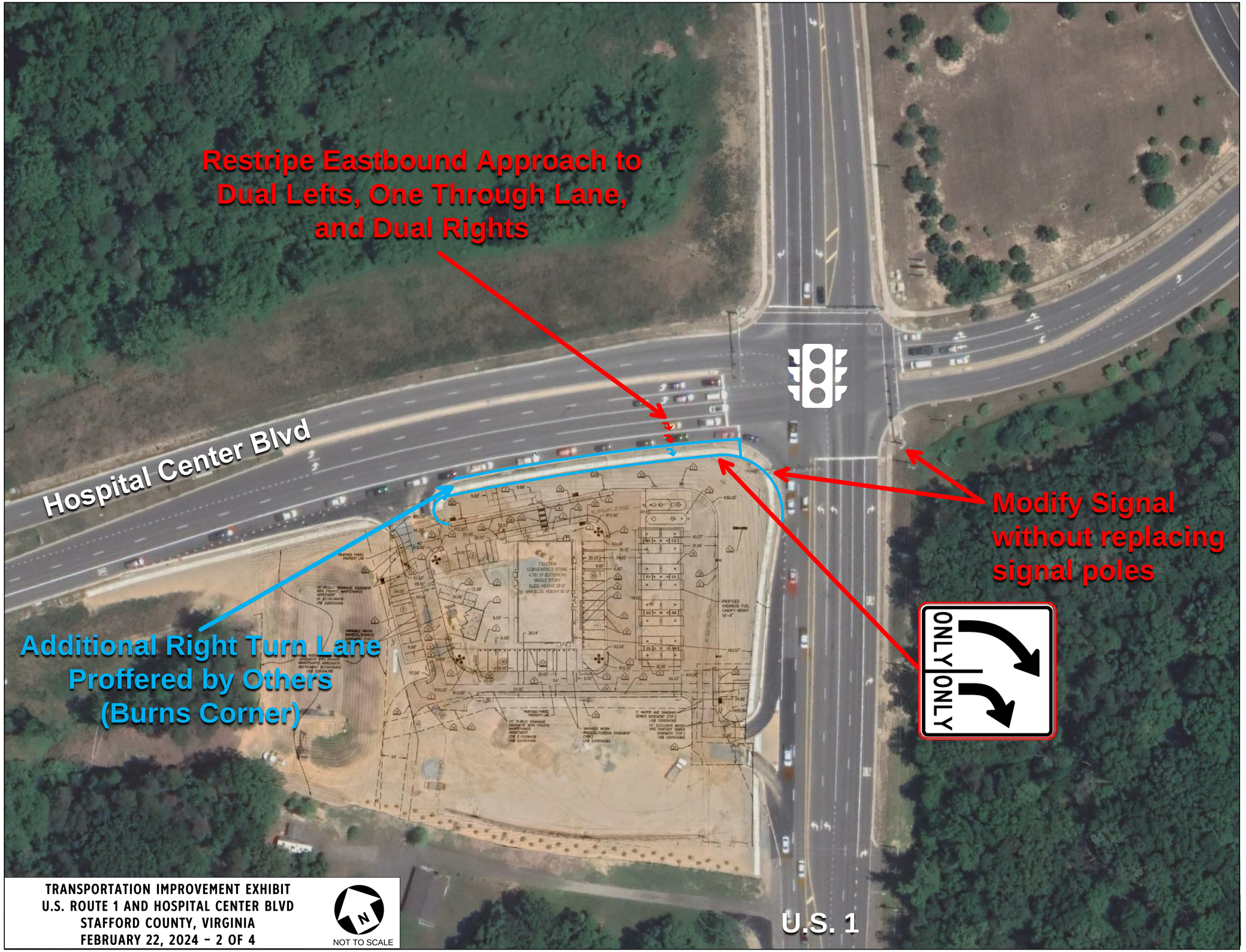
TRANSPORTATION PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

GOROVE SLADE
Transportation Planners and Engineers

SHEET NUMBER:
1



TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND HOSPITAL CENTER BLVD
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 - 2 OF 4

N
NOT TO SCALE

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Transportation Planners and Engineers
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Fairfax, VA 22033

REVISIONS

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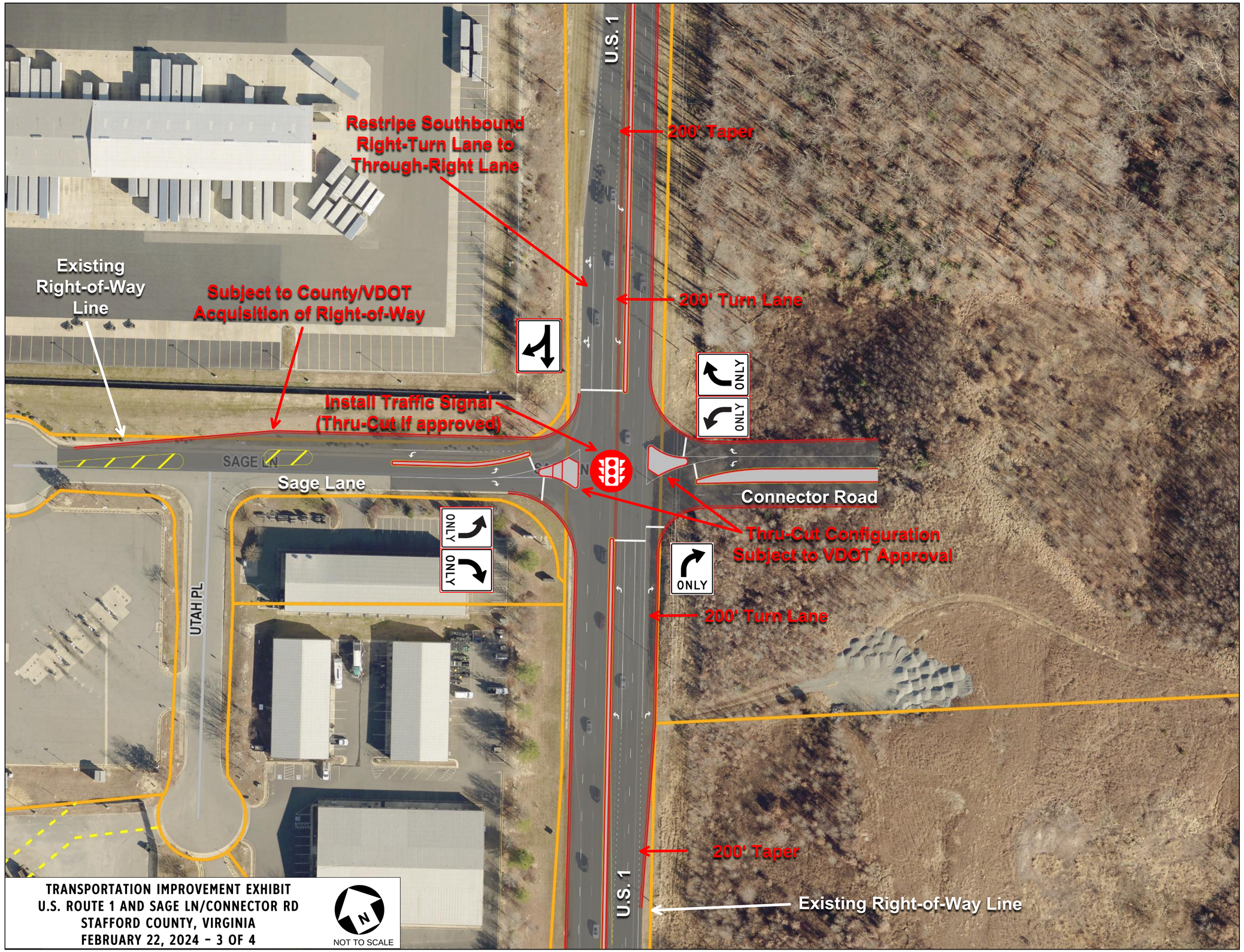
PROJECT:
TRANSPORTATION PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

GOROVE SLADE
Transportation Planners and Engineers

SHEET NUMBER:
2



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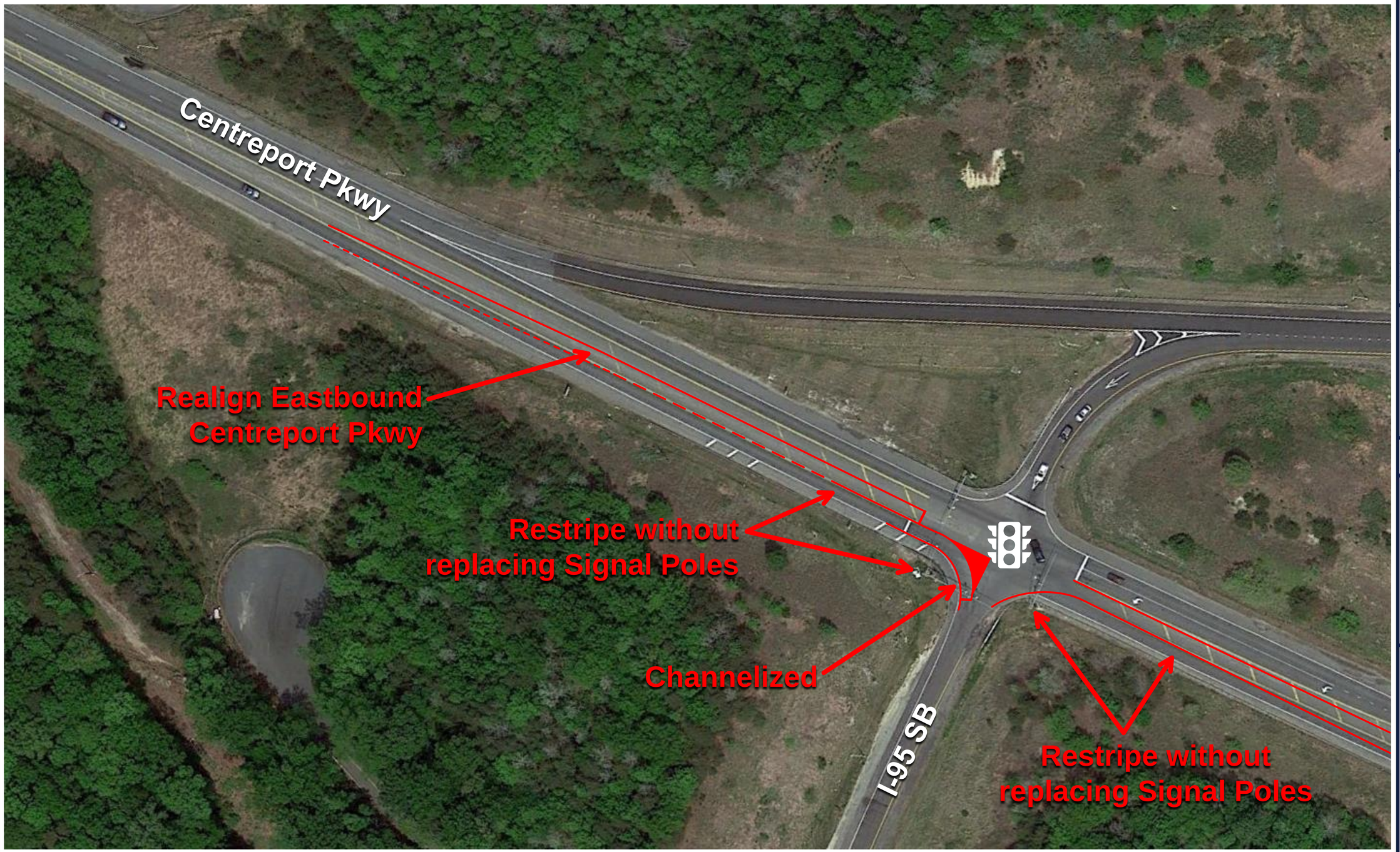
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

GOROVE SLADE
Transportation Planners and Engineers

SHEET NUMBER:
3



TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND I-95 SOUTHBOUND RAMPS
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 - 4 OF 4

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NOT TO SCALE

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Fairfax, VA 22033

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FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

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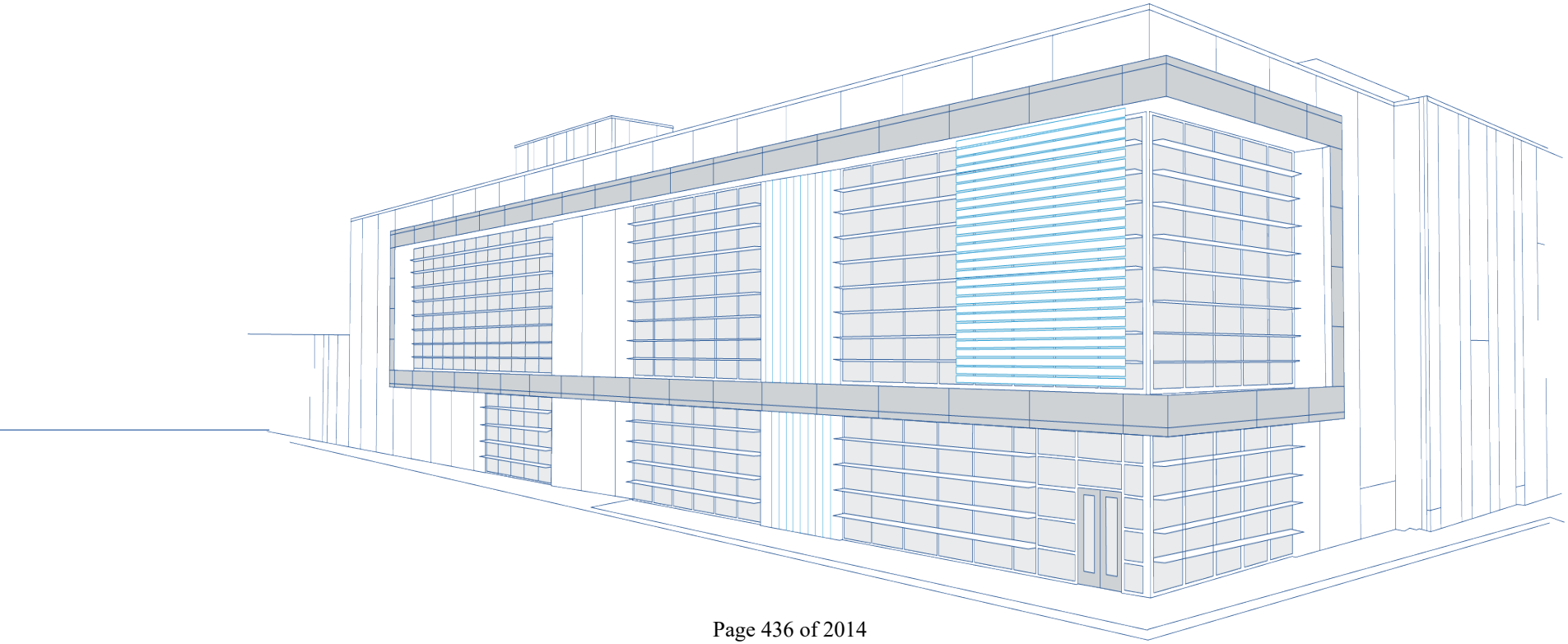
Transportation Planners and Engineers

SHEET NUMBER:
4

STAFFORD TECHNOLOGY CAMPUS

DESIGN COMPONENTS

FEBRUARY, 2024



Data Center Design Elements

Data Center Fenestrations, material changes



Change in step-backs, recesses and change in color



Change in height



STAFFORD REGIONAL AIRPORT (RMN)

INTERSTATE 95 (SOUTH BOUND)

INTERSTATE 95 (NORTH BOUND)

STATE SHOP ROAD

80' ROW DEDICATION

HISTORIC RESOURCE AREA

± 40.00 AC TREE PRESERVATION AREA

SAGE LANE

RICHMOND HIGHWAY (ROUTE 1)

SWM AREA

± 23.20 AC AREA FOR SUBSTATION

CRANES CORNER BUSINESS PARK

PERCHWOOD DRIVE

POTOMAC CREEK DRIVE

MUSTANG LANE

VEPCO PROPERTY (NOT PART OF THIS APPLICATION)

± 24.80 AC AREA FOR SUBSTATION

SECTION C-C

SECTION D-D

SECTION E-E

SECTION F-F

GLENMERE ROAD

CARTWELL DRIVE

TRIDEX ASSOCIATES INC.

± 23.00 AC TREE PRESERVATION AREA

STAFFORD COUNTY SHERIFF'S OFFICE SHOOTING RANGE

STAFFORD COUNTY REGIONAL LANDFILL

SECTION B-B

COMMONWEALTH OF VIRGINIA DEPARTMENT OF CORRECTIONS

ESKIMO HILL ROAD

COMMONWEALTH OF VIRGINIA DEPARTMENT OF CORRECTIONS

STAFFORD COMMUNITY CORRECTIONS ALTERNATIVE PROGRAM

POTENTIAL HOME SITE PER POTOMAC CREEK PRELIMINARY PLAT

SECTION H-H

SECTION A-A

SECTION G-G

FUTURE DRIVEWAY FOR ACCESS TO SOUTHERN PARCELS

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

STAFFORD TECHNOLOGY CAMPUS - ILLUSTRATIVE PLAN

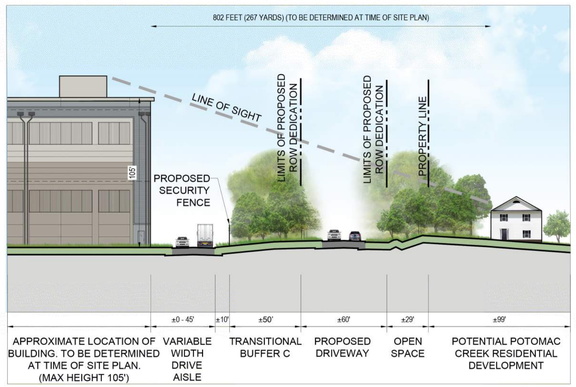
VAA220232.00

FEBRUARY 2024

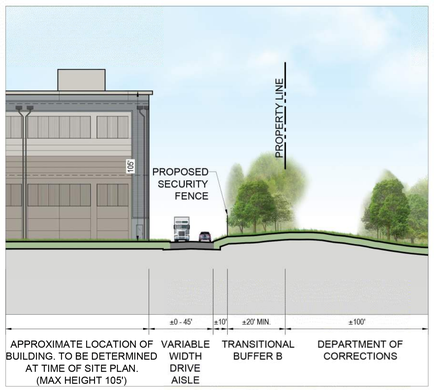
STAFFORD, VIRGINIA

PETERSON COMPANIES

BOHLER



SECTION A-A
SCALE: 1" = 50'



SECTION B-B
SCALE: 1" = 50'

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

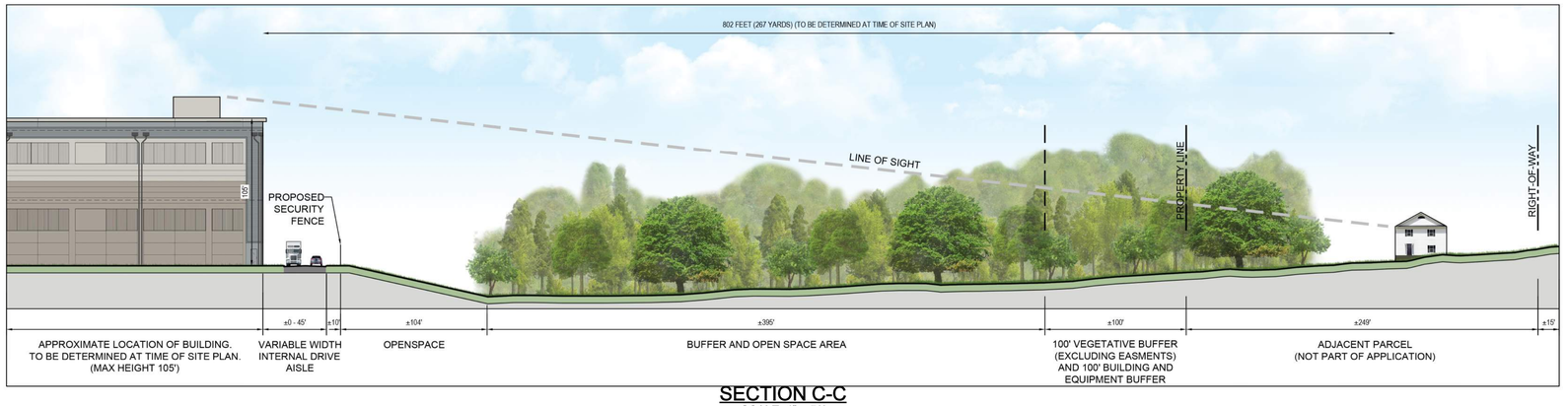
STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

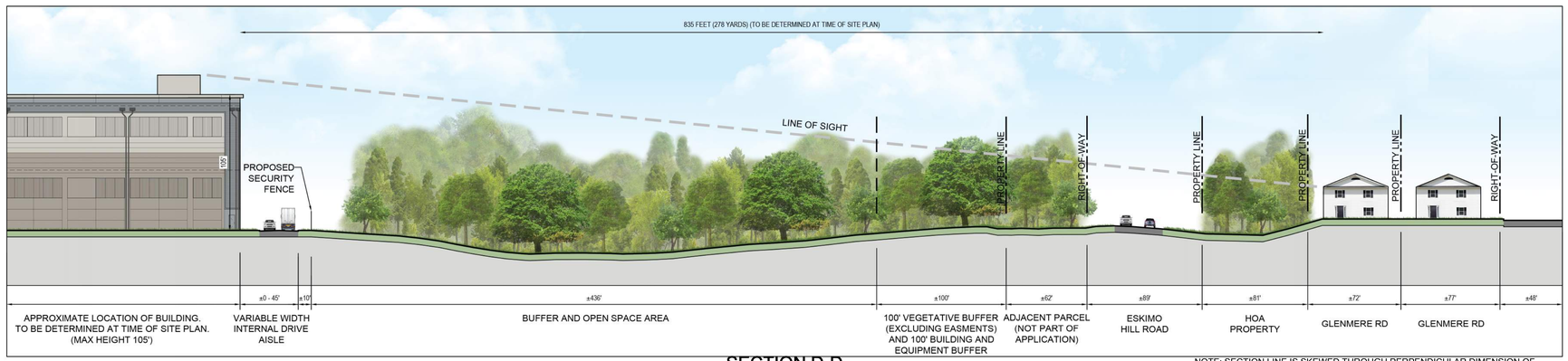
FEBRUARY 2024

STAFFORD, VIRGINIA

PETERSON COMPANIES BOHLER

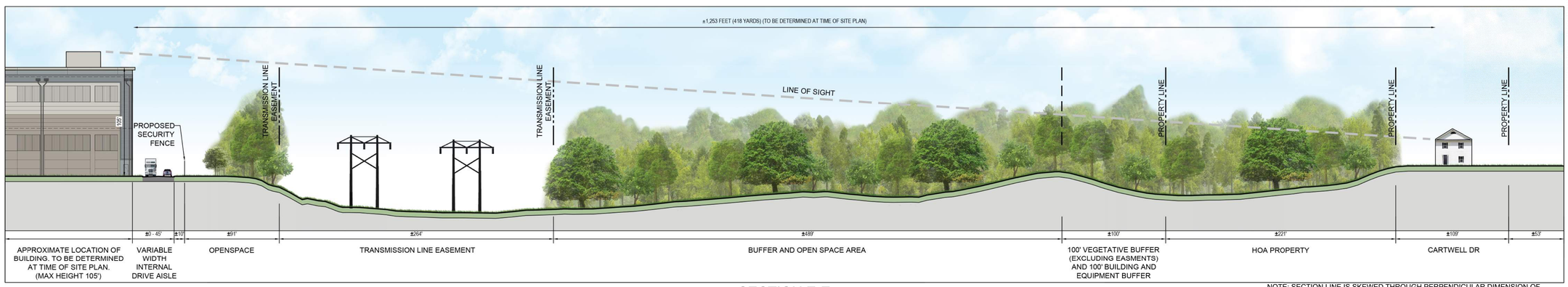


SECTION C-C
SCALE: 1" = 50'



SECTION D-D
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP



SECTION E-E
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

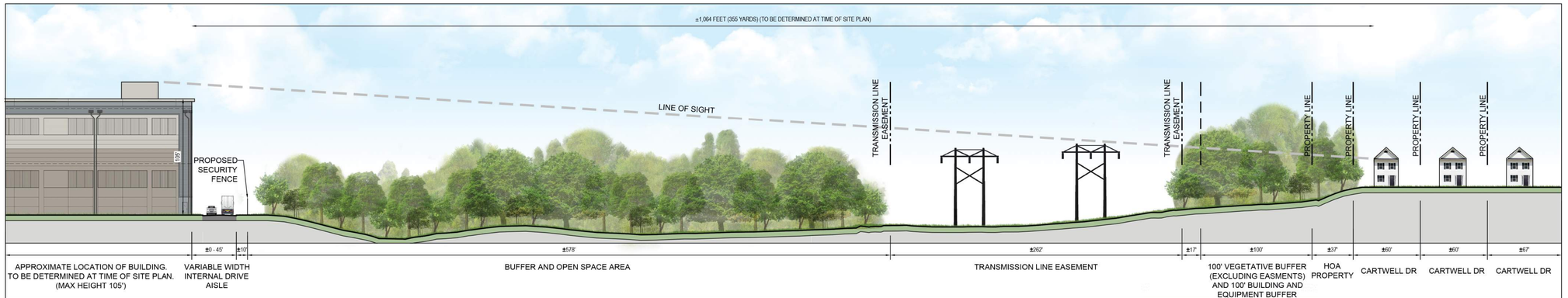
STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

FEBRUARY 2024

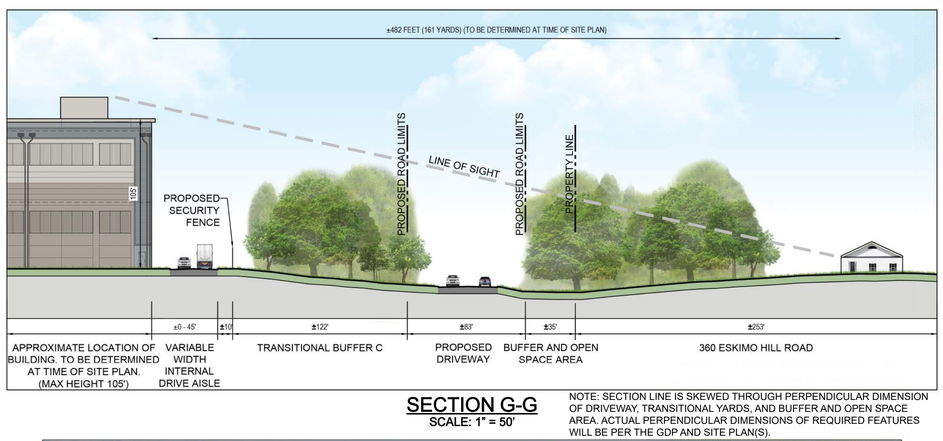
STAFFORD, VIRGINIA

PETERSON COMPANIES® BOHLER



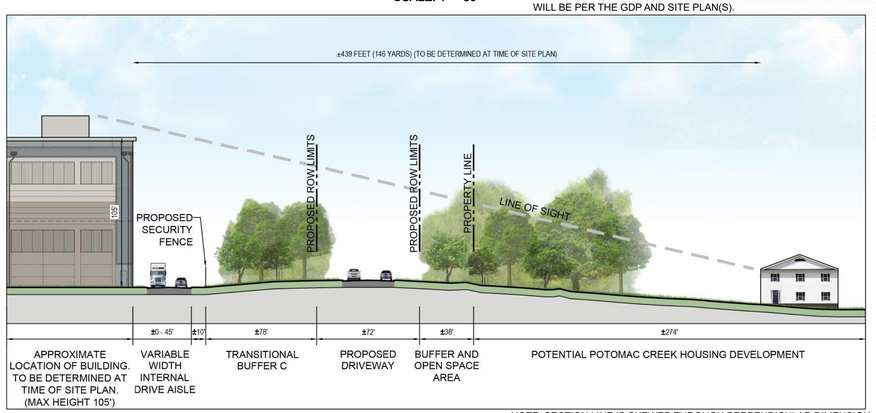
SECTION F-F
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP



SECTION G-G
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP AND SITE PLAN(S).



SECTION H-H
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP AND SITE PLAN(S).

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

FEBRUARY 2024

STAFFORD, VIRGINIA

PETERSON COMPANIES BOHLER

NOTES:

1. THE SUBJECT PROPERTY IS THE LANDS OF STAFFORD TECHNOLOGY LC, AS RECORDED IN INSTRUMENT NO. 230002045 AMONG THE LANDS RECORDS OF STAFFORD COUNTY, VIRGINIA AND HAVING A PID OF 38 124 PER THE DEPARTMENT OF ASSESSMENTS.
2. AREA = 20,761,167 SQUARE FEET OR 476.611 ACRES (M)
3. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE, SOURCE INFORMATION FROM PLANS AND MARKINGS HAS BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.
4. THIS SURVEY WAS PERFORMED IN THE FIELD ON FEBRUARY 6, 2023 UTILIZING THE REFERENCE DOCUMENTS AS LISTED HEREON AND DEPICTS BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS.
5. THE PROPERTY IS LOCATED IN ZONE A (NO BASE FLOOD ELEVATIONS DETERMINED) AND OTHER AREAS ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER MAP ENTITLED "FIRM, FLOOD INSURANCE RATE MAP, STAFFORD COUNTY, VIRGINIA, PANEL 139 & 143 OF 280", MAP NUMBER 5101540139E & 5101540143E, WITH A MAP REVISED DATE OF FEBRUARY 4, 2005.
6. NO SURVEY OF SUBTERRANEAN STRUCTURES OR INTERIOR SPACES SUCH AS FOOTINGS, FOUNDATIONS, VAULTS OR BASEMENTS WAS PERFORMED AS PART OF THIS LAND SURVEY, AND THIS PLAN SHOULD NOT BE CONSTRUED AS CERTIFICATION TO THE EXISTENCE OR LOCATION OF THE SAME.
7. BOHLER WAS NOT MADE AWARE OF ANY WETLAND DELINEATION PERFORMED ON THE SUBJECT PROPERTIES AND THERE WERE NO WETLAND FLAGS OBSERVED AT THE TIME OF THE FIELD SURVEY. A PHASE 1 REPORT WAS NOT PROVIDED.
8. ELEVATIONS ARE BASED ON NAVD88 DATUM DETERMINED BY GPS OBSERVATIONS AND TIED INTO NGS MONUMENT AJ5530 WITH A PUBLISHED ELEVATION OF 100 FEET.
9. TOPOGRAPHY WAS COLLECTED ON THE SUBJECT PROPERTY AND DIRECTLY ADJACENT AREAS BY COOPER AERIAL SURVEYS COMPANY ON JANUARY 9, 2023 UTILIZING A HIGH ACCURACY AERIAL LIDAR SYSTEM COLLECTING 40 POINTS PER SQUARE METER WHICH ALSO INCLUDES ACQUIRING FIVE-CENTIMETER COLOR PHOTOGRAPHY FOR MAPPING AND IMAGERY IN THE FORM OF AN ORTHORECTIFIED GSD FILE AND CONFORMS WITH THE NATIONAL MAP ACCURACY STANDARDS PUBLISHED BY THE U.S.G.S

TITLE NOTES:

THIS SURVEY IS PREPARED WITH REFERENCE TO A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. 192004448, WITH AN COMMITMENT DATE OF AUGUST 30, 2022 AND A REVISION DATE OF SEPTEMBER 8. 2022. OUR OFFICE HAS REVIEWED THE FOLLOWING SURVEY RELATED EXCEPTIONS IN SCHEDULE B, PART II:

(10) EASEMENT(S) AND/OR RIGHT(S) OF WAY GRANTED TO THE COMMONWEALTH OF VIRGINIA AS SET FORTH IN THE DEED(S) RECORDED IN **A)** DEED BOOK 19 AT PAGE 369, **B)** DEED BOOK 19 AT PAGE 370 AND DEED **C)** BOOK 19 AT PAGE 382;

A) DOES NOT AFFECT THE SUBJECT PROPERTY, DOCUMENT IS A DEDICATION OF LANDS FOR PUBLIC USE.
B) DOES NOT AFFECT THE SUBJECT PROPERTY, DOCUMENT IS A DEDICATION OF LANDS FOR PUBLIC USE.
C) DOES NOT AFFECT THE SUBJECT PROPERTY, DOCUMENT IS A DEDICATION OF LANDS FOR PUBLIC USE.

(11) EASEMENT(S) GRANTED TO VIRGINIA ELECTRIC AND POWER COMPANY AS SET FORTH IN THE INSTRUMENT(S) RECORDED IN **A)** DEED BOOK 24 AT PAGE 297, **B)** DEED BOOK 24 AT PAGE 306, **C)** DEED BOOK 24 AT PAGE 309, **D)** DEED BOOK 24 AT PAGE 422, **E)** DEED BOOK 24 AT PAGE 425, **F)** DEED BOOK 35 AT PAGE 87, **G)** DEED BOOK 38 AT PAGE 284, **H)** DEED BOOK 67 AT PAGE 211, **I)** DEED BOOK 74 AT PAGE 89 AND **J)** DEED BOOK 74 AT PAGE 292;

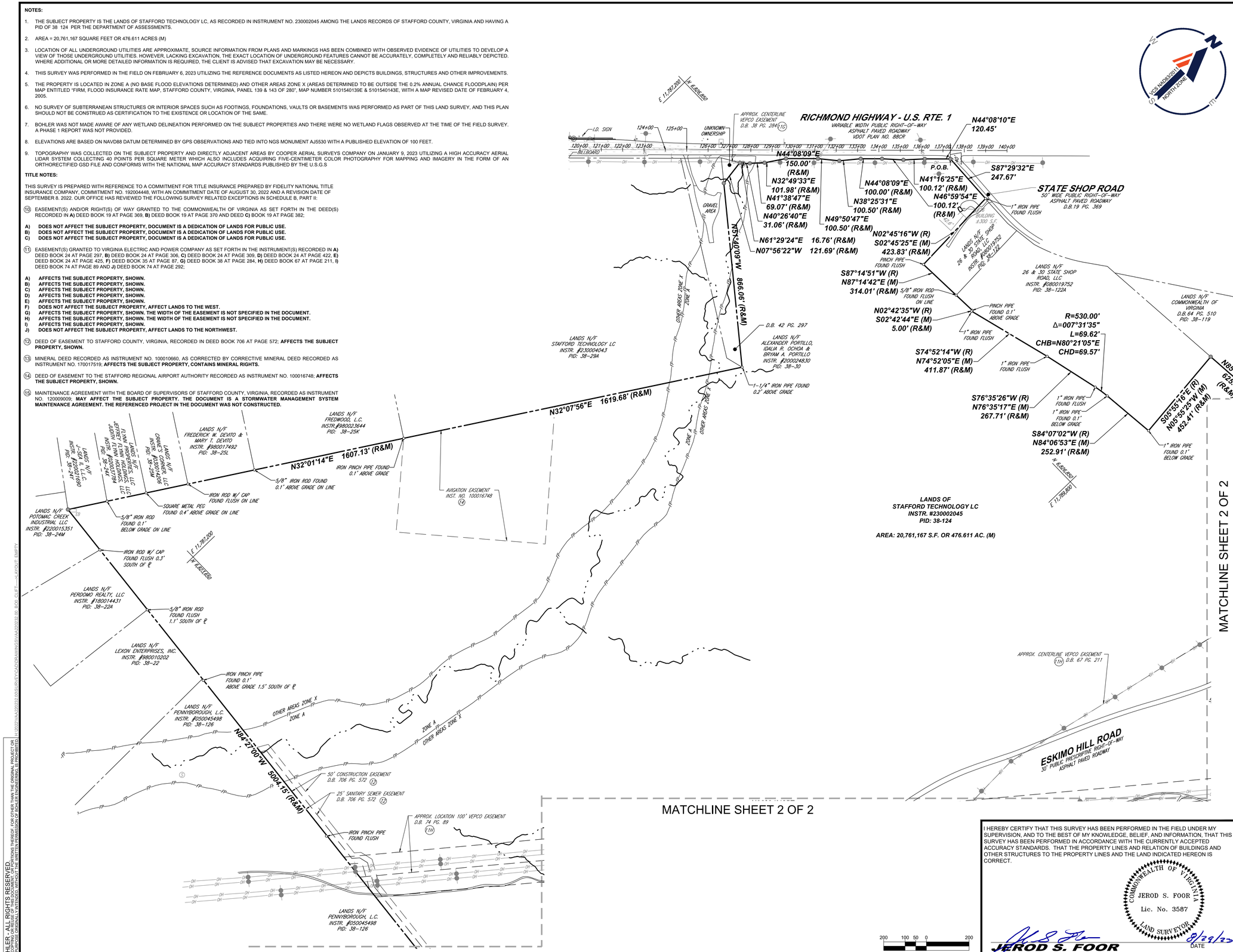
A) AFFECTS THE SUBJECT PROPERTY, SHOWN.
B) AFFECTS THE SUBJECT PROPERTY, SHOWN.
C) AFFECTS THE SUBJECT PROPERTY, SHOWN.
D) AFFECTS THE SUBJECT PROPERTY, SHOWN.
E) AFFECTS THE SUBJECT PROPERTY, SHOWN.
F) DOES NOT AFFECT THE SUBJECT PROPERTY, AFFECT LANDS TO THE WEST.
G) AFFECTS THE SUBJECT PROPERTY, SHOWN. THE WIDTH OF THE EASEMENT IS NOT SPECIFIED IN THE DOCUMENT.
H) AFFECTS THE SUBJECT PROPERTY, SHOWN. THE WIDTH OF THE EASEMENT IS NOT SPECIFIED IN THE DOCUMENT.
I) AFFECTS THE SUBJECT PROPERTY, SHOWN.
J) DOES NOT AFFECT THE SUBJECT PROPERTY, AFFECT LANDS TO THE NORTHWEST.

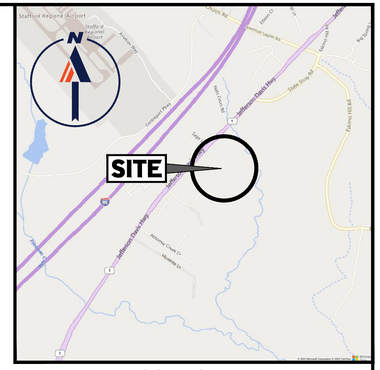
(12) DEED OF EASEMENT TO STAFFORD COUNTY, VIRGINIA, RECORDED IN DEED BOOK 706 AT PAGE 572; **AFFECTS THE SUBJECT PROPERTY, SHOWN.**

(13) MINERAL DEED RECORDED AS INSTRUMENT NO. 100010660, AS CORRECTED BY CORRECTIVE MINERAL DEED RECORDED AS INSTRUMENT NO. 170017519; **AFFECTS THE SUBJECT PROPERTY, CONTAINS MINERAL RIGHTS.**

(14) DEED OF EASEMENT TO THE STAFFORD REGIONAL AIRPORT AUTHORITY RECORDED AS INSTRUMENT NO. 100016748; **AFFECTS THE SUBJECT PROPERTY, SHOWN.**

(15) MAINTENANCE AGREEMENT WITH THE BOARD OF SUPERVISORS OF STAFFORD COUNTY, VIRGINIA, RECORDED AS INSTRUMENT NO. 120009009; **MAY AFFECT THE SUBJECT PROPERTY. THE DOCUMENT IS A STORMWATER MANAGEMENT SYSTEM MAINTENANCE AGREEMENT. THE REFERENCED PROJECT IN THE DOCUMENT WAS NOT CONSTRUCTED.**




SITE
Stafford Regional Airport
Stafford Regional Airport
Jefferson Davis Hwy
Truslow Rd
Truslow Ln
Stafford Ln
Jefferson Davis Hwy
Courthouse Rd
Courthouse Rd
Garrisonville Rd
Garrisonville Rd
Stafford Hospital
Stafford Hospital
Mine Rd
Mine Rd
Mine Rd
Mine Rd
Jefferson Davis Hwy
Jefferson Davis Hwy
Jefferson Davis Hwy
Jefferson Davis Hwy
Truslow Rd
Truslow Ln
Truslow Ln
Stafford Ln
Stafford Ln

SURVEYED DESCRIPTION

LANDS OF
STAFFORD TECHNOLOGY LC
INST. NO. 230002045
AQUIA MAGISTERIAL DISTRICT
STAFFORD COUNTY, VA
PID 38-124

BEGINNING AT THE INTERSECTION OF THE EASTERLY RIGHT-OF-WAY LIMITS OF RICHMOND HIGHWAY - U.S. ROUTE 1 (VARIABLE WITH RIGHT OF WAY) AND WITH THE SOUTHERLY RIGHT-OF-WAY LIMITS OF STATE SHOP ROAD (50' RIGHT-OF-WAY) ON THE NORTH AND THE LANDS OF STAFFORD TECHNOLOGY LC (INST. NO. 230002045) ON THE SOUTH, THENCE WITH SAID SOUTHERLY RIGHT-OF-WAY LIMITS;

1. SOUTH 87° 29' 32" EAST, 247.67 TO AN IRON PIPE FOUND MARKING THE INTERSECTION OF SAID SOUTHERLY RIGHT-OF-WAY LIMITS AND WITH THE DIVISION LINE BETWEEN THE LANDS OF 26 & 30 STATE SHOP ROAD, LLC (INST. NO. 080019752) ON THE EAST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE WEST, THENCE DEPARTING SAID RIGHT-OF-WAY LIMITS AND WITH SAID DIVISION LINE THE FOLLOWING EIGHT (8) COURSES AND DISTANCES;

2. SOUTH 02° 45' 25" EAST, 423.83 FEET TO A PINCH PIPE FOUND, THENCE;

3. CONTINUING, NORTH 87° 14' 42" EAST, 314.01 FEET TO A PINCH PIPE FOUND, THENCE;

4. CONTINUING, SOUTH 02° 42' 44" EAST, 5.00 FEET TO A 1" IRON PIPE FOUND, THENCE;

5. CONTINUING, NORTH 74° 52' 05" EAST, 411.87 FEET TO A 1" IRON PIPE FOUND, THENCE;

6. CONTINUING, NORTH 76° 35' 17" EAST, 267.71 FEET TO A 1" IRON PIPE FOUND; THENCE

7. CONTINUING, 69.62 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 530.00 FEET, A CENTRAL ANGLE OF 07° 31' 35", AND A CHORD BEARING AND DISTANCE OF NORTH 80° 21' 05" EAST, 69.57 FEET TO A 1" IRON PIPE FOUND, THENCE;

8. CONTINUING, NORTH 84° 06' 53" EAST, 252.91 FEET TO A 1" IRON PIPE FOUND, THENCE;

9. CONTINUING, NORTH 05° 55' 25" WEST, 452.41 FEET TO THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF THE COMMONWEALTH OF VIRGINIA (DEED BOOK 64 PAGE 510) ON THE NORTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH, THENCE WITH SAID DIVISION LINE AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN THE LANDS OF DOSA INCORPORATED (INST. NO. 130018945) AND THE LANDS OF SAKHAWAT HUSSAIN & MOHAMMAD SIBAR ASHRAF (INST. NO. 190007453) BOTH ON THE NORTH AND SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH, THENCE WITH SAID DIVISION LINE;

10. NORTH 85° 10' 47" EAST, 625.54 FEET TO A 1 1/4" IRON PIPE FOUND MARKING THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF CROCKETT KELLY AND CREAMA J. KELLY (DEED BOOK 456 PAGE 112) ON THE EAST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE WEST AND FURTHER CONTINUING WITH DIVISION LINE BETWEEN THE LANDS OF MELVIN O MARTINEX EXCOBAR (INST. NO. 220015447), THE LANDS OF DONALD R. LLOYD, SR. AND MELODY LLOYD (INST. NO. 980011841), THE LANDS OF WILLIAM & PHICILLA ATCHINSON (INST. NO 0550023707), AND THE LANDS OF CARL R. TOLBERT (DEED BOOK 788 PAGE 81) ON THE EAST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE WEST, THENCE WITH SAID DIVISION LINE THE FOLLOWING TWO (2) COURSES AND DISTANCES;

11. SOUTH 30° 26' 08" EAST, 994.60 FEET, TO THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN SAID LANDS OF CARL R. TOLBERT ON THE NORTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN ESKIMO HILL ROAD (30' PRESCRIPTIVE RIGHT-OF-WAY AND 25' WIDE RIGHT-OF-WAY), THE LANDS OF KENDALL HILL HOMEOWNERS ASSOCIATION, INC. (INST. NO. 220019906), THE LANDS OF TRIDEX ASSOCIATES, INC. (INST. NO. 070001332) ALL ON THE NORTH AND SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH THE FOLLOWING TWO (2) COURSES AND DISTANCES;

12. NORTH 72° 13' 46" EAST, 2438.68 FEET TO AN IRON ROD FOUND, THENCE;

13. CONTINUING, NORTH 25° 36' 57" EAST, 214.73 FEET TO A 18" MAPLE TREE, MARKING THE SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF BOARD OF SUPERVISORS OF STAFFORD COUNTY (DEED BOOK 529 PAGE 215) ON THE NORTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH, THENCE WITH SAID DIVISION LINE;

14. SOUTH 87° 20' 01" EAST, 200.35 FEET TO AN IRON ROD FOUND, THENCE CONTINUING WITH SAID DIVISION LINE AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN THE LANDS OF THE LANDS OF CITY OF FREDERICKSBURG (DEED BOOK 782 PAGE 588) AND THE LANDS OF COMMONWEALTH OF VIRGINIA (DEED BOOK 465 PAGE 287) ON THE EAST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE WEST, THENCE WITH SAID DIVISION LINE;

15. SOUTH 21° 37' 59" WEST, 5329.91 FEET TO A 38" WHITE OAK TREE, MARKING THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF RONNIE E. AND BETTY A. FRANKS (INST. NO. 070005619) ON THE SOUTH AND SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE NORTH, THENCE WITH SAID DIVISION LINE AND FURTHER CONTINUING WITH THE LANDS OF MATTHEW F. SHANNON (DEED BOOK 459 PAGE 663), THE LANDS OF PENNYBOROUGH, L.C. (INSTR. NO. 050045498), THE LANDS OF LEXON ENTERPRISES, INC. (INST. NO. 980010202), THE LANDS OF PERDOMO REALTY, LLC (INST. NO. 180014431), AND THE LANDS OF POTOMAC CREEK INDUSTRIAL (INST. NO. 220015351) ALL ON THE SOUTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE NORTH, THENCE WITH SAID DIVISION LINE;

16. NORTH 84° 27' 00" WEST, 5004.15 FEET TO THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF J-SEA II, L.L.C. (INST. NO. 220021690) ON THE WEST AND SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE EAST, AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN THE LANDS OF FLYNN PROPERTIES, LLC, JEFFRY FLYNN HOLDINGS, LLC JUDITH FLYNN HOLDINGS, LLC (INST. NO. 020037784), THE LANDS OF CRANE'S CORNER, LLC (INST. NO. 030014206), THE LANDS OF FREDERICK W. AND MARY T. DEVITO (INST. NO. 980017492), AND THE LANDS OF FREDWOOD, L.C. (INST. NO. 980023644) ALL ON THE WEST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE EAST, THENCE WITH SAID DIVISION LINE;

17. NORTH 32° 01' 14" EAST, 1607.13 FEET TO A PINCH PIPE FOUND, MARKING THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF STAFFORD TECHNOLOGY LC (INST. NO. 230004043) ON THE WEST AND THE LANDS OF STAFFORD TECHNOLOGY LC (INST. NO. 230004045) ON THE EAST, THENCE WITH SAID DIVISION LINE;

18. NORTH 32° 07' 56" EAST, 1619.68 FEET TO A 1 1/4" IRON PIPE FOUND, MARKING THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN LANDS OF ALEXANDER PORTILLO, IDALIA R. OCHOA & BRYAM A. PORTILLO (INST. NO. 200024830) ON THE SOUTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE NORTH, THENCE WITH SAID DIVISION LINE;

19. NORTH 51° 40' 09" WEST, 866.06 FEET TO THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN AN AREA OF UNKNOWN OWNERSHIP ON THE WEST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE EAST, THENCE WITH SAID DIVISION LINE;

20. NORTH 07° 56' 22" WEST, 121.69 FEET TO THE EASTERLY RIGHT-OF-WAY LIMITS OF RICHMOND HIGHWAY - U.S. ROUTE 1, THENCE WITH SAID EASTERLY RIGHT-OF-WAY LIMITS THE FOLLOWING ELEVEN (11) COURSES AND DISTANCES;

21. NORTH 61° 29' 24" EAST, 16.76 FEET, THENCE;

22. CONTINUING, NORTH 40°26' 40" EAST, 31.06 FEET, THENCE;

23. CONTINUING, NORTH 41° 38' 47" EAST, 69.07 FEET, THENCE;

24. CONTINUING, NORTH 32° 49' 33" EAST, 101.98 FEET, THENCE;

25. CONTINUING, NORTH 44° 08' 09" EAST, 150.00 FEET, THENCE,

26. CONTINUING, NORTH 49° 50' 47" EAST, 100.50 FEET, THENCE;

27. CONTINUING, NORTH 38° 25' 31" EAST, 100.50 FEET, THENCE;

28. CONTINUING, NORTH 44° 08' 09" EAST, 100.00 FEET, THENCE

29. CONTINUING, NORTH 46° 59' 54" EAST, 100.12 FEET, THENCE

30. CONTINUING, NORTH 41° 16' 25" EAST, 100.12 FEET, THENCE;

31. CONTINUING, NORTH 44° 08' 10" EAST, 120.45 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPT:

LANDS OF
VIRGINIA ELECTRIC AND POWER COMPANY
DEED BOOK 262 PAGE 243
PID 38-123A

COMMENCING AT A 38" WHITE OAK TREE, MARKING THE INTERSECTION OF THE DIVISION LINE BETWEEN LANDS OF COMMONWEALTH OF VIRGINIA (DEED BOOK 465 PAGE 287) ON THE EAST, THE LANDS OF RONNIE E. AND BETTY A. FRANKS (INST. NO. 070005619) ON THE SOUTH, AND THE LANDS OF STAFFORD TECHNOLOGY LC (INST. NO. 230002045) ON THE NORTH, THENCE WITH A LINE THROUGH SAID LANDS OF STAFFORD TECHNOLOGY;

A. NORTH 43° 04' 22" WEST, 1988.90 FEET TO A 5/8" IRON ROD FOUND MARKING THE POINT OF BEGINNING AND THE DIVISION LINE OF THE LANDS OF VIRGINIA ELECTRIC AND POWER COMPANY (DEED BOOK 262 PAGE 243) ON THE NORTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH, THENCE WITH SAID DIVISION LINE THE FOLLOWING FOUR (4) COURSES AND DISTANCES;

1. NORTH 51° 22' 00" WEST, 465.00 FEET TO A 1" IRON PIPE FOUND, THENCE;

2. CONTINUING NORTH 38° 34' 42" EAST, 723.90 FEET TO THE CENTER OF ESKIMO HILL ROAD (30 FOOT PRESCRIPTIVE RIGHT-OF-WAY), THENCE WITH THE CENTERLINE OF ESKIMO HILL ROAD;

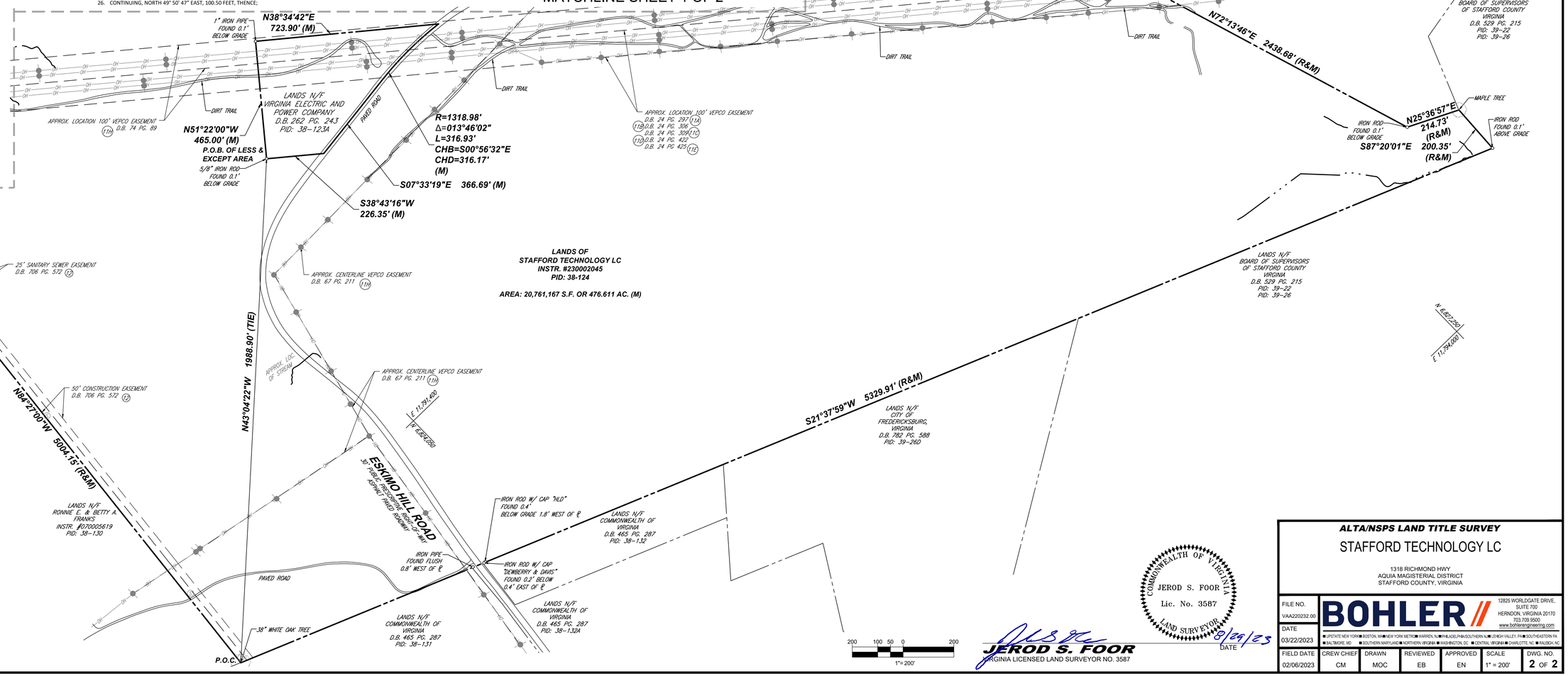
3. 316.93 FEET ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 1318.98 FEET, A CENTRAL ANGLE OF 13° 46' 02" AND A CHORD BEARING AND DISTANCE OF SOUTH 00° 56' 32" EAST, 316.17 FEET, THENCE;

4. SOUTH 07° 33' 19" WEST, 366.69 FEET, THENCE CONTINUING WITH SAID DIVISION LINE AND DEPARTING ESKIMO HILL ROAD;

5. SOUTH 38° 43' 16" WEST, 226.35 FEET TO THE POINT OF BEGINNING.

CONTAINING 20,761,167 SQUARE FEET OR 476.611 ACRES.

BEING THE PROPERTY AS DESCRIBED IN A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. 192004448, HAVING A REVISED COMMITMENT DATE OF SEPTEMBER 8, 2022, AND IS SUBJECT TO RESTRICTIONS, COVENANTS, AND/OR EASEMENTS, WRITTEN OR IMPLIED.



LEGEND

- STREAM
- OH — OVERHEAD WIRES
- TREE LINE
- (5) TITLE REPORT EXCEPTION
- UTILITY POLE NO NUMBER
- HYDRANT
- STORM DRAIN MANHOLE
- SIGN
- MAIL BOX
- BOLLARD
- (M) MEASURED
- (R) RECORD
- 123 EXISTING CONTOUR
- PROP. CORNER TO BE SET
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT
- ELECTRIC BOX
- SANITARY MANHOLE

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JEROD S. FOOR
Lic. No. 3587
COMMONWEALTH OF VIRGINIA
LAND SURVEYOR

JEROD S. FOOR
VIRGINIA LICENSED LAND SURVEYOR NO. 3587

8/29/23
DATE

ALTA/NSPS LAND TITLE SURVEY

STAFFORD TECHNOLOGY LC

1318 RICHMOND HWY
AQUIA MAGISTERIAL DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DRIVE, SUITE 700
HERNDON, VIRGINIA 20170
703.709.9500
www.bohlerengineering.com
■ UPSTATE NEW YORK ■ BOSTON, MA ■ NEW YORK METRO ■ WARREN, NJ ■ PHILADELPHIA/SOUTHERN NJ ■ LEHIGH VALLEY, PA ■ SOUTHEASTERN PA
■ BALTIMORE, MD ■ SOUTHERN MARYLAND ■ NORTHERN VIRGINIA ■ WASHINGTON, DC ■ CENTRAL VIRGINIA ■ CHARLOTTE, NC ■ RALEIGH, NC

FILE NO.	DATE	FIELD DATE	CREW CHIEF	DRAWN	REVIEWED	APPROVED	SCALE	DWG. NO.
VAA220232.00	03/22/2023	02/06/2023	CM	MOC	EB	EN	1" = 200'	2 OF 2

NOTES:

1. THE SUBJECT PROPERTY IS PARCEL B AS RECORDED IN PLAT MAP INSTRUMENT NO. 110000055 AND BEING THE LANDS OF STAFFORD TECHNOLOGY LC AS RECORDED IN INSTRUMENT NO. 230004043 AMONG THE LANDS RECORDS OF STAFFORD COUNTY, VIRGINIA AND HAVING A PID OF 38 29A PER THE DEPARTMENT OF ASSESSMENTS.
2. AREA = 1,186,216 SQUARE FEET OR 27.2318 ACRES (RECORD)
   1,186,029 SQUARE FEET OR 27.227 ACRES (MEASURED)
3. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE, SOURCE INFORMATION FROM PLANS AND MARKINGS HAS BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.
4. THIS SURVEY WAS PERFORMED IN THE FIELD ON FEBRUARY 6, 2023 UTILIZING THE REFERENCE DOCUMENTS AS LISTED HEREON AND DEPICTS BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS.
5. THE PROPERTY IS LOCATED IN ZONE A (NO BASE FLOOD ELEVATIONS DETERMINED) AND OTHER AREAS ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER MAP ENTITLED "FIRM, FLOOD INSURANCE RATE MAP, STAFFORD COUNTY, VIRGINIA, PANEL 139 & 143 OF 280", MAP NUMBER 5101540139E & 5101540143E, WITH A MAP REVISED DATE OF FEBRUARY 4, 2005.
6. NO SURVEY OF SUBTERRANEAN STRUCTURES OR INTERIOR SPACES SUCH AS FOOTINGS, FOUNDATIONS, VAULTS OR BASEMENTS WAS PERFORMED AS PART OF THIS LAND SURVEY, AND THIS PLAN SHOULD NOT BE CONSTRUED AS CERTIFICATION TO THE EXISTENCE OR LOCATION OF THE SAME.
7. BOHLER WAS NOT MADE AWARE OF ANY WETLAND DELINEATION PERFORMED ON THE SUBJECT PROPERTIES AND THERE WERE NO WETLAND FLAGS OBSERVED AT THE TIME OF THE FIELD SURVEY. A PHASE 1 REPORT WAS NOT PROVIDED.
8. ELEVATIONS ARE BASED ON NAVD88 DATUM DETERMINED BY GPS OBSERVATIONS AND TIED INTO NGS MONUMENT AJ5530 WITH A PUBLISHED ELEVATION OF 100 FEET.
9. TOPOGRAPHY WAS COLLECTED ON THE SUBJECT PROPERTY AND DIRECTLY ADJACENT AREAS BY COOPER AERIAL SURVEYS COMPANY ON JANUARY 9, 2023 UTILIZING A HIGH ACCURACY AERIAL LIDAR SYSTEM COLLECTING 40 POINTS PER SQUARE METER WHICH ALSO INCLUDES ACQUIRING FIVE-CENTIMETER COLOR PHOTOGRAPHY FOR MAPPING AND IMAGERY IN THE FORM OF AN ORTHORECTIFIED GSD FILE AND CONFORMS WITH THE NATIONAL MAP ACCURACY STANDARDS PUBLISHED BY THE U.S.G.S.

TITLE NOTES:

THIS SURVEY IS PREPARED WITH REFERENCE TO A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. 192004528, WITH AN COMMITMENT DATE OF JANUARY 16, 2023 AND A REVISION DATE OF JANUARY 30, 2023. OUR OFFICE HAS REVIEWED THE FOLLOWING SURVEY RELATED EXCEPTIONS IN SCHEDULE B, PART II:

(9) SUBJECT TO ALL RESTRICTIONS, INCLUDING BUT NOT LIMITED TO, HEIGHT RESTRICTIONS; RESOURCE PROTECTION AREA BUFFER; THE AVIATION EASEMENT AND BOUNDARY LINE ADJUSTMENT AS SET FORTH IN THE AGREED FINAL ORDER CONFIRMING SETTLEMENT AND TITLE TO THE PERMANENT AIRSPACE EASEMENT IN STAFFORD REGIONAL AIRPORT AUTHORITY VS. SUSANNE B. GESLOIS RECORDED IN INSTRUMENT NO. LR 110014352 AND PLAT NOTES AS PER THE PLAT RECORDED AT PLAT MAP 110012005 AND OWNER'S CONSENT AND DEDICATION CONTAINED THEREIN; **AFFECT THE SUBJECT PROPERTY, PLOTTABLE ITEMS ARE SHOWN.**

(10) SUBJECT TO ALL PLAT NOTES AS PER THE PLAT RECORDED AT PLAT MAP 110000055; **AFFECT THE SUBJECT PROPERTY, THE RESOURCE PROTECTION AREA LIMITS ARE SHOWN.**

(11) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD, VIRGINIA AS DEED BOOK 38, PAGE 284; **MAY AFFECT THE SUBJECT PROPERTY, A POLE LINE ALONG RICHMOND HIGHWAY WAS PRESENT AT THE TIME OF THE SURVEY. POSSIBLE CENTERLINE LOCATION SHOWN.**

(12) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA IN DEED BOOK 38, AT PAGE 551; **MAY AFFECT THE SUBJECT PROPERTY, A POLE LINE ALONG RICHMOND HIGHWAY WAS PRESENT AT THE TIME OF THE SURVEY. POSSIBLE CENTERLINE LOCATION SHOWN.**

(13) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA IN DEED BOOK 84, AT PAGE 577 AND SHOWN ON PLAT RECORDED IN VPB 1, PAGE 576; **MAY AFFECT THE SUBJECT PROPERTY, VAGUE AND INSUFFICIENT INFORMATION IN THE RECORD DOCUMENTS.**

(14) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA IN DEED BOOK 168, AT PAGE 462, AND SHOWN ON PLAT RECORDED IN VPB 4, PAGE 175; **AFFECTS THE SUBJECT PROPERTY, APPROXIMATE LOCATION IS SHOWN.**

(15) FIFTY FOOT INGRESS/EGRESS EASEMENT RECORDED IN DEED BOOK 707, PAGE 774 AND PLAT BOOK 19, PAGE 108, IS NOTED AS EXTINGUISHED ON PLAT MAP 110000055; **DOES NOT AFFECT THE SUBJECT PROPERTY, THE EASEMENT HAS BEEN VACATED.**

(16) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA IN DEED BOOK 168, AT PAGE 464, AS SHOWN ON PLAT RECORDED IN VPB 4, PAGE 176; **AFFECTS THE SUBJECT PROPERTY, APPROXIMATE LOCATION IS SHOWN.**

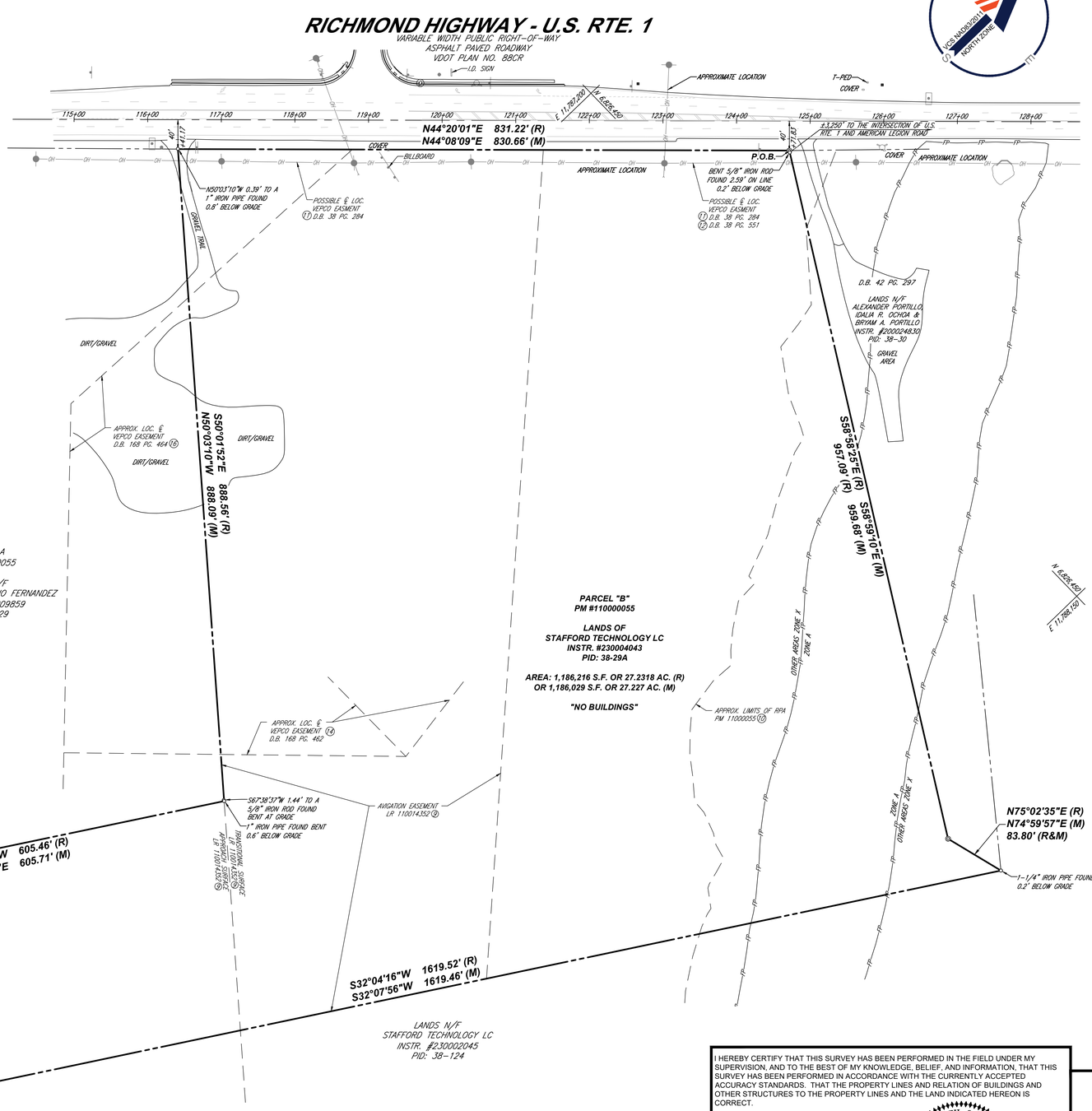
TITLE DESCRIPTION

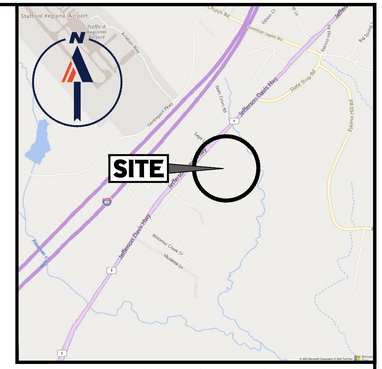
ALL THAT CERTAIN PIECE OR PARCEL OF LAND, LYING AND BEING IN STAFFORD COUNTY, VIRGINIA AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

ALL THAT CERTAIN LOT OR PARCEL OF LAND, CONTAINING 27.2318 ACRES, MORE OR LESS, SITUATE IN AQUIA DISTRICT OF STAFFORD COUNTY, VIRGINIA, AS SHOWN AS PARCEL B ON THAT CERTAIN PLAT OF SUSANNE B. GESLOIS, BY ROSS, FRANCE & RATLIFF, LTD. DATED JUNE 22, 2011 AND RECORDED AS PLAT NO. PM 110000055.

LESS AND EXCEPT THE AVIGATION EASEMENT WHICH ENCUMBERS 15.2535 ACRES, MORE OR LESS, TO STAFFORD REGIONAL AIRPORT FOR A PERPETUAL AIRSPACE EASEMENT AS SHOWN ON THE PLAT RECORDED AS PLAT NO. PM 110012005 AND AS SET FORTH IN THE AGREED FINAL ORDER CONFIRMING SETTLEMENT AND TITLE RECORDED IN INSTRUMENT NO. LR 110014352.

AND BEING A PORTION OF THE SAME PROPERTY CONVEYED BY SUSANNE BRADLEY GESLOIS, ALSO KNOWN AS SUSANNE D. GRADLEY TO SUSANNE BRADLEY GESLOIS, TRUSTEE OF THE SUSANNE BRADLEY GESLOIS REVOCABLE LIVING TRUST DATED DECEMBER 18TH, 2017 BY DEED DATED SEPTEMBER 18, 2019 AND RECORDED SEPTEMBER 30, 2019 IN INSTRUMENT NO. LR190017437 RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA.





LOCATION MAP

SCALE: 1"=2000'

LEGEND

- OH — OVERHEAD WIRES
- TREE LINE
- (5) TITLE REPORT EXCEPTION
- UTILITY POLE NO NUMBER
- HYDRANT
- STORM DRAIN MANHOLE
- SIGN
- MAIL BOX
- BOLLARD
- *(M)* MEASURED
- *(R)* RECORD
- *P.O.B.* POINT OF BEGINNING

I HEREBY CERTIFY THAT THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THAT THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH THE CURRENTLY ACCEPTED ACCURACY STANDARDS. THAT THE PROPERTY LINES AND RELATION OF BUILDINGS AND OTHER STRUCTURES TO THE PROPERTY LINES AND THE LAND INDICATED HEREON IS CORRECT.

COMMONWEALTH OF VIRGINIA
JEROD S. FOOR
Lic. No. 3587
LAND SURVEYOR

JEROD S. FOOR
VIRGINIA LICENSED LAND SURVEYOR NO. 3587

5/28/23
DATE

BOUNDARY SURVEY

STAFFORD TECHNOLOGY LC

1318 RICHMOND HWY
AQUIA MAGISTERIAL DISTRICT
STAFFORD COUNTY, VIRGINIA

FILE NO.	DATE	FIELD DATE	CREW CHIEF	DRAWN	REVIEWED	APPROVED	SCALE	DWG. NO.
VAA220232.00	03/01/2023	02/06/2023	CM	CT	EB	EN	1" = 80'	1 OF 1

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12825 WORLDGATE DRIVE, SUITE 700
HERNDON, VIRGINIA 20170
703.709.9500
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J:\PROJECTS\2022\VAA220232.00\SURVEY\DWG\VAA220232.00 SURVEY.DWG, 3/1/2023 10:49:21 AM, KRISTEN LAWRENCE, BY: ROB, JAKE

COMMONWEALTH of VIRGINIA
DEPARTMENT OF TRANSPORTATION
87 Deacon Road
Fredericksburg, Virginia 22405

Stephen C. Brich, P.E.
COMMISSIONER

May 24, 2024

County of Stafford
P. O. Box 339
Stafford, VA 22555-0339

Re: Stafford Technology Campus – Rezoning – GDP and TIA – REW 4 - VDOT Comments
RC23154931; Stafford County

Dear Mr. Zuraf:

The Virginia Department of Transportation reviewed the rezoning for the above referenced project and have the following comments:

This submission did not have an updated TIA or Transportation Plan and consisted of mostly changes to the language in the Proffer Statement. There are still outstanding VDOT comments regarding the TIA and Transportation Plan as well as comments that the applicant indicates will be addressed at a later submission, VDOT will be carry these comments throughout the review process for tracking purposes.

VDOT Comments dated May 24, 2024	
VDOT Comment	Applicant's Response to REW 3 Comments
GDP	
1. Please provide a typical section of the Connector Road, including the connection section at Rte. 1 that will be a different width due to tum lanes and the remaining portion of the roadway that appears to be a two-lane road based on the existing conditions of Eskimo Hill Road. **VDOT REW 4 Response: Acknowledged**	The necessary right-of-way and full design will be prepared and submitted to VDOT for review for each segment of the Connector Road in advance of the buildings that it will serve. The road will be designed as a two-lane roadway with accommodation for future widening to four lanes by others and connection to the existing eastern two-lane segment of Eskimo Hill Road.

2. General: All entrances and connections on the new connection road need to meet VDOT Road Design Manual and Access Management standards (spacing, sight distance, etc.). **VDOT REW 4 Response: Acknowledged**	Please see Proffer 26.a.iii. addressing this comment.
Transportation Plan	
3. Sheet 1: The call out for Hospital Center Boulevard restripe eastbound approach need to state "two" through lanes. It currently is called out as one through lane. a. This also needs to be corrected on Sheet 2. **VDOT REW 4 Response: VDOT previously suggested the applicant study a potential mitigation measure to restripe the EB approach to provide dual right turns and a single through lane. We did not specify this as an acceptable mitigation measure as suggested by the applicant, but rather as an option to be investigated. While the applicant's analysis shows that this measure would address some of the deficiencies at the intersection, this change would result in a forecast PM peak hour queue of 2,524 feet for the EB through movement. This indicates the need for both the dual right turns as well as dual through lanes. Simply restriping the approach with dual right turn lanes by taking away a through lane is not an acceptable solution. Alternative mitigation needs to be provided.**	The conversion of the rightmost through lane to a right turn lane was specifically requested by VDOT in an earlier comment The Applicant has proffered this improvement in the event that VDOT and/or the County request it. There are constraints at the corner of Hospital Center Boulevard and Rte. 1 that restrict the ability to add a right turn lane on the outer edge of the existing lanes. Please see the constraints shown on the Transportation Plan submitted with this application. The additional turn lane was proffered as part of the Burns Corner development.

4. General: The comment response sheet as well as the Transportation Plan states a Signal Justification Report and/or an Innovative Intersection design will be submitted for VDOT review. a. When will the SJR be submitted for review? b. When will a Innovative Intersection design be submitted for review? This will need to be reviewed and approved by District Traffic Engineering prior to being sent to VDOT Central Office Innovative Intersection Committee for review and approval. **VDOT REW 4 Response: This comment is being repeated for tracking purposes.**	An SJR including alternative intersection evaluation will be prepared and submitted to VDOT prior to zoning approval.
5. Repeat Comment: This project proposes a realignment of Eskimo Hill Road and a new connection to Rte. 1 (Richmond Highway) across from Sage Lane. There is a portion of this realignment that shows a connection to the existing Eskimo Hill Road that runs north to State Shop Road. This connection on the GDP states "VEPCO Property (Not part of this application)". a. When will this connection be submitted if it is not with this plan? b. NEW Comment: This was not fully addressed by the comment response. On the GDP it looks like there is new pavement/median/alignment of the existing Eskimo Hill Road. It is also called out that a Westbound Right Tum Lane will be constructed but this is not shown on the Transportation Plan or the GDP. How will this be addressed if the VEPCO Property portion of Eskimo Hill Road is not part of this application? **VDOT REW 4 Response: This comment is being repeated for tracking purposes.**	Ongoing discussions are continuing with Dominion, the connection will be proposed with a future public improvement plan and will include authorization from Dominion for disturbance on their property. If the VEPCO parcel is not part of the future improvements, adjustments will be made to the alignment to allow for the connection without encroaching on the VEPCO property.

6. Repeat Comment: General Note: Any improvements determined by the TIA will need to be added to the GDP prior to VDOT approving or signing the GDP. a. NEW Comment: The proffers and call out "as shown on the GDP" in multiple Transportation Proffer sections. Please combine the Transportation Plan and General Development Plan in to oneplan or reference the correct document in the proffers. **VDOT REW 4 Response: Acknowledged.**	Please see the revised Proffer Statement addressing this comment.
Proffers (April 24, 2024)	
7. General: The proffers refer to the GDP: however, most of the roadway improvement are on the Transportation Plan. Combine the two documents or refer to the correct one in the Proffers. **VDOT REW 4 Response: Acknowledged.**	Please see the Proffer Statement addressing this comment.
8. Transportation Improvements Connector Road: Proffer 22.a.iii: Clarify if this proffer is for commercial entrances or private driveways since the design standards are different. **VDOT REW 4 Response: Acknowledged.**	Please see Proffer 26.a.iii. which clarifies that it applies to commercial entrances.
9. Transportation Improvements Connector Road: Proffer 22.a.iv: Will the entire length of the Connector Road be 76' right of way? a. What is the typical section of the Connector Road? **VDOT REW 4 Response: Acknowledged.**	The right-of-way for the Connector Road will be dedicated up to 76', unless the County and VDOT allow less. This will allow for construction of a two-lane roadway and accommodate future widening by others to a four-lane section. Please see revised proffer.
10. Transportation Improvements Eskimo Hill Road: Proffer 22.b.i: This is not shown on the Transportation Plan or the General Development Plan. **VDOT REW 4 Response: Acknowledged.**	A note has been added to the GDP indicating the segment where shoulder improvements would apply if needed.
11. Transportation Improvements Eskimo Hill Road: Proffer 22.b.ii: For clarity, please remove "If requested by the County or VDOT,". **VDOT REW 4 Response: Acknowledged.**	Please see Proffer 26.b.ii. addressing this comment.

12. Transportation Improvements Richmond Highway: Proffer 22.e.ii.1.(b): This needsto be "two" through lanes. Currently, identified as "one". **VDOT REW 4 Response: This comment is being repeated for tracking purposes and is related to Comment 3 above.**	The conversion of the rightmost through lane to a right turn lane was specifically requested by VDOT in an earlier comment The Applicant has proffered this improvement in the event that VDOT and/or the County request it. There are constraints at the corner of Hospital Center Boulevard and Rte. 1 that restrict the ability to add a right turn lane on the outer edge of the existing lanes. Please see the constraints shown on the Transportation Plan submitted with this application. The additional turn lane was proffered as part of the Burns Corner development.
13. Transportation Improvements Richmond Highway: Proffer 22.e.iii.1: Will this tum lane be constructed with the initial site plan or is this a typo (issuance of an occupancy permit for the 1st VPD on the Property)? **VDOT REW 4 Response: Acknowledged.**	Yes, this will be completed prior to the issuance of an occupancy permit for the first building on the Property.
14. Transportation Improvements Richmond Highway: Proffer 22.e.iv: For clarity, please remove "If requested by the County or VDOT,". **VDOT REW 4 Response: Acknowledged.**	Please see Proffer 26.e.iv.addressing this comment.
15. Transportation Improvements Sage Lane: Proffer 22.f: Clarify the reference document as either the GDP or the Transportation Plan. See Comment 7 above. **VDOT REW 4 Response: Acknowledged.**	Please see Proffer 26.f. addressing this comment.
16. Eminent Domain: Proffer 23: This proffer states" In the event the Applicnt is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 22above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's expense." Does Stafford County accept this proffer? **VDOT REW 4 Response: Please provide written correspondence from the County they are in support of this process.**	To our knowledge, Stafford is supportive of this Proffer. This process is completed in other Counties in Virginia.

Impact Statement (April 24, 2024)	
17. Connector Road: a.i: The proffers refer to the GDP: however, most of the roadway improvement are on the Transportation Plan. Combine the two documents or refer to the correct one in the Proffers. **VDOT REW 4 Response: Acknowledged.**	Please see the Impact Statement addressing this comment.
18. Connector Road a.iii: Add "and meet all VDOT Road Design Manual Standards." **VDOT REW 4 Response: Acknowledged.**	Please see the Impact Statement addressing this comment.
19. Eskimo Hill Road: ii: Please remove "If requested by the County or VDOT,". This is being requested during the rezoning process. **VDOT REW 4 Response: Acknowledged.**	Please see the Impact Statement addressing this comment.
20. Connector Road b.iii: The shoulder improvements are not shown on the Transportation Plan or the GDP. Please clearly identify this improvement on the Transportation Plan and/or the GDP with a Note. **VDOT REW 4 Response: Acknowledged.**	Please see the Impact Statement addressing this comment.
21. Connector Road b.iv: This is not shown on the Transportation Plan or GDP. Please clearly identify this improvement on the Transportation Plan and/or the GDP with a Note. **VDOT REW 4 Response: Acknowledged.**	The intent of and conditions for improvements to Eskimo Hill Road have been clarified in Proffer 26.b.iv. As it is unknown if or where an emergency access may be converted to a full access road, it is infeasible to show on the GDP.
22. Connector Road b.iv.1: This is not shown on the Transportation Plan or GDP. Please clearly identify this improvement on the Transportation Plan and/or the GDP with a Note. **VDOT REW 4 Response: Acknowledged.**	The intent of and conditions for improvements to Eskimo Hill Road have been clarified in Proffer 26.b.iv. As it is unknown if or where an emergency access may be converted to a full access road, it is infeasible to show on the GDP.
23. Connector Road b.iv.2: is the intention of this improvement to construct right out only and left out only on the Connector Road from the building sites? Eskimo Hill Road runs generally east/west where there are proposed entrances, not north/south. Please clarify what the intension of this improvement. **VDOT REW 4 Response: Acknowledged.**	The intent is to improve Eskimo Hill Road between the Connector Road and any full access road on the existing north segment of Eskimo Hill Road, and to direct traffic to and from the Connector Road, in the event such access is approved. Proffer 26.b.iv. has been revised for clarity.

24. Richmond Highway e.iv: For clarity, please remove "If requested by the County or VDOT,". **VDOT REW 4 Response: This comment is being repeated for tracking purposes and is related to Comment 3 above.**	This proffer has been revised accordingly.
25. Richmond Highway e.ii. l(b): This needs to indicate "two" through lanes. Currently, identified as "one". **VDOT REW 4 Response: This comment is being repeated for tracking purposes and is related to Comment 3 above.**	The conversion of the rightmost through lane to a right turn lane was specifically requested by VDOT in an earlier comment. The Applicant has proffered this improvement in the event that VDOT and/or the County request it. There are constraints at the corner of Hospital Center Boulevard and Rte. 1 that restrict the ability to add a right turn lane on the outer edge of the existing lanes. Please see the constraints shown on the Transportation Plan submitted with this application. The additional turn lane was proffered as part of the Burns Corner development.
26. Richmond Highway e.iii.1-4: When will a Signal Justification Report and/or an Innovative Intersection design will be submitted for VDOT review. a. When will the SJR be submitted for review? When will a Innovative Intersection design be submitted for review? This will need to be reviewed and approved by District Traffic Engineering prior to being sent to VDOT Central Office Innovative Intersection Committee for review and approval. **VDOT REW 4 Response: This comment is being repeated for tracking purposes and is related to Comment 4 above.**	An SJR including alternative intersection evaluation will be prepared and submitted to VDOT prior to zoning approval.
27. Richmond Highway e.iv: For clarity, please remove "If requested by the County or VDOT,". **VDOT REW 4 Response: Acknowledged.**	This proffer has been revised accordingly.

TIA (Dated September 8, 2023)	
An updated operational analysis was not provided to VDOT for review with the third submission. VDOT is unable to determine if the operations are acceptable without an analysis being submitted by the applicant. Additionally, the following comments were not fully addressed by the applicant since the previous submission. **VDOT REW 4 Response: An updated TIA was not provided with submission four.**	No changes to the proffered road improvements or other elements of the traffic analysis have been proposed, so a revised TIA was not prepared for submission.
28. Page 48, Table 7, 2030 Future with development: a. Repeat Comment: US-1 at Hospital Center Blvd i. The previously suggested mitigation by VDOT to restripe the EB approach to provide dual right turns and a single through lane has addressed some of the deficiencies at the intersection. However, this change has resulted in forecast PM peak hour queue of 2,524 feet for the EB through movement. This indicates the need for both the dual right turns as well as dual through lanes. ii. NEW Comment: This has not been addressed. The TIA is still proposing to eliminate one of the through lanes. **VDOT REW 4 Response: Acknowledged.** b. Repeat Comment: US-1 at American Legion/Eskimo Hill i. The PM SB thru/right movement queue is reported in the table as 579 feet. However, the printout in the appendix shows 3,665 feet. This needs to be addressed.	a The conversion of the rightmost through lane to a right turn lane was specifically requested by VDOT in an earlier comment The Applicant has proffered this improvement in the event that VDOT and/or the County request it. There are constraints at the corner of Hospital Center Boulevard and Rte. 1 that restrict the ability to add a right turn lane on the outer edge of the existing lanes. Please see the constraints shown on the Transportation Plan submitted with this application. The additional turn lane was proffered as part of the Burns Corner development. b. Given the heavy through volume on Rte. 1, widening to a six-lane section along the entire corridor is likely the only way to achieve LOS D. Even alternative intersection configurations with left turn conflicts eliminated from the intersection box do not restore LOS D and short queues at the Hospital Center Boulevard intersection. Such

ii. NEW Comment: Applicant provided an explanation for the increased queue but offered no solution. Please provide a solution. **VDOT REW 4 Response: A solution has not been provided by the Applicant.** c. Repeat Comment: US-1 at Sage Lane i. The intersection is modeled with a SB through right lane with a 765 foot downstream receiving/merge lane. The existing downstream merge lane is only 225 feet. For the third lane to actually provide significant operational value, the receiving lane must be lengthened in the field. This is not reflected in the static SYNCRHO model that does not account for driver lane changing behavior. ii. Comment: This comment was deferred to the SJR with the applicant's expectation that the recommended improvement for the intersection will provide satisfactory operations. A SJR and/or an Innovative Intersection design has not been submitted to VDOT for review at this time. iii. Route 1 is on the arterial preservation network which requires a signal justification report to be completed in accordance with TE-387. This analysis must consider alternative intersection treatments. In this case, the applicant may omit roundabout consideration as that would not be considered a viable option for this location. A potential viable option may be a "through-cut" that eliminates the crossing through movements and operates the right turns under yield control so that the	a regional improvement is obviously outside the scope of any individual development projects regardless of size. c. An SJR including alternative intersection evaluation will be prepared and submitted to VDOT prior to zoning approval.

minor street movements would require only a single phase. This would require construction of a second exit lane/right tum channelization from Sage Lane. Other alternatives identified by the applicant will be considered. The SJR will need to be approved by the Innovative Intersection Committee after District approval of the TIA. iv. Comment: The submission of a SJR and/or Innovative Intersection design is a condition of approval for this plan. The plan will not be approve by VDOT prior to the submission of a SJR and/or Innovative Intersection design. **VDOT REW 4 Response: The intersection is modeled with a SB through right lane with a 765 foot downstream receiving/merge lane. The existing downstream merge lane is only 225 feet. For the third lane to provide significant operational value, the receiving lane must be lengthened in the field. This is not reflected on the Transportation Plan. The applicant also needs to provide a SYNCHRO/SimTraffic model demonstrating this lane is long enough both before and after the intersection such that it would actually be used by through traffic. The proposed improvement exiting Sage Lane needs to accommodate entering and exiting tractor trailer trucks. The Transportation Plan calls for the County or VDOT to obtain needed right-of-way. The applicant should reference the Proffers that provide more detailed conditions for right-of-way acquisition.**	

29. Page 49, Table 7, Future with development: a. US-1 at Centerport Parkway i. The mitigated analysis shows significant increases to queuing in the AM and PM peak hours for various movements. The applicant needs to provide additional mitigation to address these impacts. ii. NEW Comment: Please provide an analysis of the proposed improvement to demonstrate its acceptability. **VDOT REW 4 Response: The mitigated analysis shows significant increases to queuing in the AM and PM peak hours for various movements. The applicant has indicated that six-laning of Route 1 is needed to provide acceptable operations and that is beyond the scope of this development project. However, it appears that a third through lane can be added through the Centerport Parkway and Enon Road intersections southbound by providing a southbound right turn lane at Enon Road and converting the existing trap right turn lane to a through lane. There is adequate receiving pavement south of Enon Road to accept/merge this additional through lane.**	Given the heavy through volume on Rte. 1, widening to a six-lane section along the entire corridor is likely the only way to achieve LOS D and short queues. Such a regional improvement is obviously outside the scope of any individual development projects regardless of size.
30. Repeat Comment (Advisory for County): Page 54, Planning Scenario: The intent of this analysis was to demonstrate improvements needed to meet the requirement of no degradation of failing operations for those situations where the applicant is not proposing to provide full mitigation. This would allow the County to determine whether or not they wish to require the applicant to complete these additional improvements or make an equitable monetary contribution toward future improvements. However, the County could still consider the improvements identified by the applicant for the presented LOS D scenario. **VDOT REW 4 Response: This comment is being repeated for tracking purposes.**	It is acknowledged that the County will determine whether they wish to require additional improvements to achieve LOS D conditions.

31. VDOT REW 4 Comment: Centerport Parkway at I-95 NB ramps: **a. The applicant suggests signal timing adjustments as mitigation for operations. To assess true project impacts, signal timing adjustments must be applied to the no build condition to optimize that operation since VDOT will have already made adjustments as necessary over the course of time. These adjustments should be treated the same as geometric improvements that may be completed by others. Once this comparison is made, need for mitigation due to project traffic can be determined.**	

If further information is desired, please call Tom Washington at (540) 944-8684 or email at Thomas.Washington@vdot.virginia.gov.

Sincerely,

Carolyn Oster

Carolyn Oster, P.E.
Asst. Resident Engineer-Land Use
Fredericksburg Residency

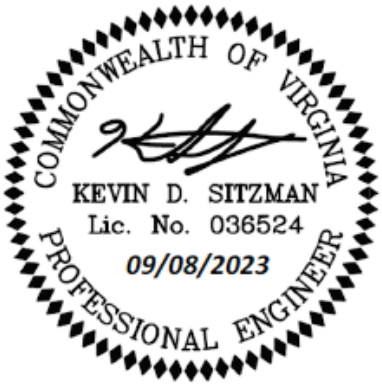
CC: Bohler & Gorove Slade

Traffic Impact Study

Stafford Technology Campus

Stafford County, Virginia

April 21, 2023
Revised September 8, 2023



Prepared for:

Peterson Companies

12500 Fair Lakes Circle

Fairfax, Virginia 22033

GOROVE SLADE
Transportation Planners and Engineers

Prepared by:



1140 Connecticut Ave NW
Suite 1010
Washington, DC 20036
T 202.296.8625

4114 Legato Road
Suite 650
Fairfax, VA 22033
T 703.787.9595

225 Reinekers Lane
Suite 750
Alexandria, VA 22314
T 703.721.3044

4951 Lake Brook Drive
Suite 250
Glen Allen, VA 23060
T 804.362.0578

www.goroveslade.com

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Executive Summary

This report presents the findings of a Traffic Impact Study (TIS) conducted for the proposed Stafford Technology Campus development (the "Site", "Development" or "Property") situated in Stafford County, Virginia.

This study was developed in accordance with the Virginia Department of Transportation ("VDOT") and Stafford County (the "County") transportation impact analysis guidelines. The document was prepared in accordance with best professional practices and standards that assess the impact of a proposed development on the transportation system. Traffic operational analyses, as presented in this TIS, involve the evaluation of anticipated roadway conditions with and without the proposed development. The analysis assists public officials and developers to balance the interrelations between efficient traffic movements with necessary lane access.

Site Location and Study Area

The Development is proposed to be located along both sides of Eskimo Hill Road (Route 628), east of US Route 1 (Richmond Highway), and south of State Shop Road. The vehicular study area includes eight existing and eight future intersections, for a total of sixteen intersections along US Route 1, Centreport Parkway, and a new Connector Road from Eskimo Hill Road to Sage Lane.

Description of Proposed Development

The site is currently undeveloped and consists of two parcels of land, fronting Eskimo Hill Road and fronting the east side of US Route 1. The two parcels, totaling approximately 523.84-acres, can be identified as Tax Parcel Numbers: 38-124 and 38-29A (collectively the "Site") or "Property"). The Property is currently zoned as A-1 Agricultural.

The Applicant is proposing to rezone the parcels from A-1 to M-1 Light Industrial in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be complete and in operation by 2030.

This report analyzes the trips generated by the Stafford Technology Campus development and its impact on traffic operations on the surrounding road network.

Principal Findings and Conclusions

Discussions regarding the study assumptions and relevant background information were held with VDOT and County staff during January 2023 and again on March 2023. The scope details the study assumptions and relevant background information discussed. A copy of the signed scoping document is included in Appendix A. This revised study is based on comments received from the County and VDOT dated May 31, 2023.

The analysis contained herein presents the 2023 Existing Conditions, 2030 Future Conditions without Development, and 2030 Future Conditions with Development:

The analysis presented in this report supports the following assumptions and major findings:

Analysis Components

- 2023 existing volumes were derived via turning movement counts collected at intersections within the study area in October 2021, June 2022, and February 2023. Turning movement counts conducted prior to 2023 were provided directly by VDOT. These traffic counts were then grown to 2023 at a rate of 2.5% (compounded per year) and applied to all movements at the counted existing study intersections to determine 2023 existing conditions.
- As determined based on the discussions and scoping document with VDOT and the County, an inherent regional growth of 2.5% per year was applied to all movements at the existing study intersections for the period between 2023 and 2030 to account for 2030 conditions.
- Six approved background developments in the vicinity of the Site were included in the study.

- The trip generation associated with the Site was based on custom data center rates as approved by VDOT. The Site in total is expected to generate approximately 523 new trips during the AM peak hour, 175 new trips during the PM peak hour, and 4,356 new daily trips on a typical weekday.
- Intersection capacity and queuing analyses were performed for all analysis scenarios at the study area intersections during the weekday morning (AM) and weekday afternoon (PM) peak hours. *Synchro*, version 11, was used to analyze the study intersections with results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) methodology and analysis guidelines provided in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) (version 2). The analysis herein includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.
- The analysis also includes preliminary turn lane warrant assessments for the Site access points along US Route 1 and the Connector Road, respectively.

Infrastructure

- The proposed access plans include the construction of a connector road that was identified on the Stafford County Comprehensive Plan. This Connector Road will extend from Eskimo Hill Road to US Route 1, forming the fourth leg of the US Route 1 at Sage Lane intersection. The Site is anticipated to have six driveway connections along the new Connector Road.

Proposed/Recommended Mitigation

The following roadway improvements are recommended to be implemented with the proposed development in 2030 in order to accommodate future roadway demand due to the changes in traffic patterns and increased vehicular traffic demand along the road network:

- Construct the two lane Connector Roadway from Eskimo Hill to US Route 1 across from Sage Lane
- Study Intersection 1: US Route 1 at Hospital Center Boulevard
    - Restripe the eastbound approach to provide dual left turn lanes, one through lane, and two right turn lanes
    - Modify the existing signal as necessary
- Study Intersection 3: US Route 1 at Sage Lane / Future Full Movement Access #1
    - Install a traffic signal
    - Install a dedicated southbound left turn lane
    - Restripe the southbound right turn lane to provide a shared through / right lane
    - Install a dedicated northbound right turn lane
    - Construct a westbound Connector Road with one shared left / through lane and one right turn lane with appropriate storage and taper.
- Study Intersection 4: US Route 1 at Centreport Parkway
    - Modify signal timings and provide a westbound right turn overlap phase
- Study Intersection 5: I-95 Northbound Ramps at Centreport Parkway
    - Modify signal timings
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

- Construct a channelized right turn lane

- Study Intersection 12: Eskimo Hill Road at Connector Road
  - Construct a westbound right turn lane

- Connector Road at All Site Driveways
  - Construct site driveways with one ingress lane and one egress lane

Analysis Results

2023 Existing Conditions

- Based on the capacity analysis of Existing Conditions, all signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours, except for the following study intersection:
  - Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Based on the capacity analysis of Existing Conditions, three existing study intersections have at least one approach that operates at levels of service (LOS E or F) for at least one peak hour.
- Based on the queueing analysis of Existing Conditions, two existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.

2030 Future Conditions without Development

- Smartscale improvements of eastbound and westbound left turn lanes at Study Intersection 2 (US Route 1 at American Legion Road / Eskimo Hill Road) were included in the analysis.
- Based on the capacity analysis of 2030 Future Conditions without Development, all signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours, except for the following study intersections:
  - Study Intersection 1: US Route 1 at Hospital Center Boulevard
  - Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
  - Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway
- Based on the capacity analysis of 2030 Future Conditions without Development, six existing study intersections are anticipated to have at least one approach that operates at levels of service E of F for at least one peak hour.
- Based on the queueing analysis of 2030 Future Conditions without Development, four existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.

2030 Future Conditions with Development

- The Site is expected to generate approximately 523 net new total trips during the AM peak hour, 175 net new trips during the PM peak hour and 4,356 net new trips during a typical weekday.
- The County's desired level of service is LOS C, while Appendix C of VDOT’s Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.

- Based on the capacity analysis of 2030 Future Conditions with Development and with the recommended mitigations in place, all signalized study intersections are anticipated to operate with similar levels of service, or better, to the 2030 Future Conditions without Development during the AM and PM peak hours.
- Based on the capacity analysis of the 2030 Future Conditions with Development and with the recommended mitigations in place, the approaches of all study intersections anticipated to operate with similar levels of service to the 2030 Future Conditions without Development during the AM and PM peak hours.
- Based on the queuing analysis performed for the 2030 Future Conditions with Development four existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.
- As listed previously, improvements are proposed to mitigate the transportation impacts of this project.

Overall Conclusion

The Applicant is proposing to construct up to 5.808 million square feet of data center uses. In order to offset the additional traffic volumes generated by the Site, the Applicant is proposing improvements in the study area to mitigate traffic impacts. Based on the capacity and queueing analysis results, the proposed development will not have a substantial impact to the surrounding transportation and roadway network under 2030 conditions, assuming that all planned designs and recommended mitigation measures discussed in this report are implemented.

Introduction

This report presents the findings of a Traffic Impact Study ("TIS") for the proposed Stafford Technology Campus (the Site / the Development / the Property), situated along Eskimo Hill Road, south of State Shop Road and east of US Route 1 in Stafford County, Virginia.

The site is currently undeveloped and consists of two parcels of land, fronting Eskimo Hill Road and fronting the east side of US Route 1. The two parcels, totaling approximately 523.84-acres, can be identified as Tax Parcel Numbers: 38-124 and 38-29A (collectively the "Site") or "Property"). The Property is currently zoned as A-1 Agricultural.

The Applicant is proposing to rezone the Property from A-1 to M-1 Light Industrial in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be complete and in operation by 2030.

The proposed access plan includes the construction of a connector road that was identified on the Stafford County Comprehensive Plan. This Connector Road will extend from Eskimo Hill Road to US Route 1, forming the fourth leg of the US Route 1 at Sage Lane intersection. The Site is anticipated to have six driveway connections along the new Connector Road. The following tasks were completed as part of this study effort:

- A scoping meeting was held on Monday, March 20, 2023 with the Virginia Department of Transportation (VDOT) and Stafford County (the County) staff to discuss the parameters of this study as well as any relevant background information. A copy of the scoping document is included in Appendix A.
- Existing conditions were observed in the field to verify roadway geometry, pedestrian and bicycle infrastructure, and traffic flow characteristics.
- Synchro files with signal timings were acquired from VDOT.
- 2023 existing volumes were derived via turning movement counts collected at intersections within the study area in October 2021, June 2022, and February 2023. Turning movement counts conducted prior to 2023 were provided directly by VDOT. These traffic counts were then grown to 2023 at a rate of 2.5% (compounded per year) and applied to all movements at the counted existing study intersections to determine 2023 existing conditions.
- The 2030 Future Conditions without Development scenario was projected based on the existing traffic volumes, an inherent growth to account for regional growth on the roadway network, and conditions related to the six approved background developments.
- Proposed Ste traffic volumes were derived based on data center rates approved by VDOT. Site trips were assigned to the road network based on the agreed upon direction of approach discussed during the aforementioned scoping meeting.
- 2030 Future Conditions with Development scenarios were projected based on the existing traffic volumes, regional growth, conditions related to approved background developments, and the projected trips generated by the proposed development.
- Intersection capacity and queueing analyses were performed for the identified study intersections for the 2023 Existing Conditions, 2030 Future Conditions without Development, and 2030 Future Conditions with Development scenarios during the weekday morning (AM), and weekday afternoon (PM) peak hours.
- Intersection capacity and queuing analyses were performed using *Synchro*, version 11, with LOS and delay results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) 6 methodology and in following VDOT's Traffic Operations and Safety Manual (TOSAM) (version 2).
- *SimTraffic,* version 11, was utilized in determining the maximum queue lengths in accordance with *SimTraffic* parameters and analysis guidelines provided in VDOT's TOSAM as well.

- Preliminary turn lane warrant assessments were conducted for the Site access points along the Connector Road.

Sources of data for this study include VDOT, the County, and the office files and field reconnaissance efforts of Gorove Slade.

Background Information: Proposed Development (Site & Nearby)

Description of the Existing Site

Site Location

The Site is located along both sides of Eskimo Hill Road (Route 628), east of US Route 1 (Richmond Highway), and south of State Shop Road. An aerial of the study vicinity is provided in **Figure 1**.

A description of the proposed Development is provided in the *Introduction* section of this report.

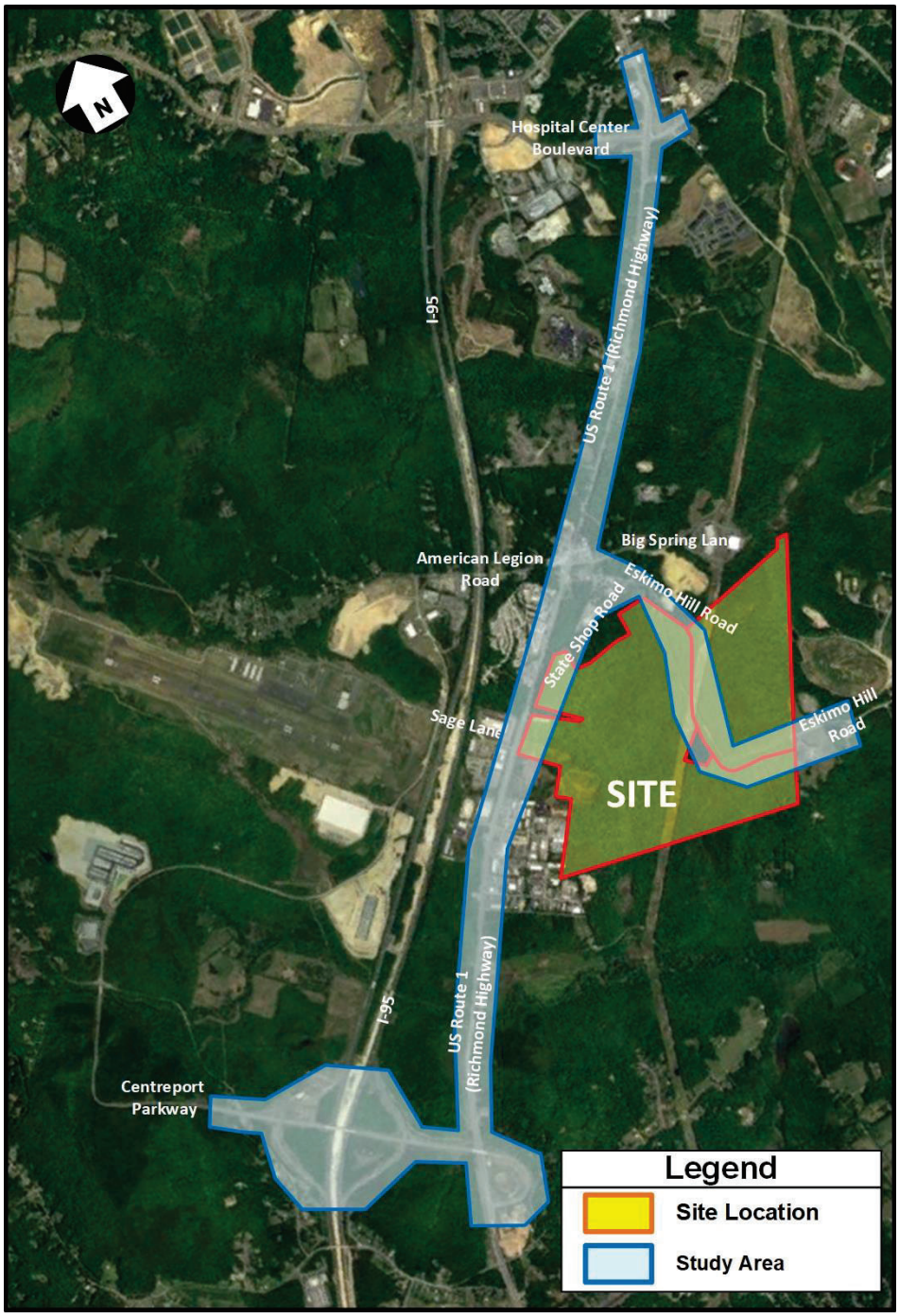

Figure 1: Site Location and Study Area

Location within Jurisdiction and Region

The Site is located to the northeast of the Interstate 95 at US Route 17 (Warrenton Road) interchange, generally east of the Stafford Regional Airport, and generally north of the City of Fredericksburg. A regional aerial of the Site is provided in **Figure 2.**

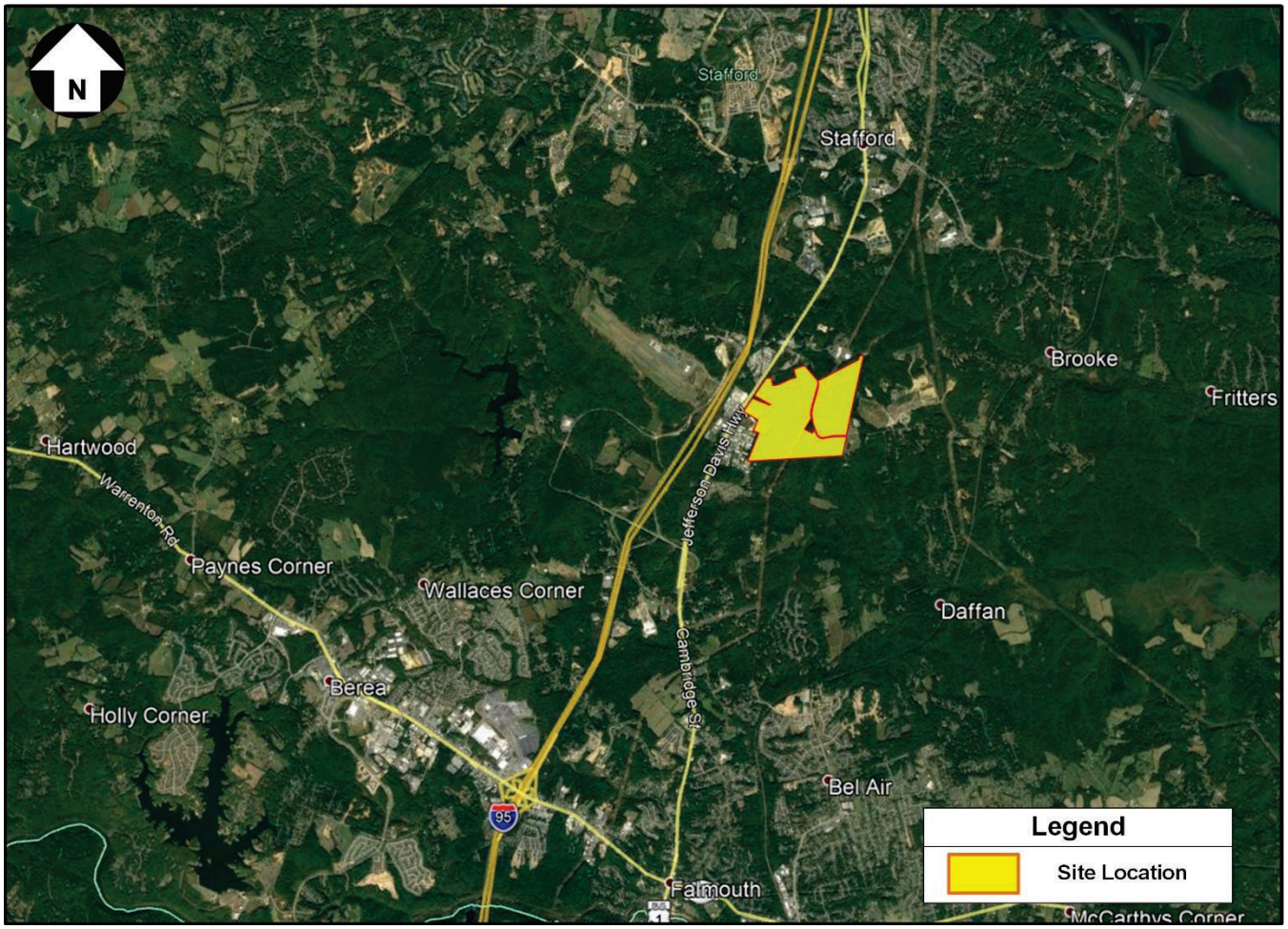

Figure 2: Regional Location

Description of the Parcel

The Site consists of two parcels of land, totaling approximately 523.84 acres. These parcels (which are generally vacant) can be identified as Tax Map Numbers 38-124 (consisting of approximately 496.71 acres of land) and 38-29A (consisting of approximately 27.23 acres of land), as illustrated in **Figure 3.**



Figure 3: Stafford County GIS Parcel Map
(Parcels source: Stafford County GIS, https://gismapping.stafford.va.us/)

Existing Zoning and Future Land-Use

The parcels are currently zoned as A-1 Agricultural. For the future land use, a portion of the Property is located in the Central Stafford Targeted Development Area (TDA) and a portion is located outside of the Urban Service Area. The Applicant is proposing to rezone the Property to M-1 and include the entire Property in the Urban Service Area.

The existing zoning is presented in **Figure 4**; the Stafford County Comp Plan future land use is presented in **Figure 5**.

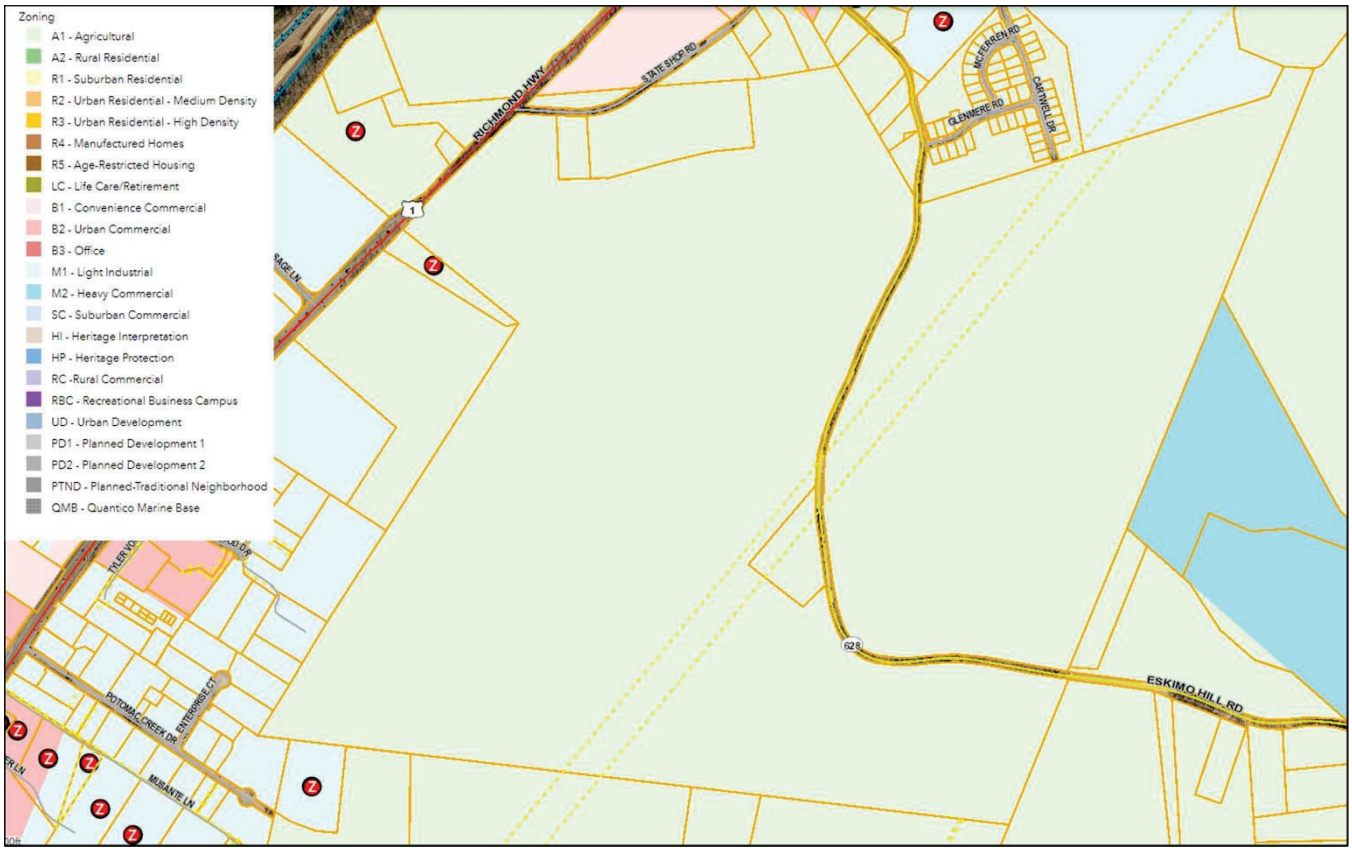

Figure 4: Stafford County Zoning Map
(Zoning Source: https://gismapping.stafford.va.us/)



Figure 5: Central Stafford Targeted Development Area Map
(Comprehensive Plan Zoning Source: https://gismapping.stafford.va.us/)

Descriptions of Geographic Scope of Study and Limits of the Study Area

The Site is situated along Eskimo Hill Road, south of State Shop Road and east of US Route 1. The geographic scope of the study area was developed in accordance with VDOT and County guidance. The vehicular study area includes the eight existing and eight future study intersections.

The existing study intersections are as follows:

Intersection 1: US Route 1 at Hospital Center Boulevard [existing full-movement, signalized],

Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road (Route 628) [existing full-movement, signalized],

Intersection 3: US Route 1 at Sage Lane / Future Access #1 [existing full-movement, unsignalized; fourth leg and traffic signal added under future with development conditions],

Intersection 4: US Route 1 at Centreport Parkway (Route 8900) [existing full-movement, signalized],

Intersection 5: Centreport Parkway (Route 8900) at Interstate 95 (I-95) southbound (NB) ramps [existing full-movement, signalized],

Intersection 6: Centreport Parkway (Route 8900) at I-95 northbound (SB) ramps [existing full-movement, signalized], and

Intersection 7: Eskimo Hill Road (Route 628) at Greenstead Road / Big Spring Road [existing full-movement, unsignalized],

Intersection 8: Eskimo Hill Road (Route 628) at State Shop Road [existing full-movement, unsignalized].

The future study intersections are as follows:

Intersection 9: Connector Road at West Campus Access #1 / West Campus Access #2 [full-movement, unsignalized],

Intersection 10: Connector Road at South Campus Access #1 [full-movement, unsignalized],

Intersection 11: Connector Road at North Campus Access #1 [full-movement, unsignalized],

Intersection 12: Connector Road at Eskimo Hill Road (Route 628) [full-movement, unsignalized],

Intersection 13: Eskimo Hill Road (Route 628) at South Campus Access #2 [full-movement, unsignalized],

Intersection 14: Eskimo Hill Road (Route 628) at North Campus Access #1 [full-movement, unsignalized],

Intersection 15: Eskimo Hill Road (Route 628) at Neighborhood Connector [full-movement, unsignalized],

Intersection 16: Neighborhood Connector at South Campus Access #3 [full-movement, unsignalized].

An aerial of the study intersections is provided in **Figure 6**.

Existing Roadway Network

A description of the major roadways within the immediate vicinity of the Site is presented below in **Table 1.**

Table 1: Summary of Existing Road Network

Roadway	RTE #	VDOT Classification	Stafford Classification	Lanes	Legal/Design Speed Limit (mph)	AADT* (vpd)	Road Segment Between:		k-factor*	HV%*
Centreport Parkway	8900	Major Collector	Major Collector	2	45	15,000	US 1	I-95	8.8%	4.0%
Eskimo Hill Road	628	Major Collector	Major Collector	2	25 / 40	2,900	US 1	Southern View Drive	12.2%	7.0%
I-95 North Ramp	I-95	Interstate Ramp	Interstate Ramp	1	35 (Advisory)	5,600	I-95 N	Centreport Parkway	11.7%	-
I-95 South Ramp	I-95	Interstate Ramp	Interstate Ramp	1	35 (Advisory)	3,800 (South Only)	I-95 S	Ramp Split	9.7%	-
Jefferson Davis Highway	1	Other Principal Arterial	Other Principal Arterial	4	45 / 50	21,000	Cranes Corner	Ramoth/Eskimo	10.8%	2.0%
Jefferson Davis Highway	1	Other Principal Arterial	Other Principal Arterial	4/6	40	18,000	Ramoth/Eskimo	Hope Road	10.6%	2.0%

*Source: VDOT 2019 AADT Traffic Data (http://www.virginiadot.org/info/2019_traffic_data.asp)

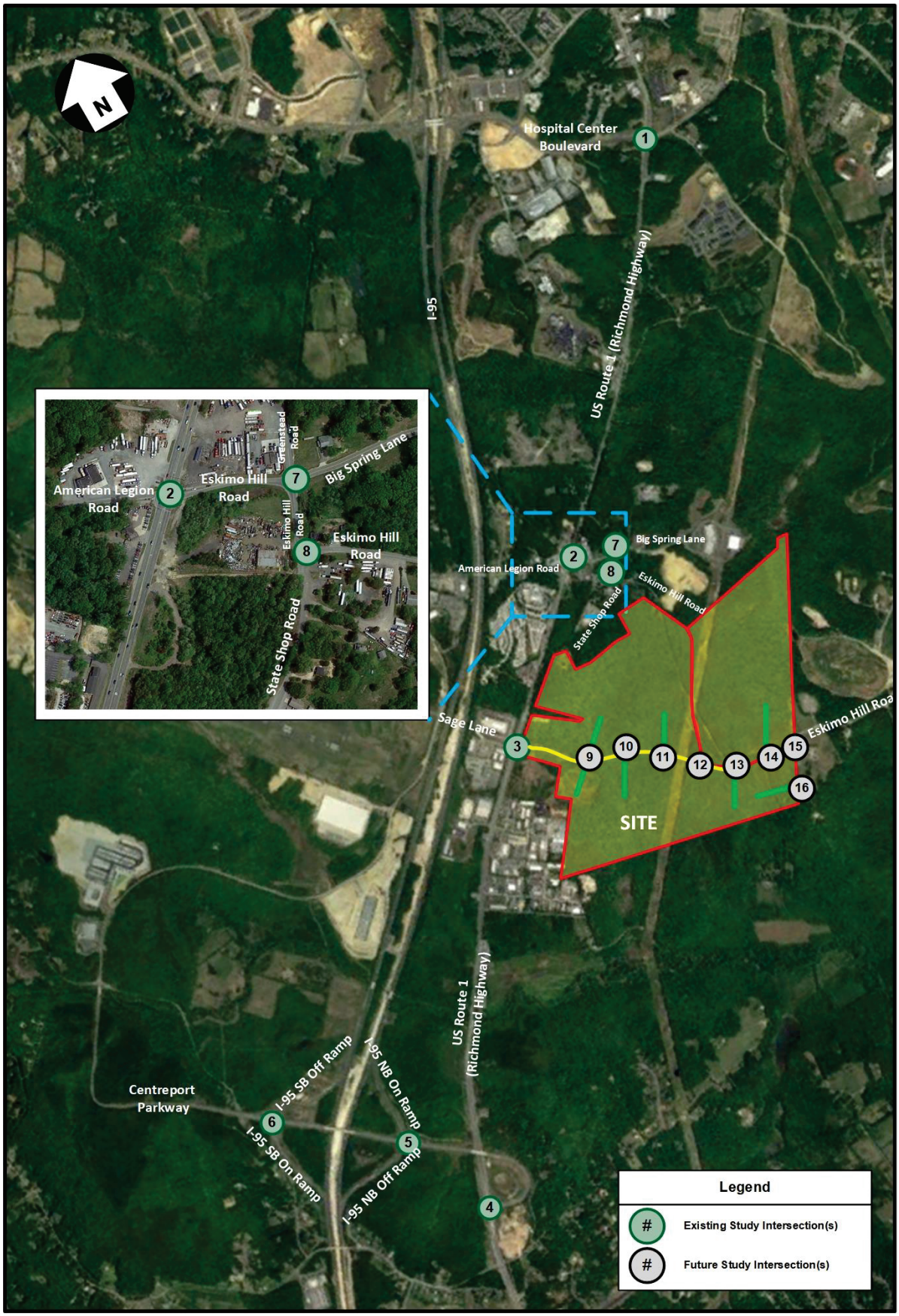

Figure 6: Aerial of Study Intersections

Analysis of 2023 Existing Conditions

2023 Existing Traffic Volumes

In order to determine the weekday morning (AM) and weekday afternoon (PM) peak hour turning movement traffic volumes, turning movement counts (TMC) were collected at intersections within the study area. Turning movement counts were collected in October 2021, June 2022, and February 2023. Turning movement counts conducted prior to 2023 were provided directly by VDOT. These traffic counts were then grown to 2023 at a rate of 2.5% (compounded per year) and applied to all movements at the counted existing study intersections to determine 2023 existing conditions. All referenced turning movement counts are provided in Appendix B.

The turning movement data for the eight existing intersections was utilized as follows:

- The referenced turning movement count was collected at the following study intersection on Thursday, June 16, 2022, from the hours of 7:00 AM to 7:00 PM:
    - Study Intersection 1: US Route 1 at Hospital Center Boulevard
- The referenced turning movement counts were collected at the following study intersections on Thursday, October 7, 2021, mutually from the hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM:
    - Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
    - Study Intersection 4: US Route 1 at Centreport Parkway
    - Study Intersection 5: Centreport Parkway at I-95 NB Ramps
    - Study Intersection 6: Centreport Parkway at I-95 SB Ramps
- The referenced turning movement counts were collected at the following study intersections on Wednesday, February 1, 2023, mutually from the hours of 6:00 AM to 9:00 AM and 4:00 PM to 7:00 PM:
    - Study Intersection 3: US Route 1 at Sage Lane
    - Study Intersection 7: Eskimo Hill Road at Greenstead Road / Big Spring Lane
    - Study Intersection 8: Eskimo Hill Road at State Shop Road
- From the turning movement counts, the following system peak hours were determined.
    - AM Peak Hour: 7:15 AM to 8:15 AM
    - PM Peak Hour: 4:15 PM to 5:15 PM
- Each peak hour turning movement collected prior to 2023 was grown to 2023 conditions, based on a 2.5% per annum growth rate.
- The volumes were increased and balanced as necessary throughout the network.
- The heavy vehicle percentages (“HV%”) for the existing study intersections, by turning movement, were determined based on the counts collected, or, if unavailable, on VDOT historical data. Similarly, peak hour factors, in the range of 0.85 to 1.00 for existing conditions were also determined based on the counts collected.

The average daily traffic (“ADT”) volumes, depicted in this figure and in subsequent volume graphics, were calculated based on the PM peak hour turning movement volumes and multiplied by the VDOT historical k-factors from 2021. If the historic data was not available for a given roadway or roadway segment, then a k-factor of 0.10 was assumed.

For the purposes of simulation analysis subsequently described in this report, a turning movement count, collected in October 2021, was provided by VDOT at the intersection of US Route 1 at Enon Road, during the hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM.

The 2023 existing road network including lane configurations and traffic control is presented in **Figure 7**. The 2023 existing peak hour traffic volumes for the intersections within the study area are illustrated in **Figure 8**.

The raw traffic count data is included in Appendix B.

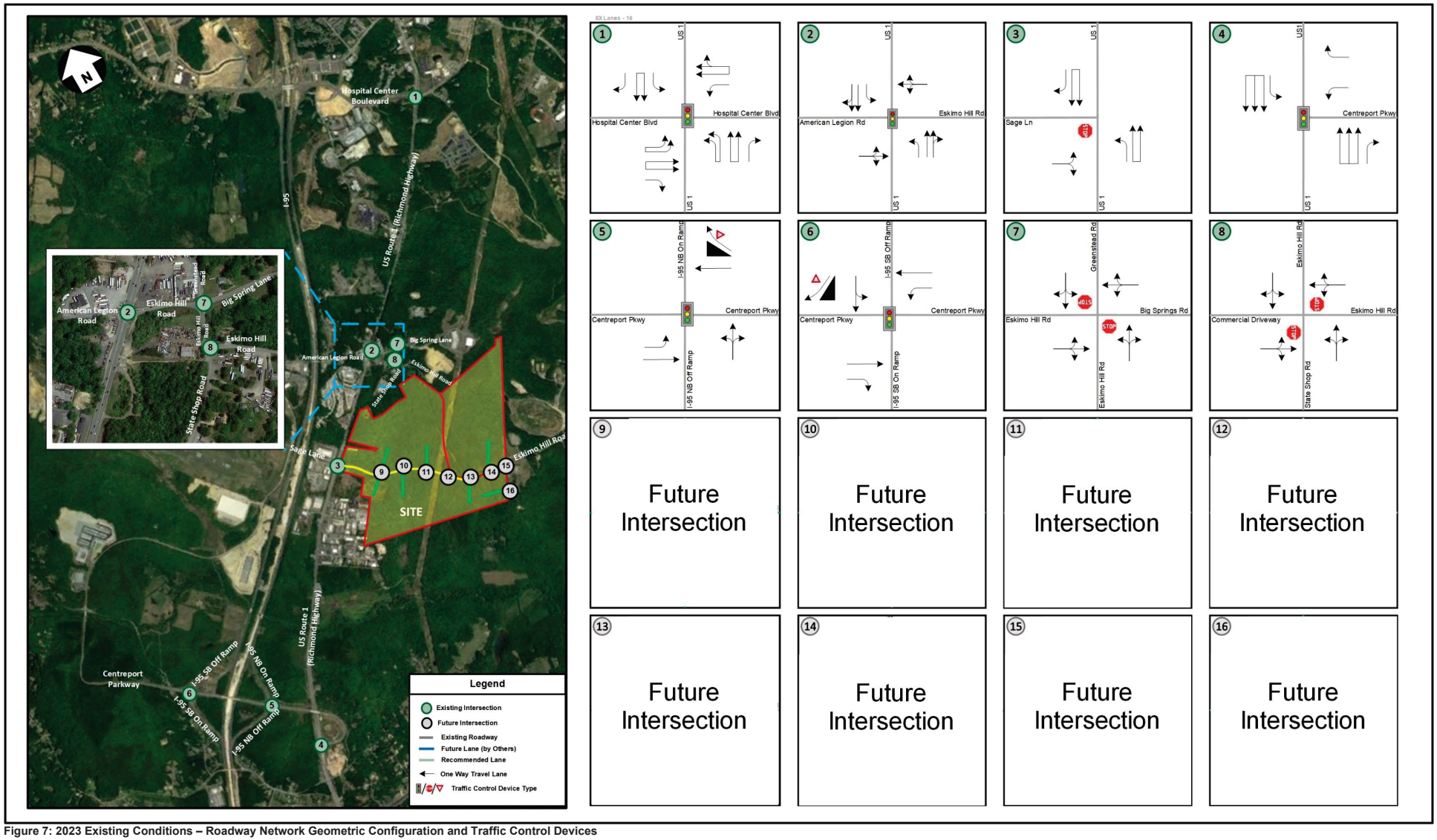

Figure 7: 2023 Existing Conditions – Roadway Network Geometric Configuration and Traffic Control Devices

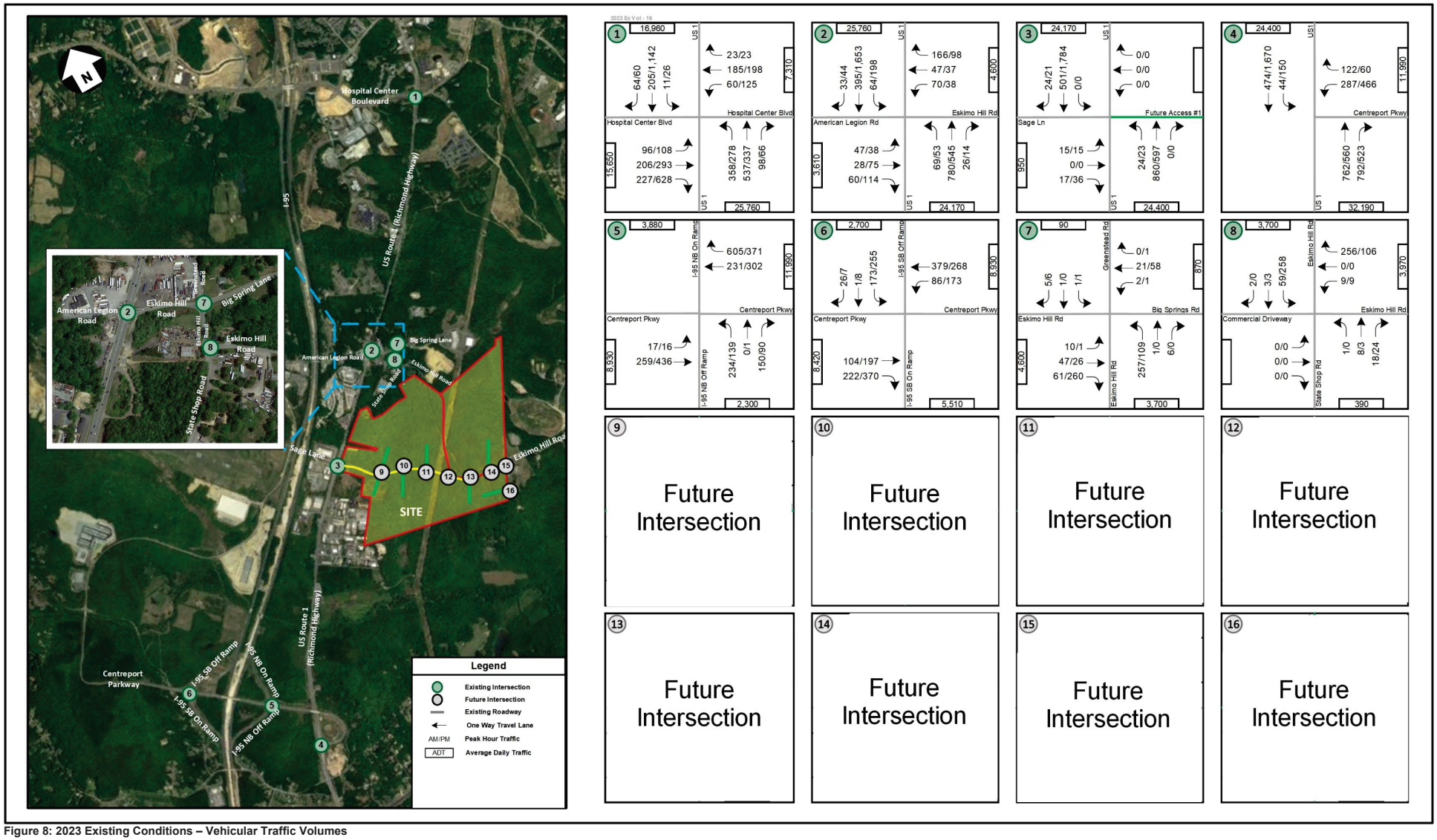

Figure 8: 2023 Existing Conditions – Vehicular Traffic Volumes

Existing Intersection Capacity and Queueing Analysis

Intersection capacity and queuing analyses were performed for the 2023 Existing Conditions scenario at the study area intersections during AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro / SimTraffic,* version 11, was used to analyze the study intersections with results based on the Transportation Research Board's ("TRB") Highway Capacity Manual (HCM) 6th edition methodology[1] and include level of service (LOS), delay, and queue length comparisons for the turning movements analyzed. Lane configurations at study intersections along the road network were field-verified, and the existing traffic volumes discussed in the aforementioned section as well as other relevant data were entered into the analysis models.

Synchro files were obtained from VDOT and were utilized as a base for the analysis models. Traffic operation conditions as well as lane configurations were field verified. The existing traffic volumes discussed in the aforementioned section as well as other relevant data were entered into the analysis models. For the purposes of this analysis, the existing peak hour factors (PHF) utilized in the analysis of existing conditions were based on the 2023 existing volumes and were modeled in the *Synchro / SimTraffic* network on a by-intersection basis. PHF in the range of 0.85 to 1.00 were used for the existing scenario, as agreed to in the scoping document. The heavy vehicle percentages (HV%) utilized per movement were based on the existing traffic counts collected.

The County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. The County has a Non-Degradation Policy which requires applicants to ensure that the transportation system affected by the application performs no worse after the project is developed than it would otherwise The results of the intersection capacity and queuing analyses from *Synchro* are presented in **Table 4** and graphically in **Figure 9**. The results are expressed in LOS and delay (seconds per vehicle) for overall signalized/all-way stop control intersections and per approach and lane group for all study intersections. Any overall signalized intersection or approach that operates at LOS E or F is displayed in red.

The description of different LOS and delay are included in Appendix C. The detailed analysis worksheets of 2023 Existing Conditions are contained in Appendix D.

Intersection Simulation Analysis

As included in the scoping discussions with VDOT and County staff, simulation analysis was conducted for Study Intersections for the AM and PM peak hours under all scenarios to determine the maximum queue lengths.

SimTraffic, version 11, was utilized to run the simulation analysis. The same network files used for the intersection capacity analyses were utilized as input for the *SimTraffic* analyses. Consistent with the parameters and analysis guidelines set forth in VDOT's TOSAM (version 2.0), Error! Reference source not found. below depicts the parameters that were used for the s imulation. Per Section 7.6 of the TOSAM, all other parameters not addressed in the table should not be modified from the default value.

[1] It should be noted that HCM 2000 methodology was used in lieu of HCM 6th if the HCM 6th methodology was not applicable. HCM 6th could not be applicable in such cases as nonstandard National Electrical Manufacturers Association (NEMA) configurations, shared lane configurations, placement of loop detectors, U-turns, etc.

Table 2: SimTraffic Analysis Input Parameters

SimTraffic (Ver. 10) Analysis Input Parameters	
Number of Intervals	One (1) Seeding Interval and Four (4) Recording Intervals
Seeding and Recording Interval Duration	15-minutes (each)
Peak Hour Factor (PHF) Adjustment	Selected "Yes" to One of the Four (1 of 4) Recording Intervals Selected "No" for all Other Intervals
Anti-PHF Adjustment	Selected "Yes" for Three (3) Recording Intervals, where PHF Adjustment is set to "No" Selected "No" for the seeding and recording intervals, where PHF Adjustment is set to "Yes"
Number of Runs	10

For this analysis, a seeding period was necessary. A seeding period ensures that the results obtained are not skewed, as the network is void of any vehicles before seeding. Foregoing seeding would lead to lower travel times and delays for the traffic at the beginning of the simulation. The network reaches a normal state during the seeding period without affecting the results of the simulation.

Table 3 displays the summary of the *SimTraffic* modeling calibration criteria and results in accordance with calibration to throughput volumes only. The *SimTraffic* modeling calibration used in this analysis (see Appendix E) met the calibration acceptance targets in at least 85% of the cases, which is consistent with VDOT's TOSAM guidance.

Table 3: *SimTraffic* Modeling Calibration Criteria and Results

Calibration Criterion [1]	Calibration Target [1]	Results	
		AM Peak	PM Peak
Simulated Traffic Volume			
Within 20% (Flow < 100 veh/h)	>85% of cases	90%	85%
Within 15% (Flow from 100 veh/h to 1000 veh/h)	>85% of cases	100%	97%
Within 10% (Flow from 1000 veh/h to 5000 veh/h)	>85% of cases	100%	100%
Within 500 veh/h (Flow > 5000 veh/h)	>85% of cases	100%	100%

1. Based on VDOT TOSAM Version 2 Criteria

Ten model runs were performed for each scenario analyzed in the study. The results presented in this study are the average results of the ten runs. Hence, the results presented in **Table 4** are the average results of the ten runs for the peak period scenario. The maximum queue results are expressed in feet. The lane groups where the maximum queue length exceeded the available storage are displayed in red.

The detailed analysis worksheets for the Simulation Analysis including the volume-based calibration results are included in Appendix E.

Table 4: 2023 Existing Conditions – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)		**D**	**37.6**		**F**	**222.8**	
	Eastbound Approach		***D***	***41.9***		***F***	***586.4***	
	Eastbound Left	500	E	57.2	133	F	89.3	163
	Eastbound Thru		D	44.2	147	F	146.7	1269
	Eastbound Right		C	33.4	136	F	876.6	1280
	Westbound Approach		***D***	***48.8***		***F***	***112.4***	
	Westbound Left	150	E	62.0	139	F	169.6	150
	Westbound Thru / Right		D	45.1	179	F	80.4	375
	Northbound Approach		***D***	***35.7***		***F***	***94.4***	
	Northbound Left	400	E	71.2	302	F	216.5	375
	Northbound Thru		B	16.6	167	B	10.9	420
	Northbound Right	700	B	11.3	48	A	6.4	50
	Southbound Approach		***C***	***25.4***		***C***	***20.7***	
	Southbound Left	550	E	63.9	46	F	91.9	132
	Southbound Thru		C	25.0	148	B	19.7	510
	Southbound Right	500	C	20.1	60	B	10.2	181
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)		**B**	**18.7**		**C**	**22.5**	
	Eastbound Approach		***C***	***21.2***		***D***	***48.1***	
	Eastbound Left / Thru / Right		C	21.2	150	D	48.1	295
	Westbound Approach		***C***	***25.2***		***D***	***44.7***	
	Westbound Left / Thru / Right		C	25.2	238	D	44.7	226
	Northbound Approach		***B***	***18.4***		***B***	***12.7***	
	Northbound Left	300	B	11.2	126	B	17.9	115
	Northbound Thru / Right		B	19.1	279	B	12.2	270
	Southbound Approach		***B***	***14.8***		***C***	***20.5***	
	Southbound Left	200	B	12.7	78	A	8.7	200
	Southbound Thru / Right		B	15.1	143	C	21.8	418
3	**US Route 1 (N/S) & Sage Lane / Future Access #1 (E/W)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach		***C***	***16.6***		***F***	***110.1***	
	Eastbound Left / Right		C	16.6	51	F	110.1	72
	Northbound Approach							
	Northbound Left	200	A	8.7	36	C	17.9	59
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**B**	**16.1**		**C**	**31.2**	
	Westbound Approach		***F***	***80.7***		***E***	***66.3***	
	Westbound Left		F	90.4	393	E	69.7	566
	Westbound Right	225	E	57.7	64	D	39.9	49
	Northbound Approach		***A***	***1.6***		***C***	***28.6***	
	Northbound Thru		A	0.4	180	D	44.3	407
	Northbound Right	180	A	2.8	132	B	11.9	416
	Southbound Approach		***A***	***8.7***		***C***	***22.6***	
	Southbound Left	345	B	11.7	104	C	22.8	395
	Southbound Thru		A	8.4	0	C	22.6	0

Table 4 (Continued): 2023 Existing Conditions – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W) Overall Intersection: (Signalized)**		**B**	**16.4**		**B**	**13.5**	
	Eastbound Approach		***B***	***10.6***		***A***	***9.0***	
	Eastbound Left	275	B	12.9	42	B	10.5	48
	Eastbound Thru		B	10.4	146	A	8.9	208
	Westbound Approach		***B***	***17.8***		***B***	***15.4***	
	Westbound Thru		B	17.8	156	B	15.4	159
	Westbound Right	200	A	0.0	0	A	0.0	0
	Northbound Approach		***B***	***19.9***		***C***	***20.1***	
	Northbound Left / Thru / Right		B	19.9	213	C	20.1	161
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W) Overall Intersection: (Signalized)**		**B**	**12.9**		**C**	**21.2**	
	Eastbound Approach		***B***	***15.5***		***C***	***23.9***	
	Eastbound Thru		B	13.3	100	B	19.0	178
	Eastbound Right	200	B	16.6	95	C	26.5	157
	Westbound Approach		***A***	***7.5***		***B***	***11.0***	
	Westbound Left	250	A	9.4	96	B	13.2	178
	Westbound Thru		A	7.1	172	A	9.5	195
	Southbound Approach		***C***	***22.5***		***C***	***32.7***	
	Southbound Left / Thru		C	22.5	152	C	32.7	220
	Southbound Right		A	0.0	0	A	0.0	0
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S) Overall Intersection: (TWSC)**							
	Eastbound Approach							
	Eastbound Left		A	7.5	8	A	8.3	5
	Westbound Approach							
	Westbound Left		A	8.0	16	A	9.3	5
	Northbound Approach		***B***	***12.0***		***B***	***11.6***	
	Northbound Left / Thru / Right		B	12.0	106	B	11.6	74
	Southbound Approach		***A***	***9.2***		***B***	***10.0***	
	Southbound Left / Thru / Right		A	9.2	50	B	10.0	64
8	**Eskimo Hill Road (N/E) & State Shop Road (S) Overall Intersection: (TWSC)**							
	Eastbound Approach		***B***	***10.6***		***B***	***14.0***	
	Eastbound Left / Thru / Right		B	10.6	24	B	14.0	24
	Westbound Approach		***B***	***10.0***		***A***	***9.7***	
	Westbound Left / Thru / Right		B	10.0	130	A	9.7	91
	Northbound Approach							
	Northbound Left		A	7.2	0	A	7.2	0
	Southbound Approach							
	Southbound Left		A	7.6	3	A	7.8	4

NOTES:

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] Max queues are based on results from SimTraffic. Per TOSAM guidelines, the queues are based on the average to 10 simulations.

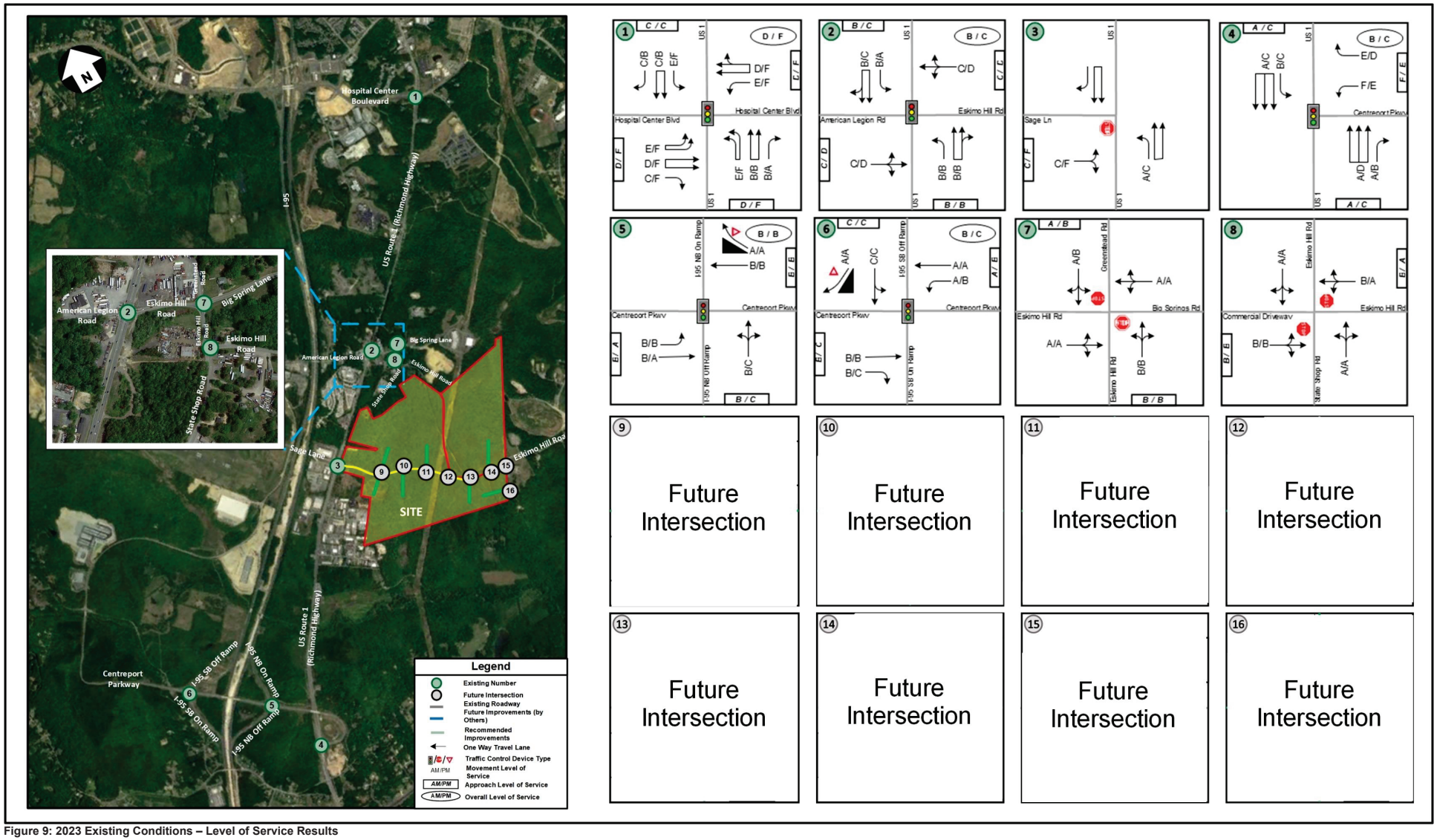

Figure 9: 2023 Existing Conditions – Level of Service Results

Based on the capacity analysis of 2023 Existing Conditions, all signalized study intersections operate at overall levels of service of D or better during both the AM and PM peak hour except for the following study intersection that operates at an overall level of service E of F during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard

Based on the capacity analysis of 2023 Existing Conditions, the approaches of all study intersections operate at approach levels of service of D or better during both the AM and PM peak hours, except for the following study intersections that have at least one approach that operates at levels of service E of F during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 3: US Route 1 at Sage Lane
- Study Intersection 4: US Route 1 at Centreport Parkway

Based on the queuing analysis performed for 2023 Existing Conditions, all turning movements at the study intersections have maximum queue lengths that are accommodated within the available storage lengths of the turn bays, except for the following study intersections which have queue lengths that exceed the available storage length of at least one existing turn bay during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 4: US Route 1 at Centreport Parkway

Analysis of 2026 Future Conditions Without Development

For the purposes of this study, the Development is anticipated to be constructed by 2030; this scenario analyzes the future without development conditions for the year 2030.

Future without Development Traffic Volumes

The derivation of future without development traffic volumes was based on assumptions and parameters discussed with VDOT and the County during the scoping process for this study. The future conditions include anticipated inherent regional growth, the inclusion of any potential background developments in the pipeline around the vicinity of the Site, and any anticipated roadway improvements.

Inherent Regional Growth

The Development is anticipated to be complete in 2030. In order to account for increased demand on the traffic network between 2023 and 2030, an inherent growth rate was applied to the future scenarios. This inherent growth was anticipated to account for regional development within the at-large area, which would ultimately result in increased roadway demand. Furthermore, the inherent growth was anticipated to account for any potential background developments unaccounted for within the vicinity of the study area.

As agreed upon in the scope for this study, to account for 2030 future conditions, an inherent growth rate of 2.5%, compounded annually over a seven-year period, between 2023 to 2030 (and totaling 18.87% growth of the existing volumes) was applied to all movements at the existing study intersections.

The inherent regional growth volumes (for the period between 2023 and 2030) are illustrated in **Figure 10.**

Potential Background Development(s)

In addition to the applied inherent regional growth reflecting increased regional traffic demand, a total of six “background” developments within the vicinity of the Site, with their locations depicted in **Figure 11**, were identified in the meeting with VDOT and Stafford County staff for inclusion in this study. The background developments included are as follows:

1. Centreport Gateway
    - Located along Centreport Parkway, the Centreport Gateway development is anticipated to be a large commercial development.
    - Based on a traffic impact study conducted for the site (titled *CenterPort Gateway Traffic Impact Study*, conducted by JMT, and dated October 2017), it is anticipated that the development would include 60 kSF of shopping center space, an additional 320 kSF of regional destination retail space, and a 90-room hotel. As agreed to in the scoping document, this study anticipated a “Phase 1” portion of the development, consisting of the 60 kSF shopping center space and the hotel.
2. Centreport Industrial
    - Located just north of the Stafford Regional Airport, this site is anticipated to consist of a total of approximately 80 kSF of light industrial uses along Centreport Parkway. Of note, approximately half of the site was recently constructed and was assumed in operation when counts were taken. Given that the counts at the Centreport Parkway and American Legion intersections were taken in October 2021 and therefore are assumed to include this portion of the development already built, only the remaining half of the site, or 40 kSF of light industrial use, was considered a background development.

3. Centreport Village
    - Located on Centreport Parkway in the vicinity of Mountain View Road, the development is anticipated to consist of 494 multifamily homes.
4. Crossroads Industrial
    - Located on US Route 1 between Centreport Parkway and Sage Lane, the development is anticipated to include up to 792,000 square feet of industrial park.
5. Project Ivy (Sycamore Grove)
    - The site is located along Centreport Parkway. There was a previous traffic impact study conducted for the site (titled *Sycamore Grove Traffic Impact Study*, conducted by VETTRA, and dated June 2016). However, the previous study included a mixed-use development. The site has since been updated to consist of 934,000 square feet of high cube (non-sort) warehouse and a 633 space storage lot.
6. The Hills at Big Springs
    - Located on Eskimo Hill Road at Greenstead Road, the development is anticipated to consist of 181 single family homes. The site is currently under construction. Based on a site visit, there is a negligible number of built homes and they do not appear to be occupied. For the purposes of this study, it was assumed that none of the 181 homes are built and occupied.

The combined background developments are expected to generate approximately 975 new trips during the AM peak hour, 1,260 new trips during the PM peak hour, and 15,008 new daily trips on a typical weekday. The assignment of the total combined background trips to the road network is depicted in **Figure 12**. Additional information, including the trips generated and the assignment of trips for each individual background development, and the relevant background traffic impact study excerpts are included in Appendix F.

Potential Roadway Improvement(s)

As discussed during the scoping meeting, there are three roadway improvements within the vicinity of the site that are either fully funded or would be completely constructed by 2030. The three roadway improvements are described below:

- Smartscale project to install a westbound left turn lane and an eastbound left turn lane at the intersection of US Route 1 at American Legion Road / Eskimo Hill Road (Study Intersection 2).
- Smartscale project to modify the side street lane configuration at the intersection of US Route 1 and Enon Road.

Relevant Smartscale excerpts and information are included in Appendix G.

The anticipated 2030 future road network (without the development) is illustrated in **Figure 13.**

Future without Development Traffic Volumes

In order to forecast future roadway traffic volumes for the year 2030, the 2023 existing traffic volumes were combined with the inherent regional growth traffic volumes and background developments' traffic volumes and associated background roadway improvement traffic volumes. The 2030 future conditions without Development traffic volumes are illustrated in **Figure 14.**

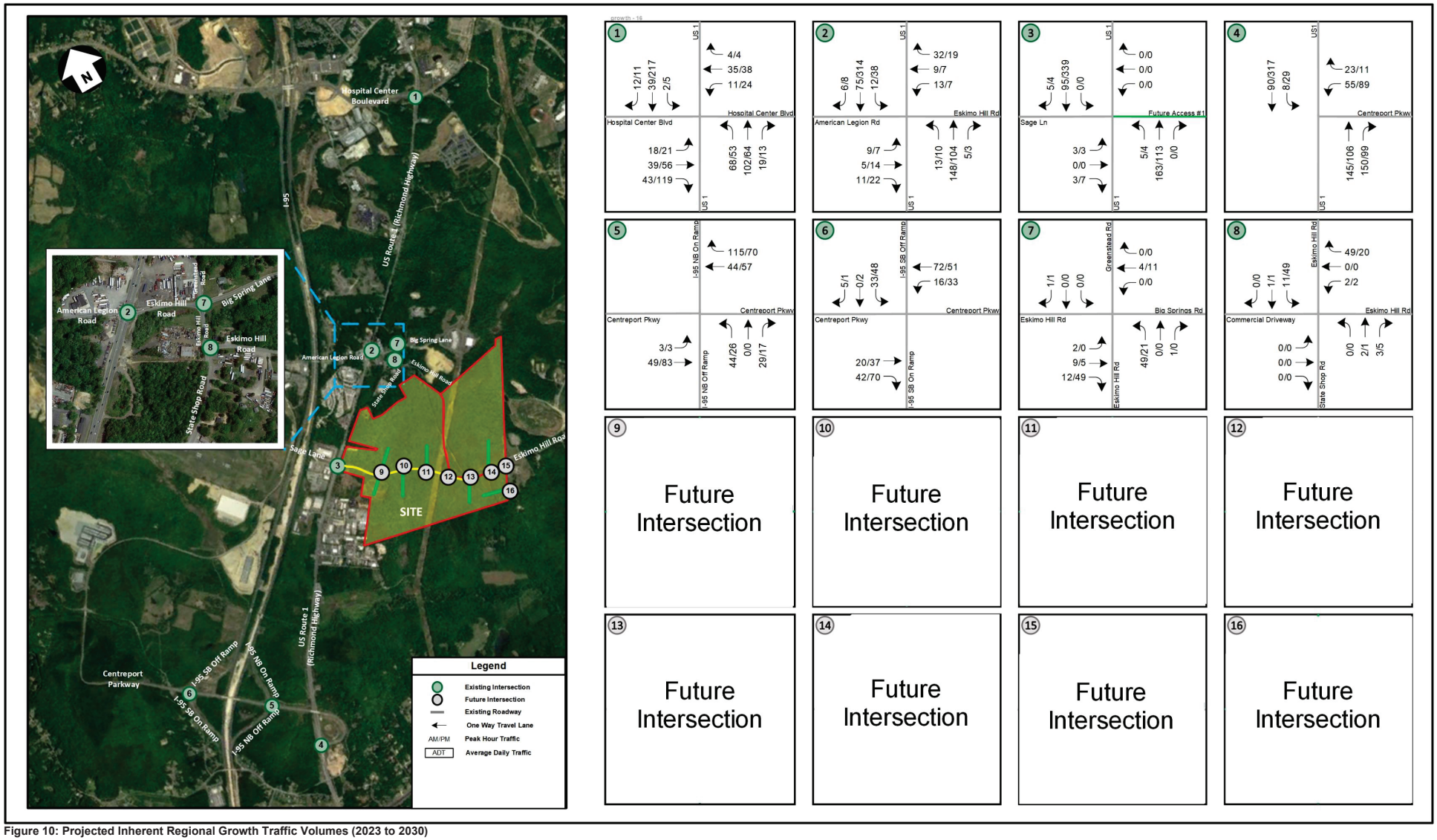

Figure 10: Projected Inherent Regional Growth Traffic Volumes (2023 to 2030)

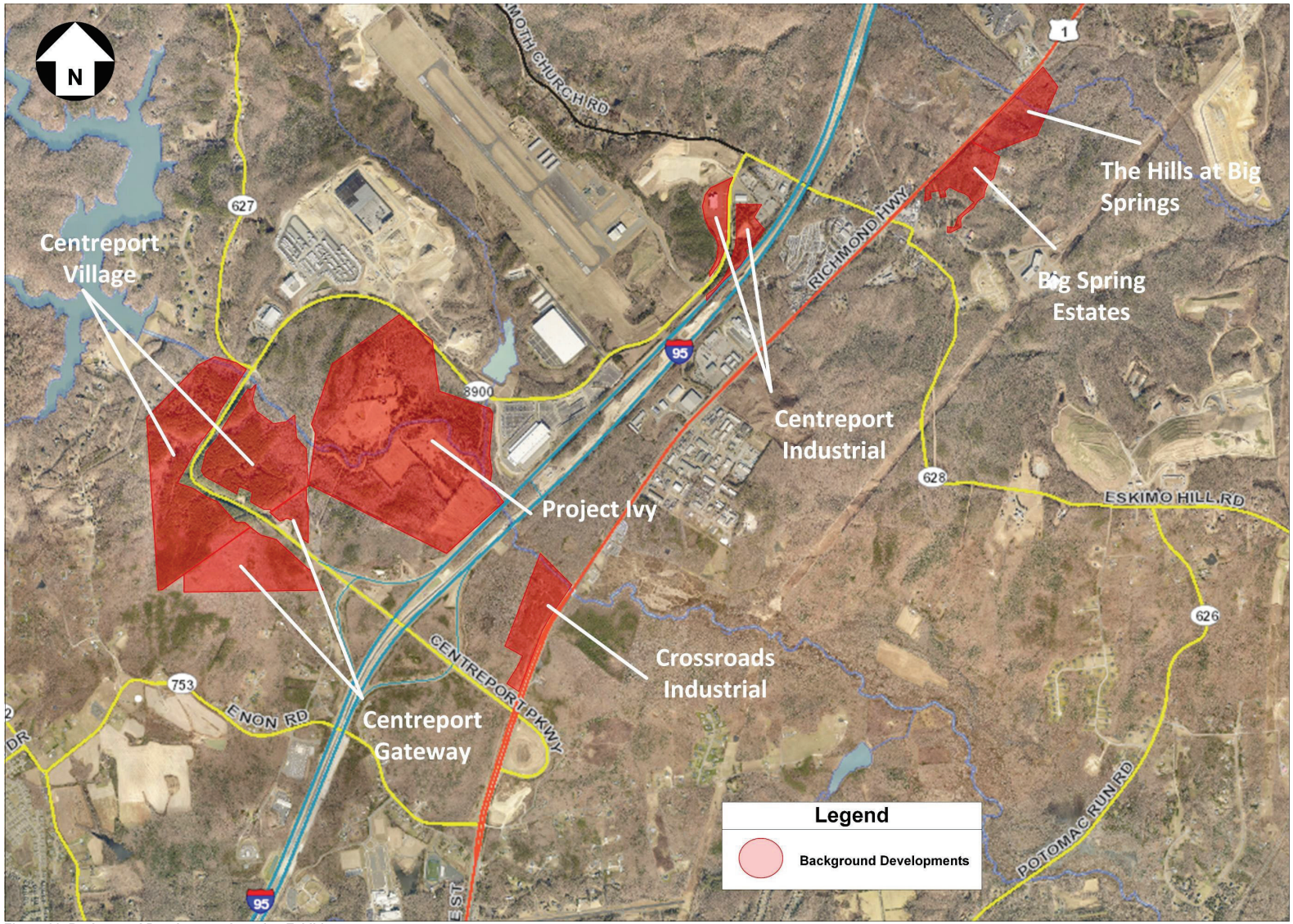

Figure 11: Background Development Location Exhibit

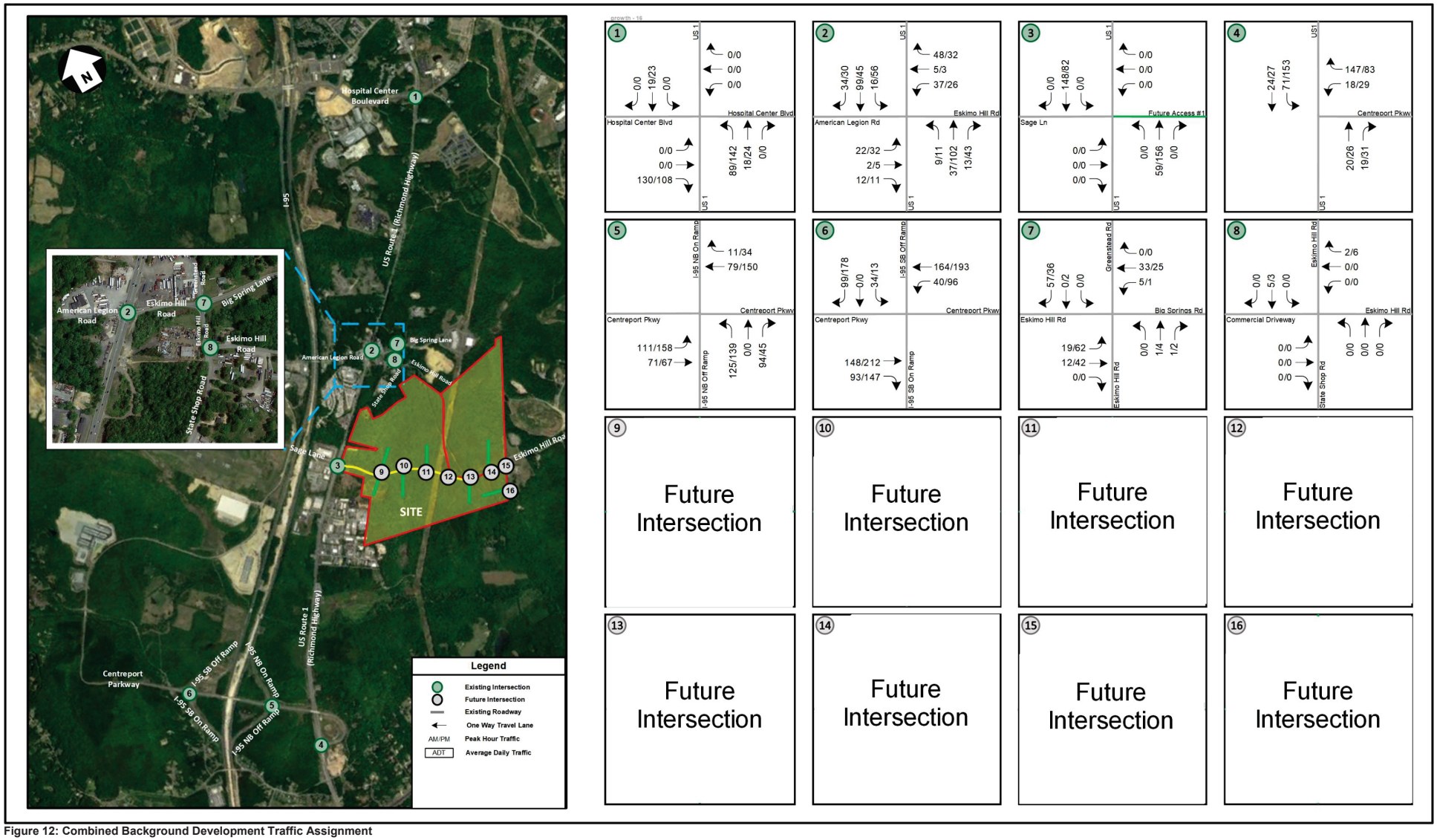

Figure 12: Combined Background Development Traffic Assignment

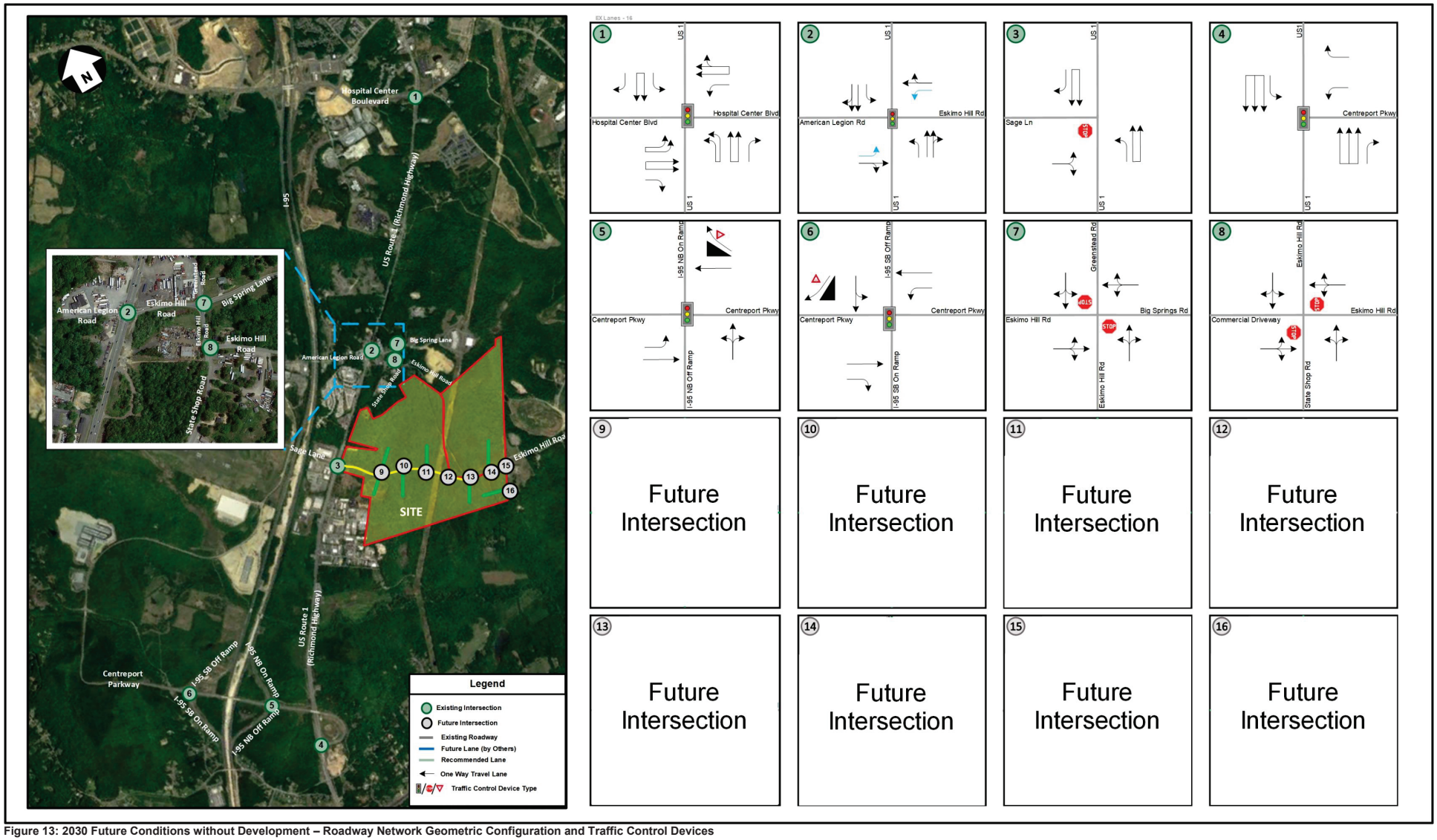

Figure 13: 2030 Future Conditions without Development – Roadway Network Geometric Configuration and Traffic Control Devices

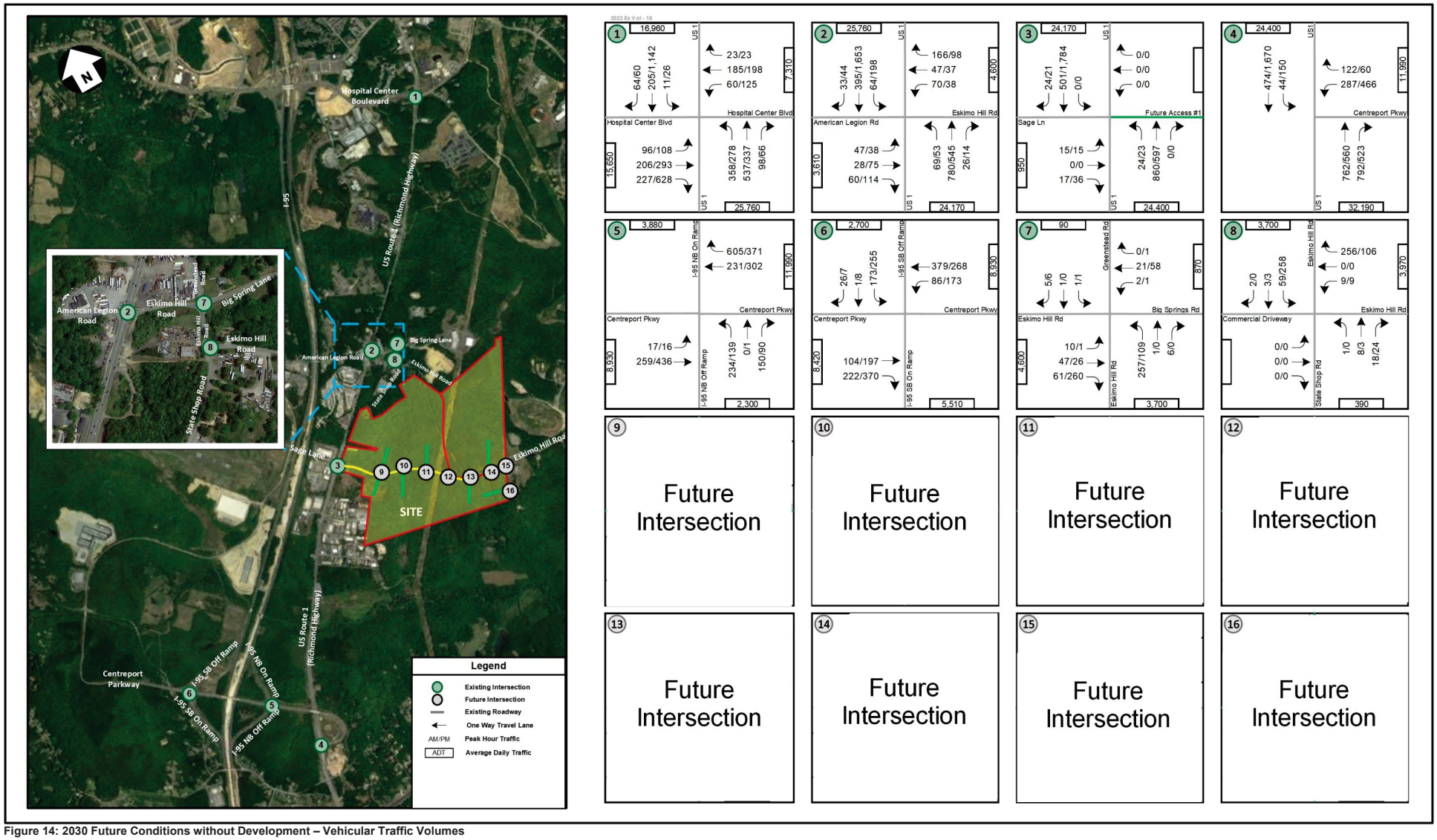

Figure 14: 2030 Future Conditions without Development – Vehicular Traffic Volumes

Future without Development Intersection Capacity and Queuing Analysis

Intersection capacity and queueing analyses were performed for the 2030 Future Conditions without Development scenario at the study area intersections during the AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro / SimTraffic,* version 11, was used to analyze the study intersections with results based on TRB's HCM 6th methodology and include LOS, delay, and queue length comparisons for the turning movements analyzed.

For the purposes of this analysis, the intersection PHF utilized in the analysis of future conditions was determined based on the existing traffic counts, with a minimum of 0.92 as agreed to in the scoping document. The HV% were based on the existing conditions scenario.

Stafford County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. The results of the intersection capacity and queuing analyses from *Synchro / SimTraffic* are presented in **Table 5** and graphically in **Figure 15**. The results are expressed in LOS and delay (seconds per vehicle) for overall signalized intersections and per approach and lane group for all study intersections. Any overall signalized intersection or approach that operates at LOS E or F is displayed in red.

The queue lengths were reported as the maximum queues determined from *SimTraffic* and are expressed in feet. The lane groups where the queue lengths exceeded the available effective storage capacity of existing turn lanes are displayed in red.

The detailed capacity analysis worksheets of the 2030 Future Conditions without Development are contained in Appendix H.

The detailed analysis worksheets for the 2030 Future Conditions without Development simulation analysis are included in Appendix I.

Table 5: 2030 Future Conditions without Development – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)		**E**	**64.0**		**F**	**380.2**	
	Eastbound Approach		***D***	***41.3***		***F***	***916.1***	
	Eastbound Left	500	E	58.3	97	F	92.0	124
	Eastbound Thru		D	38.2	160	F	219.1	2809
	Eastbound Right		D	38.3	189	F	1324.7	2804
	Westbound Approach		***D***	***44.4***		***F***	***145.3***	
	Westbound Left	150	E	64.5	140	F	235.1	299
	Westbound Thru / Right		D	38.7	186	F	95.2	478
	Northbound Approach		***F***	***91.2***		***F***	***289.9***	
	Northbound Left	400	F	196.2	371	F	587.3	400
	Northbound Thru		C	22.4	302	B	11.4	4485
	Northbound Right	700	B	15.2	50	A	6.6	37
	Southbound Approach		***C***	***31.0***		***C***	***23.3***	
	Southbound Left	550	E	63.2	48	F	92.8	101
	Southbound Thru		C	31.1	169	C	22.4	461
	Southbound Right	500	C	25.2	83	A	9.9	95
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)		**C**	**29.2**		**E**	**58.0**	
	Eastbound Approach		***D***	***35.1***		***F***	***130.8***	
	Eastbound Left	200	C	33.3	134	D	50.9	286
	Eastbound Thru / Right		C	36.3	178	D	156.2	487
	Westbound Approach		***D***	***44.7***		***F***	***93.5***	
	Westbound Left	100	C	29.8	259	D	51.5	237
	Westbound Thru / Right		C	50.5	351	D	108.7	323
	Northbound Approach		***C***	***26.7***		***C***	***22.2***	
	Northbound Left	300	B	16.9	83	D	44.6	108
	Northbound Thru / Right		C	27.7	373	C	20.1	326
	Southbound Approach		***C***	***22.2***		***E***	***57.6***	
	Southbound Left	200	C	20.5	130	B	16.3	272
	Southbound Thru / Right		C	22.4	249	F	61.5	521
3	**US Route 1 (N/S) & Sage Lane / Future Access #1 (E/W)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach		***D***	***27.0***		***F***	***$ 710.8***	
	Eastbound Left / Thru / Right		D	27.0	55	F	$ 710.8	113
	Northbound Approach							
	Northbound Left	200	A	9.7	46	D	25.8	72
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**C**	**30.0**		**D**	**43.2**	
	Westbound Approach		***F***	***112.6***		***E***	***61.9***	
	Westbound Left		F	125.5	722	E	68.8	796
	Westbound Right	225	F	96.7	291	D	36.0	135
	Northbound Approach		***A***	***8.8***		***D***	***40.4***	
	Northbound Thru		A	2.4	400	E	60.2	323
	Northbound Right	180	B	15.0	593	B	19.5	444
	Southbound Approach		***B***	***10.7***		***D***	***38.8***	
	Southbound Left	345	B	16.7	309	E	63.0	483
	Southbound Thru		A	9.5	159	C	34.8	505

Table 5: 2030 Future Conditions without Development – Intersection Capacity Analysis Results (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**D**	**42.2**		**C**	**29.5**	
	Eastbound Approach		***C***	***20.3***		***B***	***17.7***	
	Eastbound Left	275	C	23.6	136	C	22.5	274
	Eastbound Thru		B	19.1	238	B	16.2	379
	Westbound Approach		***D***	***35.3***		***C***	***34.5***	
	Westbound Thru		D	35.3	260	C	34.5	266
	Westbound Right	200	A	0.0	0	A	0.0	0
	Northbound Approach		***E***	***62.4***		***D***	***43.8***	
	Northbound Left / Thru / Right		F	62.4	1501	D	43.8	579
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**B**	**16.4**		**E**	**67.3**	
	Eastbound Approach		***B***	***19.2***		***F***	***101.8***	
	Eastbound Thru		B	16.7	208	D	40.7	446
	Eastbound Right	200	C	21.1	161	F	148.1	405
	Westbound Approach		***B***	***10.3***		***C***	***29.6***	
	Westbound Left	250	B	11.3	147	D	52.4	290
	Westbound Thru		B	10.1	267	B	16.1	337
	Southbound Approach		***C***	***27.9***		***D***	***52.1***	
	Southbound Left / Thru		C	27.9	213	D	52.1	231
	Southbound Right		A	0.0	0	A	0.0	0
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach							
	Eastbound Left		A	7.6	31	A	8.7	108
	Westbound Approach							
	Westbound Left		A	8.1	45	A	9.7	50
	Northbound Approach		***C***	***19.4***		***C***	***18.6***	
	Northbound Left / Thru / Right		C	19.4	169	C	18.6	125
	Southbound Approach		***A***	***9.6***		***B***	***10.2***	
	Southbound Left / Thru / Right		A	9.6	102	B	10.2	119
8	**Eskimo Hill Road (N/E) & State Shop Road (S)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach		***B***	***11.0***		***C***	***15.7***	
	Eastbound Left / Thru / Right		B	11.0	27	C	15.7	27
	Westbound Approach		***B***	***10.3***		***B***	***10.1***	
	Westbound Left / Thru / Right		B	10.3	143	B	10.1	98
	Northbound Approach							
	Northbound Left		A	7.2	0	A	7.2	8
	Southbound Approach							
	Southbound Left		A	7.6	41	A	7.9	64

NOTES:

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] Max queues are based on results from SimTraffic. Per TOSAM guidelines, the queues are based on the average to 10 simulations.

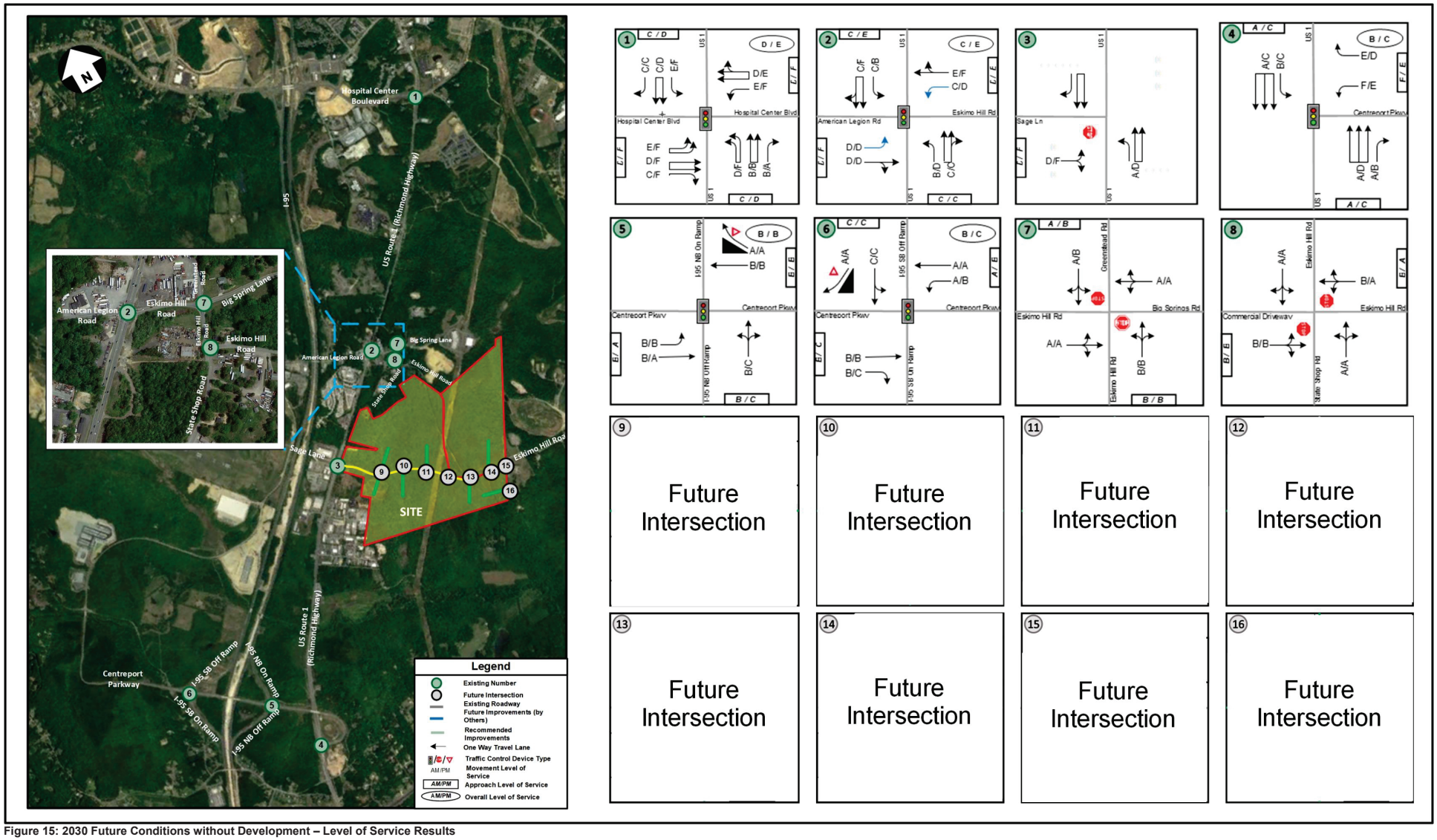

Figure 15: 2030 Future Conditions without Development – Level of Service Results

Based on the capacity analysis of the 2030 Future without Development Conditions, all signalized study intersections operate at overall levels of service of D or better during both the AM and PM peak hour except for the following study intersections that operate at an overall level of service E of F during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

Based on the capacity analysis of 2030 Future without Development Conditions, the approaches of all study intersections operate at approach levels of service of D or better during both the AM and PM peak hours, except for the following study intersections that have at least one approach that operates at levels of service E of F during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 3: US Route 1 at Sage Lane
- Study Intersection 4: US Route 1 at Centreport Parkway
- Study Intersection 5: I-95 Northbound Ramps at Centreport Parkway
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

Based on the queuing analysis performed, all turning movements at the study intersections have maximum queue lengths that are accommodated within the available storage lengths of the turn bays, except for the following study intersections which have queue lengths that exceed the available storage length of at least one existing turn bay during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 4: US Route 1 at Centreport Parkway
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

Analysis of 2030 Future Conditions with Development

For the purposes of this study, the Development is anticipated to be constructed by 2030; this scenario analyzes the future with development conditions for the year 2030.

Site Description

The Site is currently undeveloped and consists of two parcels of land, fronting Eskimo Hill Road and fronting the east side of US Route 1. The Property, totaling approximately 523.84-acres, can be identified as Tax Map Numbers 38-124 and 38-29A. The Property is currently zoned as A-1.

The Applicant is proposing to rezone the parcels from A-1 to M-1 in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be completed and in operation by 2030.

A conceptual plan for the Site is illustrated in **Figure 16**.

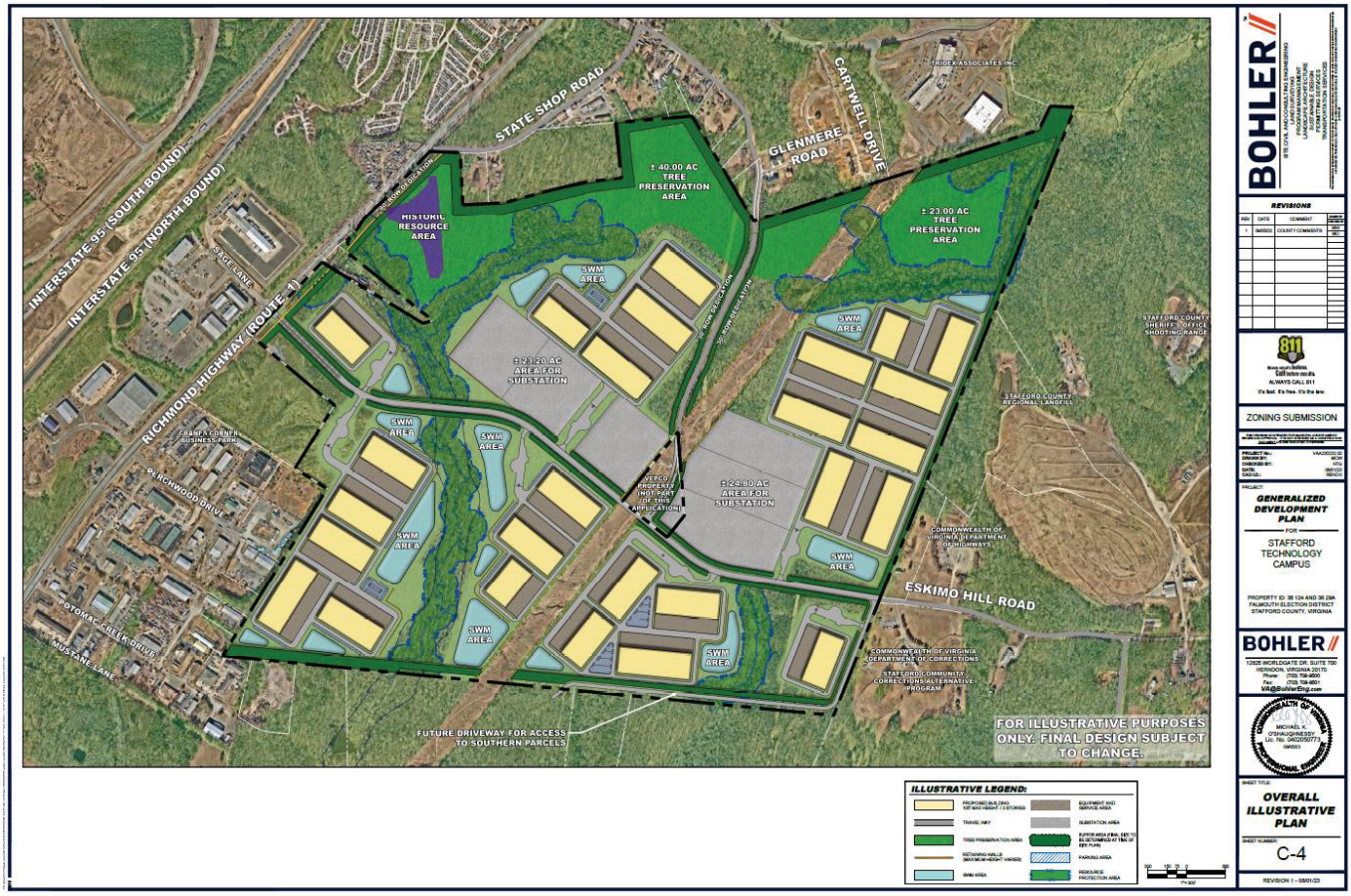

Figure 16: Conceptual Development Plan
Note: Plan provided by Bohler and is for conceptual purposes only.

Proposed Site Access

The proposed access plans include the construction of a connector road that was identified on the Stafford County Comprehensive Plan. This Connector Road will extend from Eskimo Hill Road to US Route 1, forming the fourth leg of the US Route 1 at Sage Lane intersection. The Site is anticipated to have six driveway connections along the new Connector Road.

Projected Site Trip Generation

In order to calculate the trips generated by the proposed Development, VDOT approved rates of 0.09 for the AM peak hour, 0.03 for the PM peak hour, and 0.75 for the weekday daily trips per 1,000 sf of data center land use based on recent data collection

in a study by Bowman Engineering. The projected trip generation for the proposed Development is depicted in **Table 6**. Of note, as agreed to in the scoping document, no internal capture or pass-by trip reductions were assumed with respect to the proposed Development, and therefore are not assumed within the table. Documentation for the approved trip rates is included in Appendix J.

Table 6: Site Trip Generation (Peak Hour of the Adjacent Street; ITE 11th Ed.)

Land Use	ITE Code	Size	------ Weekday ------						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Stafford Technology Campus									
Data Center [1]	160	5,808.0 kSF	288	235	523	52	123	175	4,356

[1] VDOT approved rates of 0.09 for AM, 0.03 for PM and 0.75 for Daily trips per 1,000 SF for Data Center land use.

As illustrated in the table above, the Site is expected to generate approximately 523 new trips during the AM peak hour, 175 new trips during the PM peak hour, and 4,356 new daily trips on a typical weekday.

Distribution and Assignment of Site Traffic

The distribution and assignment of the site generated trips were based on the existing traffic patterns, engineering judgement, the nature of the proposed Development, and with the guidance and input from the VDOT and the County staff. The site direction of approach and trip distribution are illustrated in **Figure 17**.

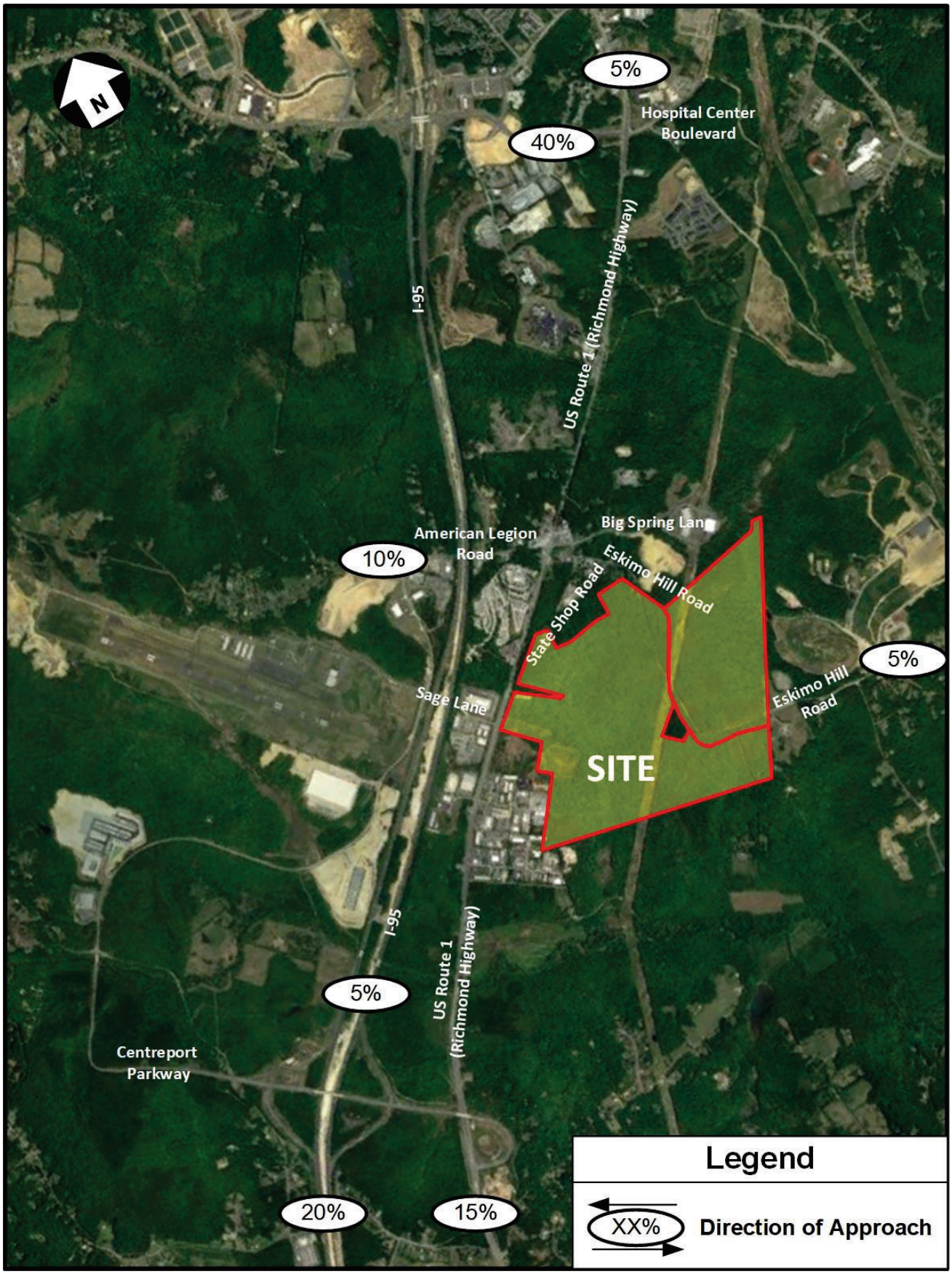

Figure 17: Global Vehicular Direction of Approach (Site Trip Distribution)

Future with Development Traffic Volumes

In order to project future traffic volumes on the roadways in the vicinity of the Development, trips generated from the Development were assigned to the road network based on the previously mentioned direction of approach. The site traffic assignment is illustrated for the AM and PM peak hours in **Figure 18**.

The future with development traffic volumes were determined by adding the assigned site generated traffic volumes to the 2030 future conditions without development traffic volumes. The 2030 Future Conditions with Development traffic volumes are depicted in **Figure 19**.

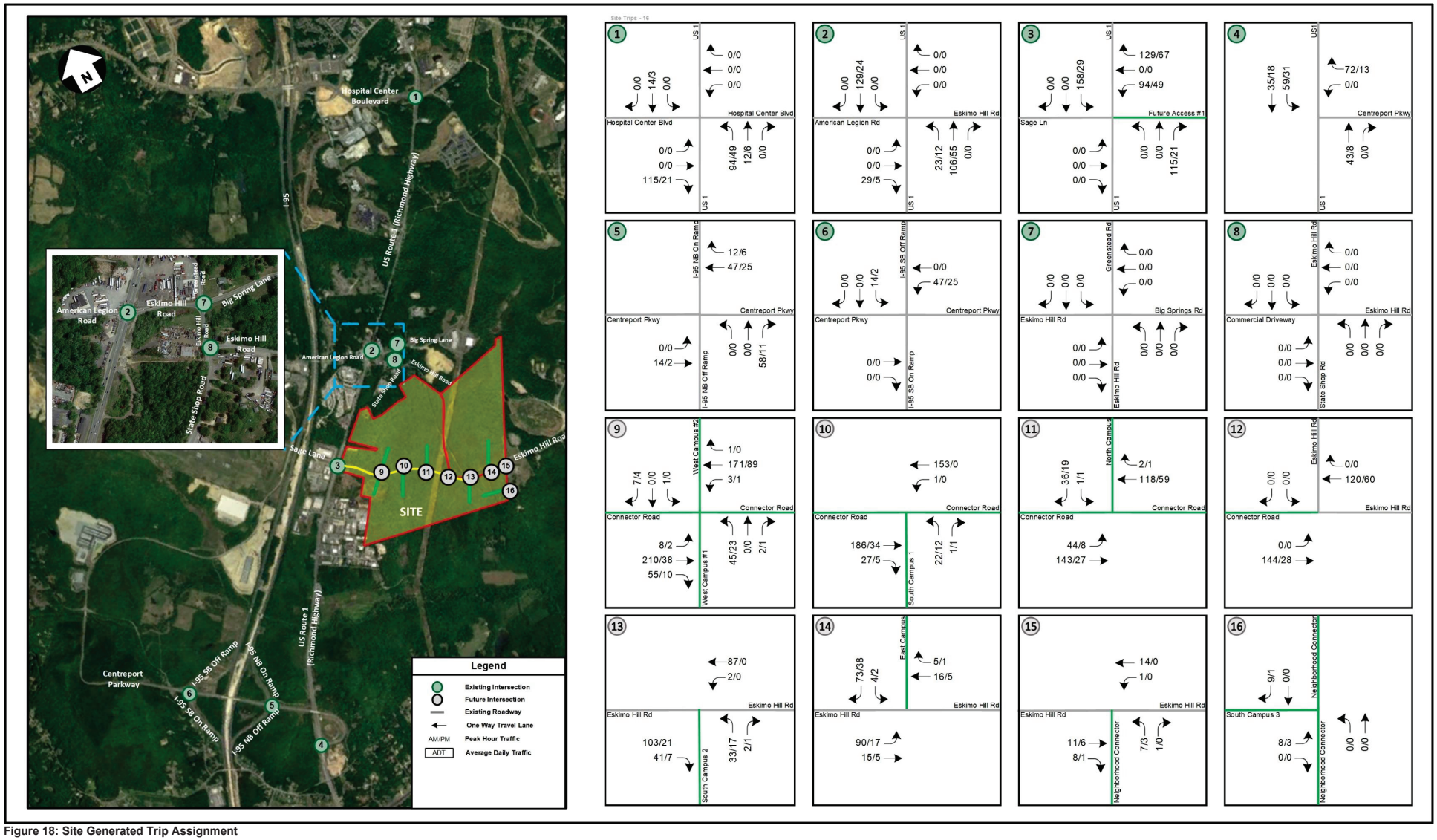

Figure 18: Site Generated Trip Assignment

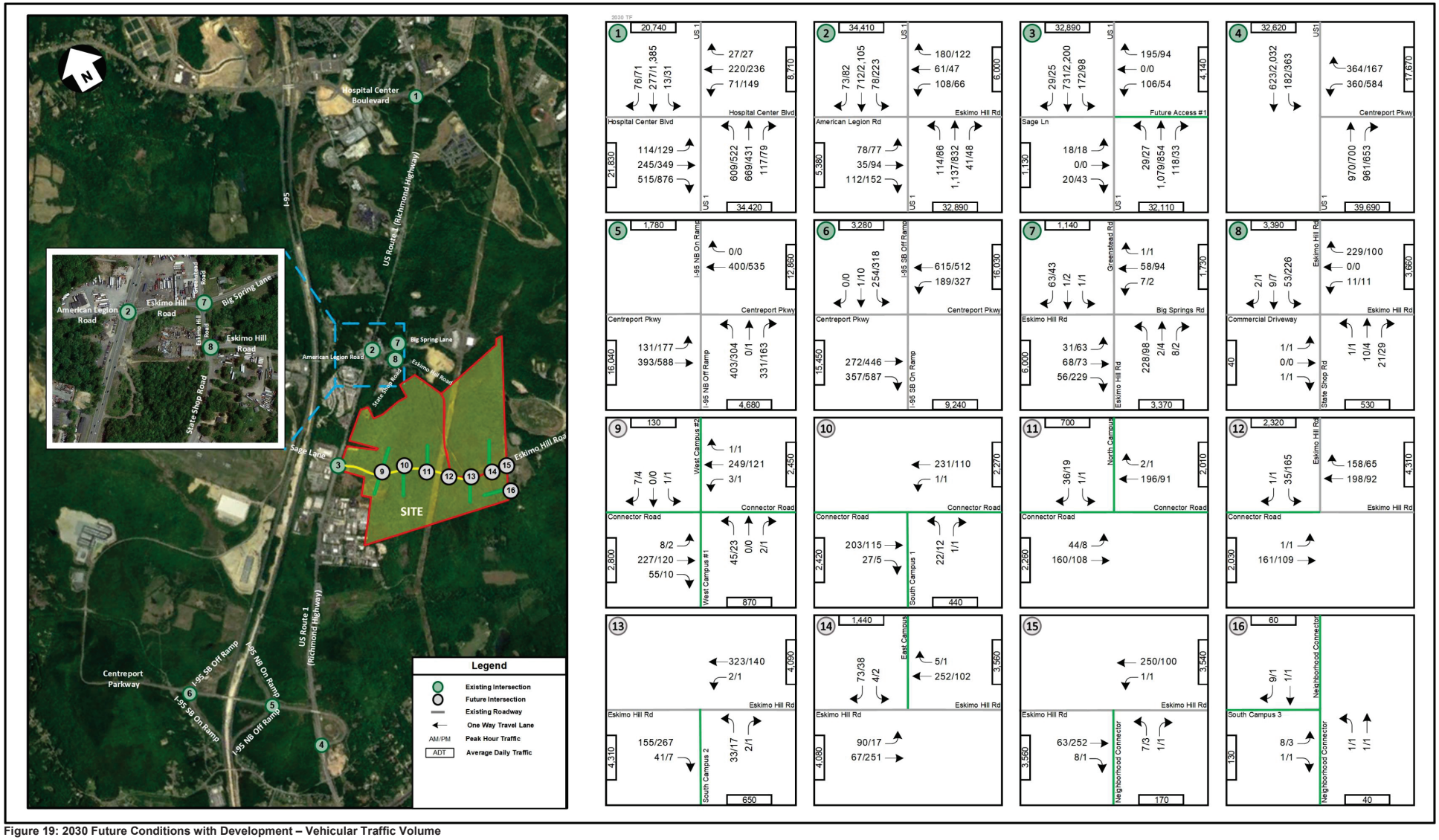

Figure 19: 2030 Future Conditions with Development – Vehicular Traffic Volume

Future with Development Intersection Capacity and Queuing Analysis

Intersection capacity and queueing analyses were performed for the 2030 Future Conditions with Development scenario at the study area intersections during the AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro / SimTraffic,* version 11, was used to analyze the study intersections with results based on TRB's HCM 6th methodology and include LOS, delay, and queue length comparisons for the turning movements analyzed.

For the purposes of this analysis, the intersection PHF utilized in the analysis of future conditions was determined based on the existing traffic counts, with a minimum of 0.92 as agreed to in the scoping document. The HV% were based on the existing conditions scenario, with any new approaches utilizing a default *Synchro* value of 2.0% per movement.

Stafford County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.

The results of the intersection capacity and queuing analyses from *Synchro / SimTraffic* are presented in **Table 7** and graphically in Error! Reference source not found.. The results are expressed in LOS and delay (seconds per vehicle) for overall signalized i ntersections and per approach and lane group for all study intersections. The overall signalized intersections and any approaches that operate at LOS E or F are displayed in red.

The queue lengths were reported as the maximum queues determined from *SimTraffic* and are expressed in feet. The lane groups where the queue lengths exceeded the available effective storage capacity of existing turn lanes are displayed in red.

The detailed capacity analysis worksheets of the 2030 Future Conditions with Development are contained in Appendix K.

The detailed analysis worksheets for the 2030 Future Conditions with Development simulation analysis are included in Appendix L.

Table 7: 2030 Future Conditions with Development – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)		**F**	**94.4**		**F**	**406.1**	
	Eastbound Approach		***E***	***61.6***		***F***	***947.9***	
	Eastbound Left	500	E	58.3	119	F	92.0	121
	Eastbound Thru		D	38.2	158	F	219.1	2804
	Eastbound Right		E	73.4	318	F	1364.5	2818
	Westbound Approach		***D***	***44.4***		***F***	***145.3***	
	Westbound Left	150	E	64.5	138	F	235.1	288
	Westbound Thru / Right		D	38.7	190	F	95.2	518
	Northbound Approach		***F***	***142.9***		***F***	***351.2***	
	Northbound Left	400	F	299.5	399	F	683.7	400
	Northbound Thru		C	22.5	729	B	11.4	5197
	Northbound Right	700	B	15.2	43	A	6.6	98
	Southbound Approach		***C***	***31.2***		***C***	***23.3***	
	Southbound Left	550	E	63.2	45	F	92.8	140
	Southbound Thru		C	31.3	162	C	22.5	515
	Southbound Right	500	C	25.2	70	A	9.9	118
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Restripe to Provide Second EBR		**D**	**35.4**		**E**	**77.2**	
	Eastbound Approach		***D***	***36.9***		***F***	***120.8***	
	Eastbound Left	500	E	60.4	104	F	88.7	500
	Eastbound Thru		D	53.8	294	F	208.4	2524
	Eastbound Right		C	23.7	116	F	90.5	2401
	Westbound Approach		***D***	***48.8***		***F***	***101.2***	
	Westbound Left	150	E	68.4	136	F	168.3	293
	Westbound Thru / Right		D	43.3	174	E	63.3	418
	Northbound Approach		***C***	***32.4***		***D***	***53.4***	
	Northbound Left	400	E	56.4	387	F	92.2	395
	Northbound Thru		B	14.5	483	B	14.7	564
	Northbound Right	700	A	9.4	55	A	8.3	44
	Southbound Approach		***C***	***31.4***		***D***	***47.4***	
	Southbound Left	550	E	71.6	56	F	110.7	320
	Southbound Thru		C	31.2	160	D	47.3	702
	Southbound Right	500	C	25.5	84	C	21.2	252
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)		**C**	**27.5**		**E**	**64.4**	
	Eastbound Approach		***D***	***40.5***		***F***	***139.6***	
	Eastbound Left		D	36.2	141	D	50.1	305
	Eastbound Thru / Right		D	42.8	176	F	167.7	467
	Westbound Approach		***D***	***44.6***		***E***	***74.3***	
	Westbound Left		C	34.2	179	D	51.8	184
	Westbound Thru / Right		D	49.3	276	F	83.1	284
	Northbound Approach		***C***	***25.1***		***C***	***22.0***	
	Northbound Left	300	B	15.6	120	E	56.6	127
	Northbound Thru / Right		C	26.1	406	B	18.6	399
	Southbound Approach		***C***	***20.9***		***E***	***70.3***	
	Southbound Left	200	B	19.5	89	B	14.3	373
	Southbound Thru / Right		C	21.0	268	F	73.8	579
3	**US Route 1 (N/S) & Sage Lane / Future Connector Road (E/W)**							
	Overall Intersection: (Signalized)		**C**	**21.9**		**C**	**21.2**	
	Eastbound Approach		***D***	***44.1***		***D***	***54.7***	
	Eastbound Left / Right		D	44.1	82	D	54.7	93
	Westbound Approach		***D***	***37.9***		***D***	***49.7***	
	Westbound Left / Thru		D	40.1	143	D	52.0	95
	Westbound Right		D	36.7	171	D	48.4	93
	Northbound Approach		***C***	***21.8***		***B***	***15.3***	
	Northbound Left	200	B	13.4	55	B	18.4	117
	Northbound Thru		C	22.6	362	B	15.4	326
	Northbound Right		B	16.2	299	B	11.6	137
	Southbound Approach		***B***	***16.1***		***C***	***20.8***	
	Southbound Left		C	20.6	184	B	11.5	195
	Southbound Thru / Right		B	15.0	203	C	20.7	372

Table 7: 2030 Future Conditions with Development – Intersection Capacity Analysis Results (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**D**	**39.1**		**D**	**45.2**	
	Westbound Approach		***F***	***147.3***		***E***	***61.5***	
	Westbound Left		F	125.5	612	E	68.6	660
	Westbound Right	225	F	168.8	329	D	36.5	109
	Northbound Approach		***A***	***7.6***		***D***	***41.2***	
	Northbound Thru		A	0.3	308	E	60.9	360
	Northbound Right	180	B	15.0	468	C	20.0	462
	Southbound Approach		***B***	***17.4***		***D***	***42.3***	
	Southbound Left	345	D	44.4	639	F	82.1	636
	Southbound Thru		A	9.6	910	D	35.2	660
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Provide WBR Overlap Phase		**C**	**29.3**		**D**	**43.9**	
	Westbound Approach		***F***	***100.9***		***E***	***58.9***	
	Westbound Left		F	125.5	764	E	69.9	766
	Westbound Right	225	E	76.5	399	C	20.2	158
	Northbound Approach		***A***	***8.9***		***D***	***42.3***	
	Northbound Thru		A	0.4	569	E	61.9	352
	Northbound Right	180	B	17.4	764	C	21.2	496
	Southbound Approach		***B***	***13.8***		***D***	***40.1***	
	Southbound Left	345	C	28.5	707	E	69.7	659
	Southbound Thru		A	9.6	458	C	34.8	546
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**E**	**63.3**		**C**	**32.4**	
	Eastbound Approach		***B***	***19.9***		***B***	***18.5***	
	Eastbound Left	275	C	23.8	183	C	24.1	259
	Eastbound Thru		B	18.6	243	B	16.8	397
	Westbound Approach		***D***	***35.3***		***D***	***38.1***	
	Westbound Thru		D	35.3	263	D	38.1	267
	Westbound Right	200	A	0.0	0	A	0.0	0
	Northbound Approach		***F***	***109.6***		***D***	***48.6***	
	Northbound Left / Thru / Right		F	109.6	2014	D	48.6	592
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Modify Signal Timings		**D**	**43.6**		**C**	**32.4**	
	Eastbound Approach		***C***	***28.7***		***B***	***18.5***	
	Eastbound Left	275	D	37.4	238	C	24.1	274
	Eastbound Thru		C	25.7	310	B	16.8	414
	Westbound Approach		***D***	***44.0***		***D***	***38.1***	
	Westbound Thru		D	44.0	266	D	38.1	266
	Westbound Right	200	A	0.0	0	A	0.0	0
	Northbound Approach		***D***	***54.0***		***D***	***48.6***	
	Northbound Left / Thru / Right		D	54.0	1253	D	48.6	625
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**B**	**17.4**		**E**	**74.7**	
	Eastbound Approach		***C***	***20.9***		***F***	***113.4***	
	Eastbound Thru		B	18.1	241	D	44.7	444
	Eastbound Right	200	C	23.0	166	F	165.6	409
	Westbound Approach		***B***	***10.7***		***C***	***34.9***	
	Westbound Left	250	B	12.2	169	E	63.8	331
	Westbound Thru		B	10.3	298	B	16.4	315
	Southbound Approach		***C***	***29.6***		***D***	***54.4***	
	Southbound Left / Thru		C	29.6	222	D	54.4	230
	Southbound Right		A	0.0	0	A	0.0	0

Table 7: 2030 Future Conditions with Development – Intersection Capacity Analysis Results (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)** **Overall Intersection: (Signalized)** **MIT: Channelize EBR**		**B**	**16.1**		**D**	**38.2**	
	Eastbound Approach		***C***	***21.9***		***D***	***48.0***	
	Eastbound Thru		C	21.9	250	D	48.0	429
	Eastbound Right	200	A	0.0	205	A	0.0	396
	Westbound Approach		***B***	***11.7***		***C***	***29.5***	
	Westbound Left	250	B	13.1	190	D	50.5	269
	Westbound Thru		B	11.3	266	B	16.0	300
	Southbound Approach		***C***	***24.0***		***D***	***47.2***	
	Southbound Left / Thru		C	24.0	218	D	47.2	230
	Southbound Right		A	0.0	0	A	0.0	0
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S)** **Overall Intersection: (TWSC)**							
	Eastbound Approach							
	Eastbound Left / Thru / Right		A	7.6	40	A	8.7	91
	Westbound Approach							
	Westbound Left / Thru / Right		A	8.0	34	A	9.3	43
	Northbound Approach		***C***	***15.6***		***C***	***15.9***	
	Northbound Left / Thru / Right		C	15.6	115	C	15.9	88
	Southbound Approach		***A***	***9.6***		***B***	***10.2***	
	Southbound Left / Thru / Right		A	9.6	104	B	10.2	96
8	**Eskimo Hill Road (N/E) & State Shop Road (S)** **Overall Intersection: (TWSC)**							
	Eastbound Approach		***B***	***10.3***		***B***	***12.0***	
	Eastbound Left / Thru / Right		B	10.3	24	B	12.0	25
	Westbound Approach		***A***	***9.6***		***A***	***9.5***	
	Westbound Left / Thru / Right		A	9.6	85	A	9.5	70
	Northbound Approach							
	Northbound Left / Thru / Right		A	7.2	0	A	7.2	4
	Southbound Approach							
	Southbound Left / Thru / Right		A	7.4	23	A	7.7	58
9	**Future Connector Road (E/W) & West Campus #1 / West Campus #2 (N/S)** **Overall Intersection: (TWSC)**							
	Eastbound Approach							
	Eastbound Left / Thru / Right		A	7.8	39	A	7.5	7
	Westbound Approach							
	Westbound Left / Thru / Right		A	7.9	3	A	7.5	5
	Northbound Approach		***B***	***14.5***		***B***	***10.5***	
	Northbound Left / Thru / Right		B	14.5	64	B	10.5	39
	Southbound Approach		***B***	***10.2***		***A***	***9.2***	
	Southbound Left / Thru / Right		B	10.2	32	A	9.2	32
10	**Future Connector Road (E/W) & Future South Campus #1 (S)** **Overall Intersection: (TWSC)**							
	Westbound Approach							
	Westbound Left / Thru		A	7.7	6	A	7.5	36
	Northbound Approach		***B***	***11.9***		***A***	***9.9***	
	Northbound Left / Right		B	11.9	25	A	9.9	0
11	**Future Connector Road (E/W) & Future North Campus (N)** **Overall Intersection: (TWSC)**							
	Eastbound Approach							
	Eastbound Left / Thru		A	7.8	62	A	7.4	14
	Southbound Approach		***A***	***9.7***		***A***	***8.9***	
	Southbound Left / Right		A	9.7	57	A	8.9	34

Table 7: 2030 Future Conditions with Development – Intersection Capacity Analysis Results (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
12	**Future Connector Road (E/W) & Eskimo Hill Road (S)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach							
	Eastbound Left / Thru		A	8.1	5	A	7.6	3
	Southbound Approach		***B***	***12.1***		***B***	***11.5***	
	Southbound Left / Right		B	12.1	54	B	11.5	79
13	**Future Connector Road (E/W) & Future South Campus #2 (N)**							
	Overall Intersection: (TWSC)							
	Westbound Approach							
	WestboundLeft / Thru		A	7.7	8	A	7.9	3
	Northbound Approach		***B***	***12.6***		***B***	***11.5***	
	Northbound Left / Right		B	12.6	58	B	11.5	36
14	**Future Connector Road (E/W) & Future East Campus (S)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach							
	Eastbound Thru / Right		A	8.0	71	A	7.5	32
	Southbound Approach		***B***	***10.5***		***A***	***9.1***	
	Southbound Left / RIght		B	10.5	53	A	9.1	50
15	**Future Connector Road (E/W) & Future Neighborhood Connector (N)**							
	Overall Intersection: (TWSC)							
	Westbound Approach							
	Westbound Left / Thru		A	7.4	0	A	7.8	3
	Northbound Approach		***B***	***10.4***		***B***	***10.6***	
	Northbound Left / Right		B	10.4	26	B	10.6	20
16	**Future Neighborhood Connector (N/S) & Future South Campus #3 (E)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach		***A***	***8.6***		***A***	***8.5***	
	Eastbound Left / Right		A	8.6	31	A	8.5	30
	Northbound Approach							
	Northbound Left / Thru		A	7.2	0	A	7.2	0

NOTES

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] Max queues are based on results from SimTraffic. Per TOSAM guidelines, the queues are based on the average to 10 simulations.

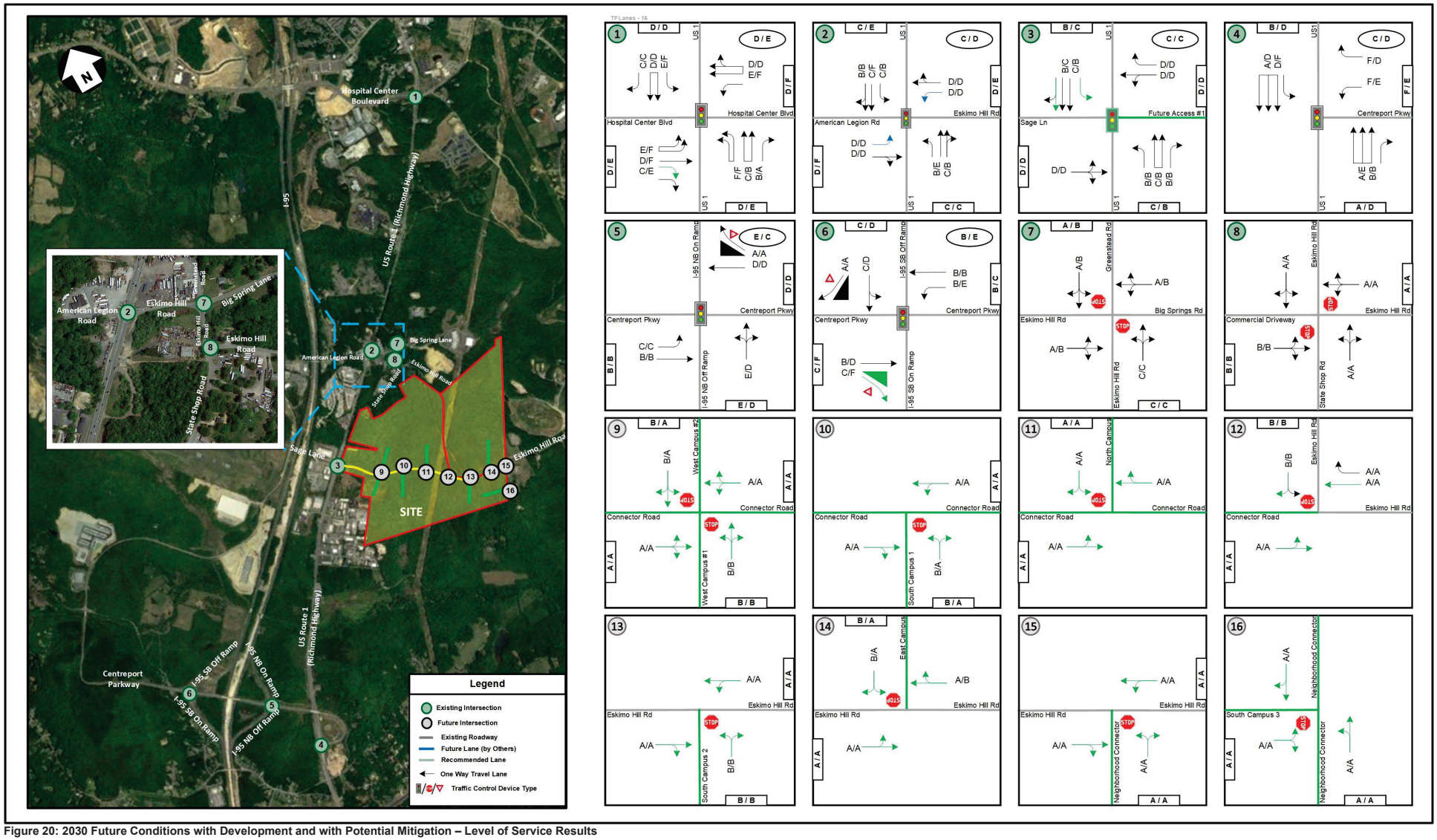

Figure 20: 2030 Future Conditions with Development and with Potential Mitigation – Level of Service Results

The following roadway improvements and mitigations are recommended (by intersection) under 2030 Future Conditions with Development in order to accommodate future roadway demand due to the changes in traffic patterns and increased vehicular traffic demand along the road network:

- Construct the two lane Connector Road from Eskimo Hill to US Route 1 across from Sage Lane
- Study Intersection 1: US Route 1 at Hospital Center Boulevard
    - Restripe the eastbound approach to provide dual left turn lanes, one through lane, and two right turn lanes
    - Modify signal as necessary
- Study Intersection 3: US Route 1 at Sage Lane / Future Full Movement Access #1
    - Install a traffic signal
    - Install a dedicated southbound left turn lane
    - Restripe the southbound right turn lane to provide a shared through / right lane
    - Install a dedicated northbound right turn lane
    - Construct the westbound Connector Road with one shared left / through lane and one right turn lane with appropriate storage and taper.
- Study Intersection 4: US Route 1 at Centreport Parkway
    - Modify signal timings and provide westbound right turn overlap phase
- Study Intersection 5: I-95 Northbound Ramps at Centreport Parkway
    - Modify signal timings
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway
    - Construct a channelized eastbound right turn lane
- Study Intersection 12: Eskimo Hill Road at Connector Road
    - Construct a westbound right turn lane
- Connector Road at All Site Driveways
    - Construct site driveways with one ingress lane and one egress lane

As mentioned previously, the County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.

Based on the capacity analysis of 2030 Future Conditions with Development and with the recommended mitigations in place, all signalized study intersections are anticipated to operate at a similar LOS to the 2030 Future Conditions without Development.

Based on the capacity analysis of the 2030 Future Conditions with Development with the recommended mitigations in place, the approaches of all study intersections are anticipated to operate at a similar LOS to the 2030 Future Conditions without Development.

Based on the queuing analysis performed for the 2030 Future Conditions with Development and with the recommended mitigations in place, all turning movements at the study intersections are anticipated to have maximum queue lengths that are

accommodated within the available storage lengths of the turn bays with the exception of the following intersections that are anticipated to exceed at least one turn bay storage length in at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 4: US Route 1 at Centreport Parkway
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

In general, the signalized intersections would operate with longer vehicular delays for the side-streets and mainline left turning movements. These delays are a result of VDOT prioritization of through traffic on the mainline, as is typical along commuter corridors, to accommodate the largest possible volume of through traffic in the area along the mainlines and therefore have a better overall traffic operation than if all movements were prioritized equally.

Note that the results at Study Intersection 2 improves as a result of the Connector Road being constructed. It was assumed that approximately one-third of the existing Eskimo Hill through traffic will use the new Connector Road to access US Route 1 because it is more convenient.

Planning Scenario

At the request of VDOT, an additional scenario was added with the goal to see what improvements are needed to achieve an overall LOS D and to make every approach LOS D. Note that these are not improvements recommended to be constructed at build out of the proposed development. This is intended for informational purposes only.

To achieve LOS D for all approaches and overall, Study Intersection 1 conflicts from the intersection box would need to be removed. One way to achieve this may be a southeast quadrant roadway.

To achieve LOS D for all approaches and overall, Study Intersection 2, US Route1 could be widened to a six-lane roadway. As an alternative, right turn lanes with overlaps could be added to the southbound, eastbound, and westbound approaches.

To mitigate existing queuing at Study Intersection 4, a second westbound left turn lane and a second southbound left turn lane could be constructed.

To mitigate queuing at Study Intersection 5, a second northbound lane could be constructed.

The capacity analysis results for the planning scenario are shown in **Table 8**.

Table 8: 2030 Future Conditions with Development (Planning Scenario) – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: SE Quadrant Roadway		**C**	**33.9**		**D**	**42.0**	
	Eastbound Approach		***D***	***39.1***		***D***	***54.1***	
	Eastbound Thru		C	31.7	257	D	38.3	372
	Eastbound Right		D	42.0	173	E	59.6	483
	Westbound Approach		***D***	***53.2***		***D***	***43.2***	
	Westbound Thru / Right		D	53.3	542	D	43.2	487
	Northbound Approach		***B***	***14.3***		***C***	***22.7***	
	Northbound Thru		B	14.6	249	C	23.0	217
	Northbound Right	700	B	12.4	65	C	21.2	61
	Southbound Approach		***B***	***12.4***		***D***	***36.8***	
	Southbound Thru		B	12.5	152	D	37.5	677
	Southbound Right	500	B	12.0	84	C	21.1	500
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Widen US 1 to Six Lanes		**C**	**23.3**		**C**	**29.4**	
	Eastbound Approach		***D***	***35.3***		***D***	***51.0***	
	Eastbound Left		C	31.3	136	D	38.3	117
	Eastbound Thru / Right		D	37.4	173	D	55.0	284
	Westbound Approach		***D***	***38.7***		***D***	***45.4***	
	Westbound Left		C	29.6	166	D	40.2	147
	Westbound Thru / Right		D	42.8	246	D	47.4	224
	Northbound Approach		***C***	***20.0***		***C***	***20.9***	
	Northbound Left	300	B	14.6	132	C	28.6	122
	Northbound Thru / Right		C	20.3	322	C	20.0	261
	Southbound Approach		***B***	***18.7***		***C***	***28.4***	
	Southbound Left	200	B	16.0	101	B	15.1	200
	Southbound Thru / Right		B	18.8	180	C	28.4	805
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Construct second SBL		**D**	**35.7**		**D**	**39.2**	
	Westbound Approach		***D***	***54.5***		***D***	***54.7***	
	Westbound Left		E	57.7	414	E	62.9	668
	Westbound Right	225	D	51.3	222	C	26.1	101
	Northbound Approach		***D***	***36.2***		***D***	***35.5***	
	Northbound Thru		D	47.0	406	E	55.4	321
	Northbound Right	180	C	25.3	576	B	14.1	350
	Southbound Approach		***B***	***17.8***		***D***	***36.4***	
	Southbound Left	345	C	26.7	192	C	33.0	523
	Southbound Thru		B	15.2	231	D	37.0	752

NOTES:

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] Max queues are based on results from SimTraffic. Per TOSAM guidelines, the queues are based on the average to 10 simulations.

Preliminary Left and Right Turn Lane Warrant Assessments

Left and right turn lane warrants are based off of VDOT's Road Design Manual (RDM), Appendix F. In order to determine the need for exclusive left and/or right turn lanes or tapers at the site accesses along US Route 1 and Eskimo Hill Road, the traffic data and anticipated development program provided in the 2030 Future Conditions with Development scenario section were utilized.

Warrants for right-turn storage lanes on two- and four-lane highways at intersections are based on Figure 3-26 and Figure 3-27 in Appendix F of VDOT's RDM. These figures provide a graphical representation for determining the necessity of a right turn lane by comparing the total volumes of a given approach with their respective right turn volumes.

Warrants for left-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-5 to Figure 3-21 in Appendix F of VDOT's RDM. The figures provide graphical representations for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes with respect to the percentage of left turning vehicles of the advancing volumes and the design speed of a given roadway.

Warrants for left-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-3 in Appendix F of VDOT's RDM. The figure provides graphical representation for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes with respect to if the roadway is divided or undivided.

If the turn lanes and / or tapers are not provided or would not meet the minimum requirements per either VDOT's RDM, turn lane waivers requests would need to be submitted as separate documentation and be approved by VDOT and/or County staff.

A summary of the turn lane warrant analysis is presented in **Table 9 to Table 12**.

Table 9: Summary of Left Turn Lane Warrant Analysis on Four-Lane US Route 1

Study Scenario	Opposing Vol. (VPH)	Advancing Vol. (VPH)	Left Turning Vol.	Left Turn %	Treatment
INT 3 - SBL - 2030 TF AM Peak	1,226	932	172	18.5%	Full-width Turn Lane and Taper Warranted (for Undivided and Divided)
INT 3 - SBL - 2030 TF PM Peak	914	2,323	98	4.2%	Full-width Turn Lane and Taper Warranted (for Undivided and Divided)

Table 10: Summary of Right Turn Lane Warrant Analysis on Four-Lane US Route 1

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 3 - NBR - 2030 TF AM Peak	1,226	118	10	40	Full-width Lane and Taper Required
INT 3 - NBR - 2030 TF PM Peak	914	33	13	60	Taper Required

Table 11: Summary of Left Turn Lane Warrant Analysis on Two-Lane Connector Road

Study Scenario	Opposing Vol. (VPH)	Advancing Vol. (VPH)	Left Turn Vol. (VPH)	Left Turn %	Minimum Opposing Threshold (VPH)	VDOT RDM F Figure	Treatment
INT 9 - EBL - 2030 TF AM Peak	253	290	8	2.76%	914	Fig. 3-4	Not Warranted
INT 9 - EBL - 2030 TF PM Peak	132	123	1	0.81%	1,524	Fig. 3-4	Not Warranted
INT 9 - WBL - 2030 TF AM Peak	290	253	3	1.19%	1,031	Fig. 3-4	Not Warranted
INT 9 - WBL - 2030 TF PM Peak	123	132	1	0.76%	1,485	Fig. 3-4	Not Warranted
INT 10 - WBL - 2030 TF AM Peak	230	232	1	0.43%	1,101	Fig. 3-4	Not Warranted
INT 10 - WBL - 2030 TF PM Peak	120	111	1	0.90%	1,577	Fig. 3-4	Not Warranted
INT 11 - EBL - 2030 TF AM Peak	198	204	44	21.57%	578	Fig. 3-8	Not Warranted
INT 11 - EBL - 2030 TF PM Peak	92	116	8	6.90%	1,308	Fig. 3-5	Not Warranted
INT 12 - EBL - 2030 TF AM Peak	356	162	1	0.62%	1,361	Fig. 3-4	Not Warranted
INT 12 - EBL - 2030 TF PM Peak	157	110	1	0.91%	1581	Fig. 3-4	Not Warranted
INT 13 - WBL - 2030 TF AM Peak	196	325	2	0.62%	813	Fig. 3-4	Not Warranted
INT 13 - WBL - 2030 TF PM Peak	274	141	1	0.71%	1447	Fig. 3-4	Not Warranted
INT 14 - EBL - 2030 TF AM Peak	257	157	90	57.32%	754	Fig. 3-9	Not Warranted
INT 14 - EBL - 2030 TF PM Peak	103	268	17	6.34%	708	Fig. 3-5	Not Warranted
INT 15 - WBL - 2030 TF AM Peak	71	251	1	0.40%	1037	Fig. 3-4	Not Warranted
INT 15 - WBL - 2030 TF PM Peak	253	101	1	0.99%	1622	Fig. 3-4	Not Warranted

Table 12: Summary of Right Turn Lane Warrant Analysis on Two-Lane Connector Road

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 9 - WBR - 2030 TF AM Peak	253	1	45	85	Not Warranted
INT 9 - WBR - 2030 TF PM Peak	123	1	58	102	Not Warranted
INT 9 - EBR - 2030 TF AM Peak	290	55	41	80	Taper Required
INT 9 - EBR - 2030 TF PM Peak	132	10	57	101	Not Warranted
INT 10 - EBR - 2030 TF AM Peak	230	27	47	88	Not Warranted
INT 10 - EBR - 2030 TF PM Peak	120	5	58	102	Not Warranted
INT 11 - WBR - 2030 TF AM Peak	198	2	50	92	Not Warranted
INT 11 - WBR - 2030 TF PM Peak	92	1	61	106	Not Warranted
INT 12 - WBR - 2030 TF AM Peak	356	158	34	72	Full-width Lane and Taper Required
INT 12 - WBR - 2030 TF PM Peak	157	65	54	98	Taper Required
INT 13 - EBR - 2030 TF AM Peak	196	41	50	93	Not Warranted
INT 13 - EBR - 2030 TF PM Peak	274	7	43	82	Not Warranted
INT 14 - WBR - 2030 TF AM Peak	257	5	44	85	Not Warranted
INT 14 - WBR - 2030 TF PM Peak	103	1	60	105	Not Warranted
INT 15 - EBR - 2030 TF AM Peak	71	8	63	109	Not Warranted
INT 15 - EBR - 2030 TF PM Peak	253	1	45	85	Not Warranted
INT 16 - SBR - 2030 TF AM Peak	10	9	69	117	Not Warranted
INT 16 - SBR - 2030 TF PM Peak	2	1	70	118	Not Warranted

Graphics and information regarding the methodology used to determine the turn lane warrants is provided in Appendix M.

Conclusions

This report presents the findings of a TIS conducted for the proposed Stafford Technology Campus development which is generally situated along both sides of Eskimo Hill Road (Route 628) and east of US Route 1 (Richmond Highway) in Stafford County, Virginia.

The Development site is currently undeveloped and consists of two parcels of land, totaling approximately 523.84-acres. The Property is currently zoned as A-1 (and the Applicant is proposing to rezone the parcels to M-1 in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be completed and in operation by 2030.

The analysis presented in this report supports the following assumptions and major findings:

Analysis Components

- 2023 existing volumes were derived via turning movement counts collected at intersections within the study area in October 2021, June 2022, and February 2023. Turning movement counts conducted prior to 2023 were provided directly by VDOT. These traffic counts were then grown to 2023 at a rate of 2.5% (compounded per year) and applied to all movements at the counted existing study intersections to determine 2023 existing conditions.
- As determined based on the discussions and scoping document with VDOT and the County, an inherent regional growth of 2.5% per year was applied to all movements at the existing study intersections for the period between 2023 and 2030 to account for 2030 conditions.
- Six approved background developments in the vicinity of the Site were included in the study.
- The trip generation associated with the Site was based on custom data center rates as approved by VDOT. The Site in total is expected to generate approximately 523 new trips during the AM peak hour, 175 new trips during the PM peak hour, and 4,356 new daily trips on a typical weekday.
- Intersection capacity and queuing analyses were performed for all analysis scenarios at the study area intersections during the weekday morning (AM) and weekday afternoon (PM) peak hours. *Synchro*, version 11, was used to analyze the study intersections with results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) methodology and analysis guidelines provided in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) (version 2). The analysis herein includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.
- The analysis also includes preliminary turn lane warrant assessments for the Site access points along US Route 1 and the Connector Road, respectively.

Infrastructure

- The proposed access plans include the construction of a connector road that was identified on the Stafford County Comprehensive Plan. This Connector Road will extend from Eskimo Hill Road to US Route 1, forming the fourth leg of the US Route 1 at Sage Lane intersection. The Site is anticipated to have six driveway connections along the new Connector Road.

Proposed/Recommended Mitigation

The following roadway improvements are recommended to be implemented with the proposed development in 2030 in order to accommodate future roadway demand due to the changes in traffic patterns and increased vehicular traffic demand along the road network:

- Construct the two lane Connector Road from Eskimo Hill to US Route 1 across from Sage Lane
- Study Intersection 1: US Route 1 at Hospital Center Boulevard

- Restripe the eastbound approach to provide dual left turn lanes, one through lane, and two right turn lanes
- Modify the signal as necessary

- Study Intersection 3: US Route 1 at Sage Lane / Future Full Movement Access #1
  - Install traffic signal
  - Install a dedicated southbound left turn lane
  - Restripe the southbound right turn lane to provide a shared through / right lane
  - Install a dedicated northbound right turn lane
  - Construct a westbound Connector Road with one shared left / through lane and one right turn lane with appropriate storage and taper.
- Study Intersection 4: US Route 1 at Centreport Parkway
  - Modify the signal timings and provide for a westbound right turn overlap phase
- Study Intersection 5: I-95 Northbound Ramps at Centreport Parkway
  - Modify the signal timings
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway
  - Construct a channelized right turn lane
- Study Intersection 12: Eskimo Hill Road at Connector Road
  - Construct a westbound right turn lane
- Connector Road at All Site Driveways
  - Construct the site driveways with one ingress lane and one egress lane

Analysis Results

2023 Existing Conditions

- Based on the capacity analysis of Existing Conditions, all signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours, except for the following study intersection:
  - Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Based on the capacity analysis of Existing Conditions, three existing study intersections have at least one approach that operates at levels of service (LOS E or F) for at least one peak hour.
- Based on the queueing analysis of Existing Conditions, two existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.

2030 Future Conditions without Development

- Smartscale improvements of eastbound and westbound left turn lanes at Study Intersection 2 (US Route 1 at American Legion Road / Eskimo Hill Road) were included in the analysis.
- Based on the capacity analysis of 2030 Future Conditions without Development, all signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours, except for the following study intersections:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

- Based on the capacity analysis of 2030 Future Conditions without Development, six existing study intersections are anticipated to have at least one approach that operates at levels of service E of F for at least one peak hour.
- Based on the queueing analysis of 2030 Future Conditions without Development, four existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.

2030 Future Conditions with Development

- The Site is expected to generate approximately 523 net new total trips during the AM peak hour, 175 net new trips during the PM peak hour and 4,356 net new trips during a typical weekday.
- The County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.
- Based on the capacity analysis of 2030 Future Conditions with Development and with the recommended mitigations in place, all signalized study intersections are anticipated to operate with similar levels of service, or better, to the 2030 Future Conditions without Development during the AM and PM peak hours.
- Based on the capacity analysis of the 2030 Future Conditions with Development and with the recommended mitigations in place, the approaches of all study intersections anticipated to operate with similar levels of service to the 2030 Future Conditions without Development during the AM and PM peak hours.
- Based on the queuing analysis performed for the 2030 Future Conditions with Development four existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.
- As listed previously, improvements are proposed to mitigate the transportation impacts of this project.

Overall Conclusion

The Applicant is proposing to construct up to 5.808 million square feet of data center uses. In order to offset the additional traffic volumes generated by the Site, the Applicant is proposing improvements in the study area to mitigate traffic operations. Based on the capacity and queueing analysis results, the proposed development will not have a substantial impact to the surrounding transportation and roadway network under 2030 conditions, assuming that all planned designs and recommended mitigation measures discussed in this report are implemented.

Transportation Technical Appendix

Stafford Technology Campus

Stafford County, Virginia

GOROVE SLADE
Transportation Planners and Engineers

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Appendix B –Turning Movement Counts Data

Appendix C – HCM Level of Service Definitions

Appendix D – 2023 Existing Conditions – Capacity Analysis Worksheets

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Appendix F – Background Development Information and Assignment

Appendix G – Roadway Improvement Excepts

Appendix H – 2030 Future Conditions without Development – Capacity Analysis Worksheets

Appendix I – 2030 Future Conditions without Development – Simulation Analysis Worksheets

Appendix J – Documentation for Data Center Rates

Appendix K – 2030 Future Conditions with Development – Capacity Analysis Worksheets

Appendix L – 2030 Future Conditions with Development – Simulation Analysis Worksheets

Appendix M – Turn Lane Warrant Tables and Graphics

A. Signed Scoping Document

THIS IS NOT A CHAPTER 870 STUDY

VDOT Virginia Department of Transportation	PRE-SCOPE OF WORK MEETING FORM Information on the Project Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information				
Consultant Name: Tele: E-mail:	Kevin Sitzman, Gorove Slade Associates, Inc. 703.787.9595 ksitzman@goroveslade.com			
Developer/Owner Name: Tele: E-mail:	Kevin McHugh KMcHugh@Petersoncos.com			
Project Information				
Project Name:	Stafford Technology Campus	Locality/County:	Stafford County	
Project Location: (Attach regional and site specific location map)	The proposed development site is generally situated south of State Street Road between Eskimo Hill Road (Route 628) and US Route 1 (Richmond Highway) in Stafford County, Virginia.			
Submission Type	Comp Plan ☒	REZ/CUP ☒	Site Plan ☐	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The site is situated across two parcels that can be identified on Stafford County Tax Maps with the following Tax Map ID #s: 38 124 and 38 29A. The property is 523.94 acres and is currently zoned as A1 (Agricultural). The Applicant is proposing to rezone the parcels to Industrial in order to construct up to 5.5 million square feet of data center uses and 150,000 square feet of general light industrial uses. The development is anticipated to be complete and in operation by 2030. Assess to the site will be provided via three proposed full-movement entrances along Eskimo Hill Road and one proposed full move-movement entrance on US Route 1 forming the fourth leg of the Sage Lane intersection.			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☐	Mixed Use ☐	Other ☒
	Residential Uses(s) ITE LU Code(s): Number of Units: **Commercial Use(s)** ITE LU Code(s): Square Ft or Other Variable:		**Other Use(s)** ITE LU Code(s): 160, 110 Square Ft or Other Variable: 5,500 kSF, 150 kSF	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☐	500 – 999 ☒	1,000 or more ☐

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Traffic Impact Analysis Assumptions					
Study Period	Existing Year: 2023		Build-out Year: 2030		Design Year: N/A
Study Area Boundaries (Attach map)	North: State Shop Road			South: N/A	
	West: US Route 1 (Richmond Highway)			East: Eskimo Hill Road (Route 628)	
External Factors That Could Affect Project (Planned road improvements, other nearby developments) **(Please refer to attached Figure 3 in Supplement.)**	Approved Developments: 1. Centreport Gateway: (60,000 sf Shopping Center, 90 Room Hotel) 2. Centreport Industrial: (40,000 sf General Light Industrial) 3. Centreport Village: (494 Multifamily Housing – Low Rise) 4. Crossroads Industrial: (762,000 sf Industrial Park) 5. Project Ivy: (934,000 sf High Cube Warehouse – Non Sort, 633 space Storage Lot) 6. The Hills at Big Springs: (181 Single Family Homes)				
Consistency With Comprehensive Plan (Land use, transportation plan)	Yes				
Available Traffic Data (Historical, forecasts)	2023 TMCs at US 1 at Sage Ln, Eskimo Hill at Greenstead, Eskimo Hill at State Shop 2022 TMC at US 1 at Hospital Center Blvd 2021 TMC's at US 1 at Eskimo Hill, US 1 at Centerport Parkway, I-95 (NB and SB) at Centerport Parkway VDOT Historical AADT Data				
Trip Distribution **(Please refer to attached Figure 2 in Supplement.)**	Road Name: US Route 1 (to/from the North) – 45%			Road Name: US Route 1 (to/from the South) – 40%	
	Road Name: American Legion Road (to/from the West) – 10%			Road Name: Eskimo Hill Road (to/from the East) – 5%	
Annual Vehicle Trip Growth Rate: (See Note 4.)	2.5%/yr. (2023-2030)		Peak Period for Study (check all that apply)	☒ AM ☒ PM ☐ SAT	
			Peak Hour of the Adj. (to be used in study)	AM: 606 / PM: 263 / Daily: 4,856	
Study Intersections and/or Road Segments (Attach additional sheets as necessary) **(Please refer to attached Figure 1 in Supplement.)**	1.	US Route 1 at Hospital Center Boulevard		7.	Eskimo Hill Road at Greenstead Road / Big Spring Lane
	2.	US Route 1 at American Legion Road / Eskimo Hill Road		8.	Eskimo Hill Road at State Shop Road
	3.	US Route 1 at Sage Lane / Future Access 1		9.	Eskimo Hill Road at Future Site Entrance 2 / Future Site Access 3
	4.	US Route 1 at Centreport Parkway		10.	Eskimo Hill Road at Future Site Entrance 4
	5.	I-95 Northbound Ramps at Centerport Parkway		11.	Eskimo Hill Road at Future Site Entrance 5
	6.	I-95 Southbound Ramps at Centerport Parkway		12.	

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Trip Adjustment Factors	Internal allowance Reduction: ☐ Yes ☒ No	Pass-by allowance Reduction: ☐ Yes ☒ No
Software Methodology	☒ Synchro ☐ HCS (v.2000/+) ☐ SIDRA ☐ CORSIM ☒ Other SimTraffic	
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	Existing traffic signals that could be affected: 1. US Route 1 at Hospital Center Boulevard 2. US Route 1 at American Legion Road / Eskimo Hill Road 3. US Route 1 at Centreport Parkway 4. I-95 Northbound Ramps at Centreport Parkway 5. I-95 Southbound Ramps at Centreport Parkway Analysis Software: Synchro version 11 Results: HCM 6 Methodology (See Note 11.) Queue Lengths to be Reported: SimTraffic Max Queues	
Improvement(s) Assumed or to be Considered	1. Smart Scale project to construct eastbound and westbound left turn lanes on American Legion Road and Eskimo Hill Road 2. Centreport Parkway Area Improvements	
Background Traffic Studies Considered	Project Pipeline Study (December 2022)	
Plan Submission	☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)	
Additional Issues to be Addressed	☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☐ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other (_____)	

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

NOTES on ASSUMPTIONS:

1. Synchro files/signal timings will be obtained from VDOT.
2. The scenarios to be included in the study are 2023 Existing Conditions, 2030 Future Conditions without Development, 2030 Future Conditions with Development. The study will analyze AM and PM peak hours for all above scenarios.
3. Existing 2023 turning movement counts will be collected and utilized to develop baseline conditions at the intersections of US Route 1 at Sage Lane, Eskimo Hill Rd at Big Springs Rd, and Eskimo Hill Rd at State Shop Rd.
4. Existing 2022 turning movement counts will be provided by VDOT at the intersection of US Route 1 at Hospital Center Boulevard. The 2022 counts will be grown for one year to 2023 using a growth rate of 2.5% compounded annually for all movements.
5. Existing 2021 turning movement counts will be provided by VDOT at the intersections of US Route 1 at Eskimo Hill Rd, US Route 1 at Centreport Pkwy, I-95 Northbound Ramps at Centreport Parkway, and I-95 Southbound Ramps at Centreport Parkway. The 2021 counts will be grown for two years to 2023 using a growth rate of 2.5% compounded annually for all movements.
6. In order to project 2030 future conditions, a regional growth rate of 2.5% (compounded per year) will be applied to all movements at all existing study intersections for the period between 2023 and 2030.
7. Existing peak hour factors will be based on the traffic counts and utilized on a by-intersection basis. Peak hours factors by intersection in the range of 0.85 to 1.00 will be used for existing scenario. Peak hour factors of 0.92 will be used for all future scenarios if the existing peak hour factor by intersection is less than 0.92, and for all new intersections.
8. Heavy vehicle percentages (HV%) will be based on existing counts. For any new intersection, the HV% will be based on the default *Synchro* value of 2.0% per movement.
9. Based on the County comp plan, for any approach, a level of service (LOS) C or better would be considered as acceptable/desirable for traffic operations. VDOT considers LOS D or better as acceptable/desirable. For all approaches, the projected future conditions without development LOS and delay will be maintained in the future with development condition. Will show intersection, approach, and movement LOS.
10. SimTraffic Max queue lengths will be provided in addition to the capacity analyses.
11. HCM 6 methodology will be utilized in the capacity analyses where applicable; HCM 2000 methodology will be utilized if HCM 6 methodology is not applicable.
12. Preliminary access management and turn lanes will be assessed at the proposed site entrances.
13. US Route 1 at Enon Rd intersection will be included in the Synchro model only to capture the signal coordination. No capacity analysis results will be reported at this intersection.

SIGNED:  DATE: 03/21/2023
Applicant or Consultant

PRINT NAME: Kevin Sitzman, PE
Applicant or Consultant

SIGNED: _____ DATE: _____
VDOT Representative

PRINT NAME: _____
VDOT Representative

SIGNED: _____ DATE: ____
Local Government Representative

PRINT NAME: _____
Local Government Representative

Table 1: Historic Growth (Based on VDOT Traffic Data)

Road Segment:	From:	To:	Published VDOT AADT					Growth Rate			
			2015	2016	2017	2018	2019	2015 - 2019	2016 - 2019	2017 - 2019	2018 - 2019
US 1 Jefferson Davis Highway	Cranes Corner Road	Eskimo Hill Road	18,000	19,000	18,000	21,000	21,000	4%	3%	8%	0%
US 1 Jefferson Davis Highway	Eskimo Hill Road	Hope Road	14,000	15,000	14,000	18,000	18,000	6%	6%	13%	0%
Eskimo Hill Road (Rte. 628)	US 1 Jefferson Davis Highway	Southern View Drive	2,900	3,000	3,000	2,900	3,000	1%	0%	0%	3%

Table 2: Trip Generation – Peak Hour of the Adjacent Street (ITE 11th Edition)

Land Use	ITE Code	Size	------ Weekday ------						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Stafford Technology Campus									
Data Center [1]	160	5,500.0 kSF	272	223	495	49	116	165	4,125
General Light Industrial	110	150.0 kSF of GFA	98	13	111	14	84	98	731
Total			**370**	**236**	**606**	**63**	**200**	**263**	**4,856**

[1] VDOT approved rates of 0.09 for AM, 0.03 for PM and 0.75 for Daily trips per 1,000 SF for Data Center land use.

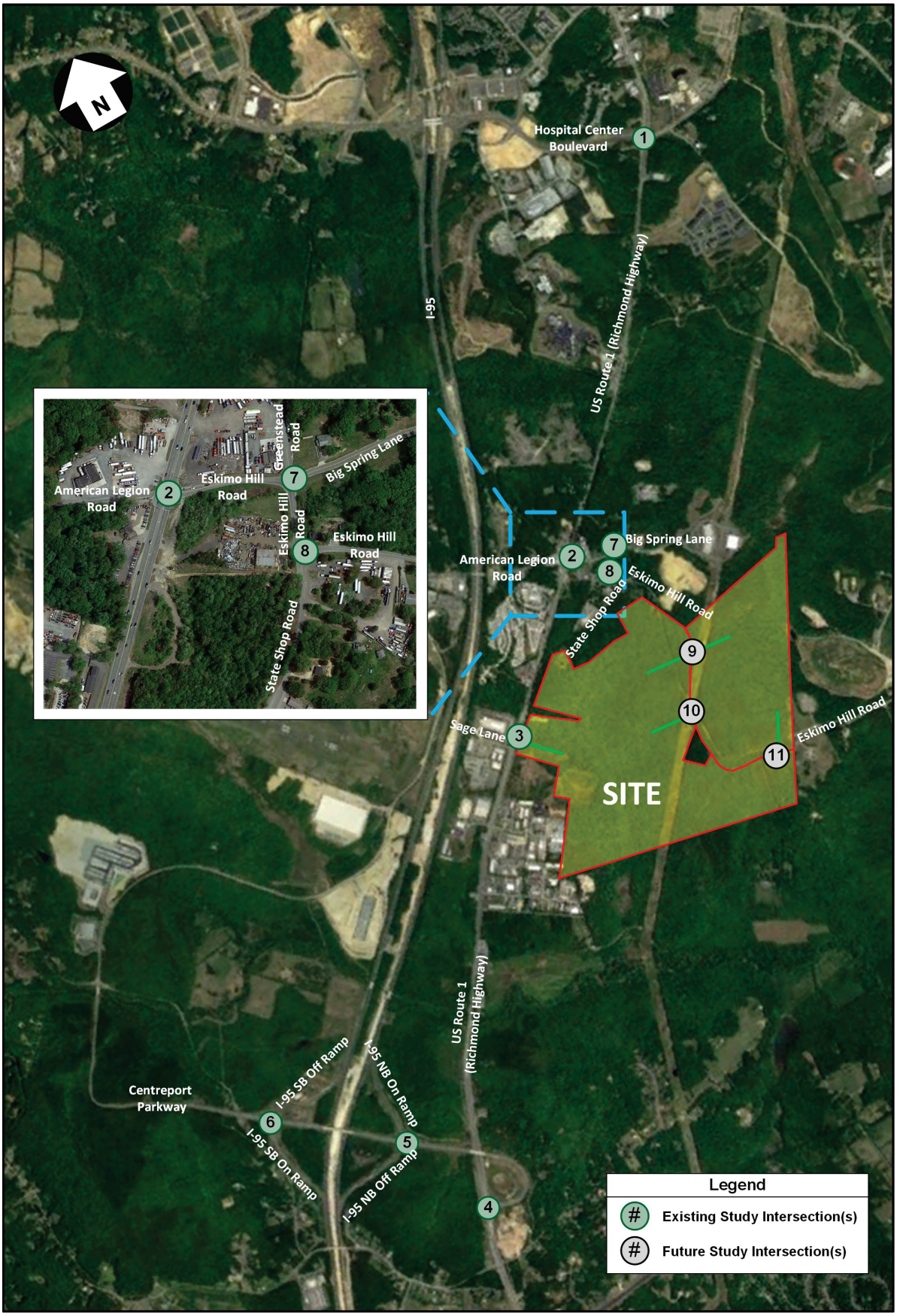

Figure 1: Site Location and Study Intersections

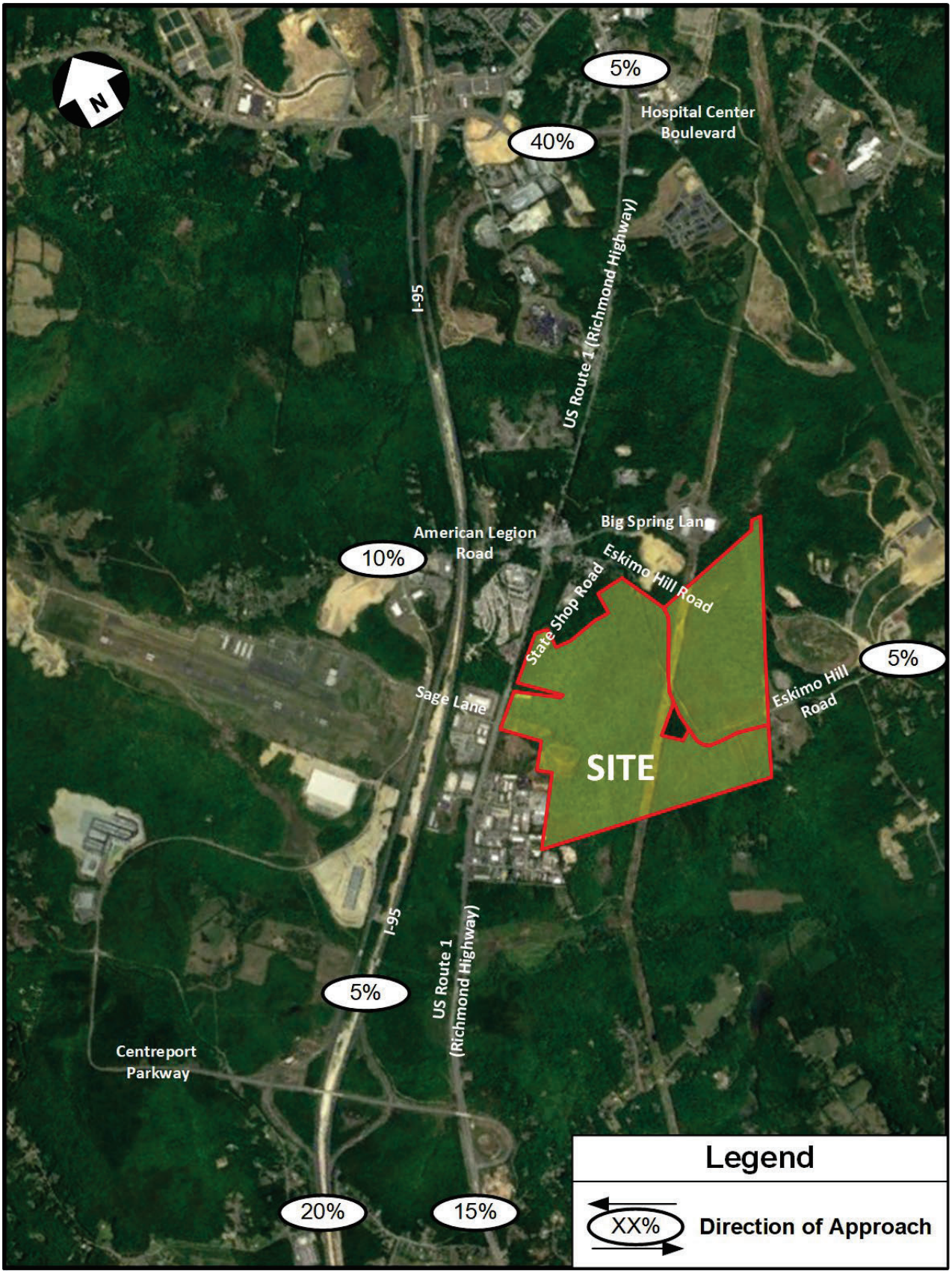

Figure 2: Direction of Approach

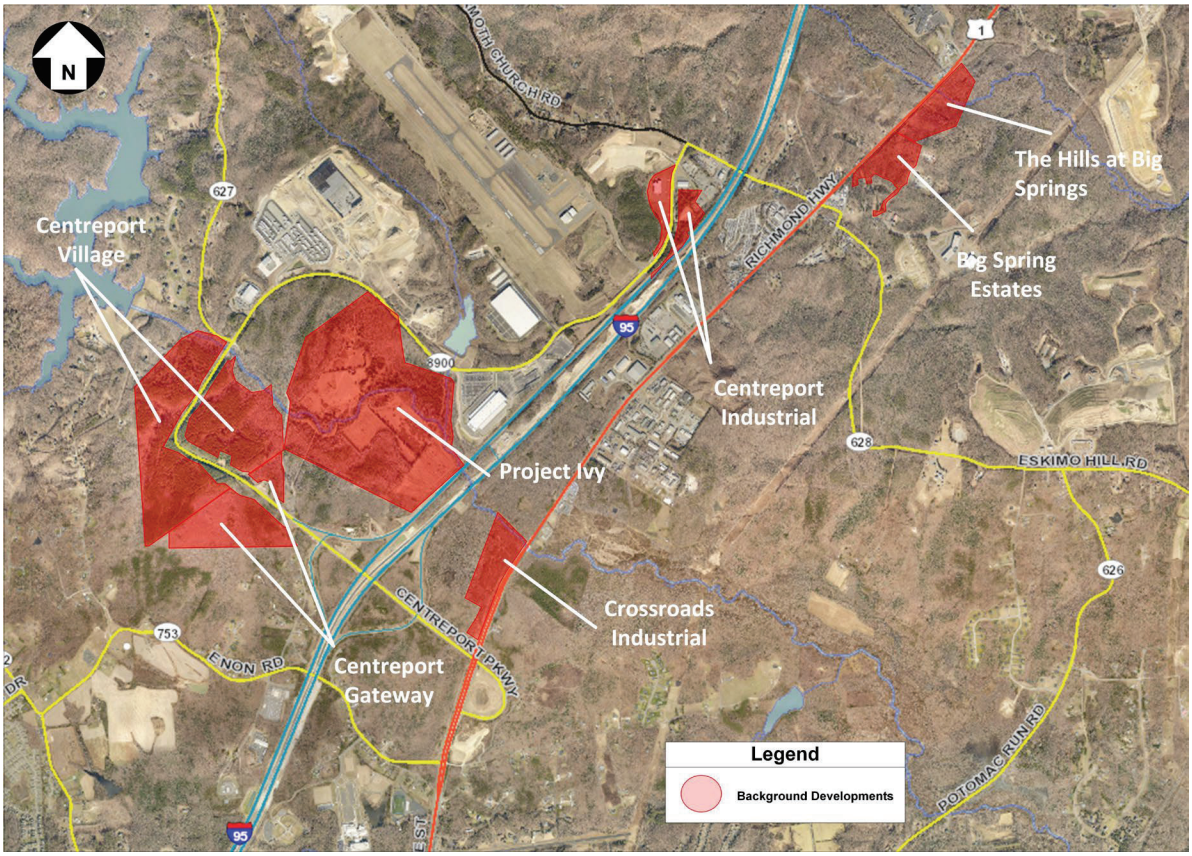

Figure 3: Background Developments



Figure 4: Conceptual Site Plan

B. Turning Movement Counts Data

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 1

Groups Printed- Cars

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	16	24	4	0	44	3	35	12	0	50	21	77	48	0	146	27	35	9	0	71	311
07:15 AM	20	36	2	0	58	7	44	13	0	64	12	83	52	0	147	46	37	24	0	107	376
07:30 AM	14	37	0	0	51	3	42	10	0	55	15	124	45	0	184	47	41	22	0	110	400
07:45 AM	11	54	5	0	70	7	51	10	0	68	23	94	45	0	162	42	76	26	0	144	444
Total	61	151	11	0	223	20	172	45	0	237	71	378	190	0	639	162	189	81	0	432	1531
08:00 AM	12	54	4	0	70	4	36	16	0	56	21	80	46	0	147	53	41	19	0	113	386
08:15 AM	13	47	5	0	65	5	46	10	0	61	17	79	34	0	130	45	56	16	0	117	373
08:30 AM	18	40	4	0	62	7	33	20	0	60	13	89	36	0	138	47	53	26	0	126	386
08:45 AM	14	47	6	0	67	4	38	15	0	57	16	78	27	0	121	35	36	38	0	109	354
Total	57	188	19	0	264	20	153	61	0	234	67	326	143	0	536	180	186	99	0	465	1499
09:00 AM	11	50	4	0	65	4	23	12	0	39	20	73	42	0	135	33	38	26	0	97	336
09:15 AM	9	48	6	0	63	10	37	9	0	56	13	62	41	0	116	44	28	22	0	94	329
09:30 AM	12	50	6	0	68	7	36	13	0	56	13	76	40	0	129	36	31	27	0	94	347
09:45 AM	11	42	8	0	61	5	35	12	0	52	14	47	44	0	105	34	50	33	0	117	335
Total	43	190	24	0	257	26	131	46	0	203	60	258	167	0	485	147	147	108	0	402	1347
10:00 AM	20	67	3	0	90	6	41	19	0	66	11	52	22	0	85	30	29	19	0	78	319
10:15 AM	9	52	8	0	69	5	34	8	0	47	14	60	28	0	102	27	27	19	0	73	291
10:30 AM	8	59	7	0	74	4	44	9	0	57	14	63	33	0	110	28	32	23	0	83	324
10:45 AM	12	51	8	0	71	8	41	11	0	60	13	70	36	0	119	36	30	25	0	91	341
Total	49	229	26	0	304	23	160	47	0	230	52	245	119	0	416	121	118	86	0	325	1275
11:00 AM	18	45	4	0	67	5	33	12	0	50	9	59	38	0	106	25	40	25	0	90	313
11:15 AM	18	73	6	0	97	9	37	12	0	58	9	65	27	0	101	32	40	21	0	93	349
11:30 AM	13	61	4	0	78	8	30	16	0	54	12	69	32	0	113	36	36	26	0	98	343
11:45 AM	15	68	6	0	89	7	36	18	0	61	17	65	34	0	116	49	42	25	0	116	382
Total	64	247	20	0	331	29	136	58	0	223	47	258	131	0	436	142	158	97	0	397	1387
12:00 PM	12	100	3	0	115	4	38	26	0	68	9	77	40	0	126	56	48	26	0	130	439
12:15 PM	16	99	4	0	119	5	34	11	0	50	11	103	32	0	146	49	38	23	0	110	425
12:30 PM	20	111	3	0	134	7	29	14	0	50	14	120	37	0	171	81	52	43	0	176	531
12:45 PM	28	111	6	0	145	10	19	13	0	42	17	119	29	0	165	89	63	96	0	248	600
Total	76	421	16	0	513	26	120	64	0	210	51	419	138	0	608	275	201	188	0	664	1995
01:00 PM	10	116	7	0	133	12	22	16	0	50	23	88	50	0	161	88	47	43	0	178	522
01:15 PM	19	110	8	0	137	6	31	7	0	44	13	97	40	0	150	85	48	51	0	184	515
01:30 PM	18	114	5	0	137	5	14	13	0	32	13	94	33	0	140	76	25	66	0	167	476
01:45 PM	18	128	11	0	157	17	17	17	0	51	13	125	28	0	166	69	43	60	0	172	546
Total	65	468	31	0	564	40	84	53	0	177	62	404	151	0	617	318	163	220	0	701	2059
02:00 PM	8	105	3	0	116	6	30	24	0	60	20	100	36	0	156	105	35	20	0	160	492
02:15 PM	19	146	5	0	170	6	17	18	0	41	12	109	33	0	154	81	59	23	0	163	528
02:30 PM	22	133	4	0	159	8	49	9	0	66	23	92	52	0	167	109	53	17	0	179	571
02:45 PM	16	167	8	0	191	9	41	21	0	71	15	85	32	0	132	116	46	28	0	190	584
Total	65	551	20	0	636	29	137	72	0	238	70	386	153	0	609	411	193	88	0	692	2175
03:00 PM	14	219	7	0	240	11	48	33	0	92	12	75	40	0	127	98	56	22	0	176	635
03:15 PM	22	168	6	0	196	8	45	23	0	76	19	83	45	0	147	119	50	18	0	187	606
03:30 PM	19	204	7	0	230	7	40	32	0	79	12	90	60	0	162	146	56	17	0	219	690
03:45 PM	26	224	10	0	260	4	38	23	0	65	16	79	64	0	159	151	64	26	0	241	725
Total	81	815	30	0	926	30	171	111	0	312	59	327	209	0	595	514	226	83	0	823	2656
04:00 PM	20	269	7	0	296	4	31	13	0	48	20	101	54	0	175	146	63	21	0	230	749
04:15 PM	16	234	11	0	261	7	42	25	0	74	16	72	68	0	156	139	60	20	0	219	710
04:30 PM	13	249	5	0	267	9	52	36	0	97	13	89	60	0	162	131	74	27	0	232	758
04:45 PM	9	321	4	0	334	3	36	24	0	63	15	96	59	0	170	143	62	24	0	229	796
Total	58	1073	27	0	1158	23	161	98	0	282	64	358	241	0	663	559	259	92	0	910	3013
05:00 PM	20	234	4	0	258	3	61	35	0	99	18	67	71	0	156	156	86	32	0	274	787
05:15 PM	13	247	5	0	265	3	44	32	0	79	19	84	65	0	168	158	67	27	0	252	764
05:30 PM	14	207	4	0	225	4	51	17	0	72	10	68	65	0	143	136	78	37	0	251	691
05:45 PM	19	159	4	0	182	5	47	10	0	62	13	83	57	0	153	125	66	42	0	233	630
Total	66	847	17	0	930	15	203	94	0	312	60	302	258	0	620	575	297	138	0	1010	2872
06:00 PM	21	178	4	0	203	3	44	16	0	63	17	65	32	0	114	109	53	34	0	196	576
06:15 PM	19	157	3	0	179	10	21	14	0	45	10	56	42	0	108	87	63	28	0	178	510
06:30 PM	7	137	4	0	148	5	29	8	0	42	13	59	41	0	113	95	58	42	0	195	498
06:45 PM	13	88	5	0	106	8	17	11	0	36	10	50	38	0	98	52	54	33	0	139	379
Total	60	560	16	0	636	26	111	49	0	186	50	230	153	0	433	343	228	137	0	708	1963

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 2

Groups Printed- Cars

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	745	5740	257	0	6742	307	1739	798	0	2844	713	3891	2053	0	6657	3747	2365	1417	0	7529	23772
Apprch %	11.1	85.1	3.8	0		10.8	61.1	28.1	0		10.7	58.4	30.8	0		49.8	31.4	18.8	0		
Total %	3.1	24.1	1.1	0	28.4	1.3	7.3	3.4	0	12	3	16.4	8.6	0	28	15.8	9.9	6	0	31.7	

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**20**	36	2	58	**7**	44	13	64	12	83	**52**	147	46	37	24	107	376
07:30 AM	14	37	0	51	3	42	10	55	15	**124**	45	**184**	47	41	22	110	400
07:45 AM	11	**54**	**5**	**70**	7	**51**	10	**68**	**23**	94	45	162	42	**76**	**26**	**144**	**444**
08:00 AM	12	54	4	70	4	36	**16**	56	21	80	46	147	**53**	41	19	113	386
Total Volume	57	181	11	249	21	173	49	243	71	381	188	640	188	195	91	474	1606
% App. Total	22.9	72.7	4.4		8.6	71.2	20.2		11.1	59.5	29.4		39.7	41.1	19.2		
PHF	.713	.838	.550	.889	.750	.848	.766	.893	.772	.768	.904	.870	.887	.641	.875	.823	.904
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	13	249	**5**	267	**9**	52	**36**	97	13	89	60	162	131	74	27	232	758
04:45 PM	9	**321**	4	**334**	3	36	24	63	15	**96**	59	**170**	143	62	24	229	**796**
05:00 PM	**20**	234	4	258	3	**61**	35	**99**	18	67	**71**	156	156	**86**	**32**	**274**	787
05:15 PM	13	247	5	265	3	44	32	79	**19**	84	65	168	**158**	67	27	252	764
Total Volume	55	1051	18	1124	18	193	127	338	65	336	255	656	588	289	110	987	3105
% App. Total	4.9	93.5	1.6		5.3	57.1	37.6		9.9	51.2	38.9		59.6	29.3	11.1		
PHF	.688	.819	.900	.841	.500	.791	.882	.854	.855	.875	.898	.965	.930	.840	.859	.901	.975

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
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Groups Printed- Trucks

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	2	2	0	0	4	0	0	0	0	0	0	4	8	0	12	3	0	2	0	5	21
07:15 AM	1	2	0	0	3	1	1	0	0	2	1	5	17	0	23	8	1	0	0	9	37
07:30 AM	0	7	0	0	7	0	2	1	0	3	1	5	21	0	27	10	1	1	0	12	49
07:45 AM	3	6	0	0	9	0	3	0	0	3	0	4	22	0	26	10	2	2	0	14	52
Total	6	17	0	0	23	1	6	1	0	8	2	18	68	0	88	31	4	5	0	40	159
08:00 AM	1	4	0	0	5	0	1	1	0	2	0	5	19	0	24	5	2	0	0	7	38
08:15 AM	0	3	0	0	3	0	1	0	0	1	0	8	17	0	25	6	3	1	0	10	39
08:30 AM	0	1	1	0	2	0	2	1	0	3	0	6	17	0	23	7	3	1	0	11	39
08:45 AM	1	4	0	0	5	0	1	0	0	1	0	3	16	0	19	11	1	2	0	14	39
Total	2	12	1	0	15	0	5	2	0	7	0	22	69	0	91	29	9	4	0	42	155
09:00 AM	2	2	2	0	6	0	0	2	0	2	2	6	17	0	25	7	0	3	0	10	43
09:15 AM	0	2	0	0	2	2	2	1	0	5	1	4	15	0	20	10	1	3	0	14	41
09:30 AM	1	9	0	0	10	1	0	3	0	4	2	9	19	0	30	7	2	1	0	10	54
09:45 AM	3	2	0	0	5	0	0	3	0	3	3	3	8	0	14	15	1	1	0	17	39
Total	6	15	2	0	23	3	2	9	0	14	8	22	59	0	89	39	4	8	0	51	177
10:00 AM	1	6	1	0	8	3	1	0	0	4	0	4	24	0	28	11	0	1	0	12	52
10:15 AM	3	2	0	0	5	0	2	1	0	3	0	8	20	0	28	10	1	1	0	12	48
10:30 AM	1	3	1	0	5	0	2	1	0	3	1	0	8	0	9	9	0	1	0	10	27
10:45 AM	2	3	0	0	5	0	0	0	0	0	1	5	14	0	20	11	3	2	0	16	41
Total	7	14	2	0	23	3	5	2	0	10	2	17	66	0	85	41	4	5	0	50	168
11:00 AM	1	3	0	0	4	0	1	2	0	3	2	4	16	0	22	7	2	1	0	10	39
11:15 AM	2	4	0	0	6	2	3	1	0	6	0	4	18	0	22	10	3	0	0	13	47
11:30 AM	0	5	0	0	5	0	2	2	0	4	0	4	22	0	26	11	1	0	0	12	47
11:45 AM	2	1	1	0	4	0	1	0	0	1	0	3	17	0	20	10	0	2	0	12	37
Total	5	13	1	0	19	2	7	5	0	14	2	15	73	0	90	38	6	3	0	47	170
12:00 PM	0	2	0	0	2	0	2	2	0	4	1	3	11	0	15	7	4	1	0	12	33
12:15 PM	1	6	0	0	7	0	0	1	0	1	0	3	21	0	24	12	1	1	0	14	46
12:30 PM	1	7	2	0	10	2	2	1	0	5	1	7	17	0	25	12	4	3	0	19	59
12:45 PM	1	8	0	0	9	0	0	0	0	0	1	7	13	0	21	18	4	4	0	26	56
Total	3	23	2	0	28	2	4	4	0	10	3	20	62	0	85	49	13	9	0	71	194
01:00 PM	2	8	0	0	10	0	1	2	0	3	0	11	27	0	38	12	1	10	0	23	74
01:15 PM	2	5	0	0	7	1	1	0	0	2	1	8	6	0	15	15	4	5	0	24	48
01:30 PM	0	7	0	0	7	1	1	1	0	3	0	4	11	0	15	11	0	4	0	15	40
01:45 PM	0	7	0	0	7	0	0	0	0	0	0	7	16	0	23	7	1	2	0	10	40
Total	4	27	0	0	31	2	3	3	0	8	1	30	60	0	91	45	6	21	0	72	202
02:00 PM	2	4	0	0	6	1	0	0	0	1	0	5	20	0	25	7	2	0	0	9	41
02:15 PM	1	9	0	0	10	0	2	0	0	2	1	3	14	0	18	9	2	0	0	11	41
02:30 PM	0	6	1	0	7	1	0	1	0	2	1	9	18	0	28	9	0	1	0	10	47
02:45 PM	1	4	0	0	5	0	0	1	0	1	1	8	9	0	18	9	0	2	0	11	35
Total	4	23	1	0	28	2	2	2	0	6	3	25	61	0	89	34	4	3	0	41	164
03:00 PM	0	5	0	0	5	0	1	2	0	3	1	10	13	0	24	9	1	0	0	10	42
03:15 PM	0	8	0	0	8	1	4	3	0	8	0	4	8	0	12	9	3	1	0	13	41
03:30 PM	0	6	0	0	6	0	1	0	0	1	0	3	9	0	12	6	0	1	0	7	26
03:45 PM	0	8	0	0	8	0	1	1	0	2	0	2	2	0	4	5	1	2	0	8	22
Total	0	27	0	0	27	1	7	6	0	14	1	19	32	0	52	29	5	4	0	38	131
04:00 PM	0	12	0	0	12	0	1	1	0	2	0	1	5	0	6	10	3	1	0	14	34
04:15 PM	0	9	1	0	10	0	1	0	0	1	0	1	4	0	5	5	0	0	0	5	21
04:30 PM	0	5	0	0	5	0	0	1	0	1	0	2	6	0	8	5	1	1	0	7	21
04:45 PM	0	7	0	0	7	0	1	1	0	2	2	0	2	0	4	2	2	0	0	4	17
Total	0	33	1	0	34	0	3	3	0	6	2	4	17	0	23	22	6	2	0	30	93
05:00 PM	1	5	0	0	6	0	0	0	0	0	0	0	1	0	1	7	1	1	0	9	16
05:15 PM	0	11	0	0	11	0	2	0	0	2	1	0	2	0	3	8	0	1	0	9	25
05:30 PM	0	4	0	0	4	1	1	0	0	2	0	0	2	0	2	9	0	1	0	10	18
05:45 PM	0	4	0	0	4	0	0	0	0	0	1	3	2	0	6	6	2	0	0	8	18
Total	1	24	0	0	25	1	3	0	0	4	2	3	7	0	12	30	3	3	0	36	77
06:00 PM	1	5	0	0	6	0	1	2	0	3	2	3	0	0	5	4	2	0	0	6	20
06:15 PM	2	0	0	0	2	0	0	0	0	0	0	2	2	0	4	4	0	1	0	5	11
06:30 PM	2	2	0	0	4	0	2	2	0	4	0	0	0	0	0	3	0	0	0	3	11
06:45 PM	1	1	0	0	2	0	0	0	0	0	0	1	6	0	7	6	0	1	0	7	16
Total	6	8	0	0	14	0	3	4	0	7	2	6	8	0	16	17	2	2	0	21	58

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Groups Printed- Trucks

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	44	236	10	0	290	17	50	41	0	108	28	201	582	0	811	404	66	69	0	539	1748
Apprch %	15.2	81.4	3.4	0		15.7	46.3	38	0		3.5	24.8	71.8	0		75	12.2	12.8	0		
Total %	2.5	13.5	0.6	0	16.6	1	2.9	2.3	0	6.2	1.6	11.5	33.3	0	46.4	23.1	3.8	3.9	0	30.8	

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:30 AM																	
09:30 AM	1	**9**	0	**10**	1	0	**3**	**4**	2	**9**	19	**30**	7	**2**	**1**	10	**54**
09:45 AM	**3**	2	0	5	0	0	3	3	**3**	3	8	14	**15**	1	1	**17**	39
10:00 AM	1	6	**1**	8	**3**	1	0	4	0	4	**24**	28	11	0	1	12	52
10:15 AM	3	2	0	5	0	**2**	1	3	0	8	20	28	10	1	1	12	48
Total Volume	8	19	1	28	4	3	7	14	5	24	71	100	43	4	4	51	193
% App. Total	28.6	67.9	3.6		28.6	21.4	50		5	24	71		84.3	7.8	7.8		
PHF	.667	.528	.250	.700	.333	.375	.583	.875	.417	.667	.740	.833	.717	.500	1.00	.750	.894
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:30 PM																	
12:30 PM	1	7	**2**	**10**	**2**	**2**	1	**5**	**1**	7	17	25	12	**4**	3	19	59
12:45 PM	1	**8**	0	9	0	0	0	0	1	7	13	21	**18**	4	4	**26**	56
01:00 PM	**2**	8	0	10	0	1	**2**	3	0	**11**	**27**	**38**	12	1	**10**	23	**74**
01:15 PM	2	5	0	7	1	1	0	2	1	8	6	15	15	4	5	24	48
Total Volume	6	28	2	36	3	4	3	10	3	33	63	99	57	13	22	92	237
% App. Total	16.7	77.8	5.6		30	40	30		3	33.3	63.6		62	14.1	23.9		
PHF	.750	.875	.250	.900	.375	.500	.375	.500	.750	.750	.583	.651	.792	.813	.550	.885	.801

Peggy Malone and Associates
904-992-8072

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Groups Printed- Bicycles on Crosswalk

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Groups Printed- Bicycles on Crosswalk

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	0		
Total %	0	0	0	0	0	0	0	0	50	50	0	0	0	50	50	0	0	0	0	0	

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peggy Malone and Associates
904-992-8072

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Groups Printed- Pedestrians

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Groups Printed- Pedestrians

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peggy Malone and Associates
904-992-8072

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Groups Printed- Combined

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	18	26	4	0	48	3	35	12	0	50	21	81	56	0	158	30	35	11	0	76	332
07:15 AM	21	38	2	0	61	8	45	13	0	66	13	88	69	0	170	54	38	24	0	116	413
07:30 AM	14	44	0	0	58	3	44	11	0	58	16	129	66	0	211	57	42	23	0	122	449
07:45 AM	14	60	5	0	79	7	54	10	0	71	23	98	67	0	188	52	78	28	0	158	496
Total	67	168	11	0	246	21	178	46	0	245	73	396	258	0	727	193	193	86	0	472	1690
08:00 AM	13	58	4	0	75	4	37	17	0	58	21	85	65	0	171	58	43	19	0	120	424
08:15 AM	13	50	5	0	68	5	47	10	0	62	17	87	51	0	155	51	59	17	0	127	412
08:30 AM	18	41	5	0	64	7	35	21	0	63	13	95	53	0	161	54	56	27	0	137	425
08:45 AM	15	51	6	0	72	4	39	15	0	58	16	81	43	0	140	46	37	40	0	123	393
Total	59	200	20	0	279	20	158	63	0	241	67	348	212	0	627	209	195	103	0	507	1654
09:00 AM	13	52	6	0	71	4	23	14	1	42	22	79	59	1	161	40	38	29	0	107	381
09:15 AM	9	50	6	0	65	12	39	10	0	61	14	66	56	0	136	54	29	25	0	108	370
09:30 AM	13	59	6	0	78	8	36	16	0	60	15	85	59	0	159	43	33	28	0	104	401
09:45 AM	14	44	8	0	66	5	35	15	0	55	17	50	52	0	119	49	51	34	0	134	374
Total	49	205	26	0	280	29	133	55	1	218	68	280	226	1	575	186	151	116	0	453	1526
10:00 AM	21	73	4	0	98	9	42	19	0	70	11	56	46	0	113	41	29	20	0	90	371
10:15 AM	12	54	8	0	74	5	36	9	0	50	14	68	48	0	130	37	28	20	0	85	339
10:30 AM	9	62	8	0	79	4	46	10	0	60	15	63	41	0	119	37	32	24	0	93	351
10:45 AM	14	54	8	0	76	8	41	11	0	60	14	75	50	0	139	47	33	27	0	107	382
Total	56	243	28	0	327	26	165	49	0	240	54	262	185	0	501	162	122	91	0	375	1443
11:00 AM	19	48	4	0	71	5	34	14	0	53	11	63	54	0	128	32	42	26	0	100	352
11:15 AM	20	77	6	0	103	11	40	13	0	64	9	69	45	0	123	42	43	21	0	106	396
11:30 AM	13	66	4	0	83	8	32	18	0	58	12	73	54	0	139	47	37	26	0	110	390
11:45 AM	17	69	7	0	93	7	37	18	0	62	17	68	51	0	136	59	42	27	0	128	419
Total	69	260	21	0	350	31	143	63	0	237	49	273	204	0	526	180	164	100	0	444	1557
12:00 PM	12	102	3	0	117	4	40	28	0	72	10	80	51	0	141	63	52	27	0	142	472
12:15 PM	17	105	4	0	126	5	34	12	0	51	11	106	53	0	170	61	39	24	0	124	471
12:30 PM	21	118	5	0	144	9	31	15	0	55	15	127	54	0	196	93	56	46	0	195	590
12:45 PM	29	119	6	0	154	10	19	13	0	42	18	126	42	0	186	107	67	100	0	274	656
Total	79	444	18	0	541	28	124	68	0	220	54	439	200	0	693	324	214	197	0	735	2189
01:00 PM	12	124	7	0	143	12	23	18	0	53	23	99	77	0	199	100	48	53	0	201	596
01:15 PM	21	115	8	0	144	7	32	7	0	46	14	105	46	0	165	100	52	56	0	208	563
01:30 PM	18	121	5	0	144	6	15	14	0	35	13	98	44	0	155	87	25	70	0	182	516
01:45 PM	18	135	11	0	164	17	17	17	0	51	13	132	44	0	189	76	44	62	0	182	586
Total	69	495	31	0	595	42	87	56	0	185	63	434	211	0	708	363	169	241	0	773	2261
02:00 PM	10	109	3	0	122	7	30	24	0	61	20	105	56	0	181	112	37	20	0	169	533
02:15 PM	20	155	5	0	180	6	19	18	0	43	13	112	47	0	172	90	61	23	0	174	569
02:30 PM	22	139	5	0	166	9	49	10	0	68	24	101	70	0	195	118	53	18	0	189	618
02:45 PM	17	171	8	0	196	9	41	22	0	72	16	93	41	0	150	125	46	30	0	201	619
Total	69	574	21	0	664	31	139	74	0	244	73	411	214	0	698	445	197	91	0	733	2339
03:00 PM	14	224	7	0	245	11	49	35	0	95	13	85	53	0	151	107	57	22	0	186	677
03:15 PM	22	176	6	0	204	9	49	26	0	84	19	87	53	0	159	128	53	19	0	200	647
03:30 PM	19	210	7	0	236	7	41	32	0	80	12	93	69	0	174	152	56	18	0	226	716
03:45 PM	26	232	10	0	268	4	39	24	0	67	16	81	66	0	163	156	65	28	0	249	747
Total	81	842	30	0	953	31	178	117	0	326	60	346	241	0	647	543	231	87	0	861	2787
04:00 PM	20	281	7	0	308	4	32	14	0	50	20	102	59	0	181	156	66	22	0	244	783
04:15 PM	16	243	12	0	271	7	43	25	0	75	16	73	72	0	161	144	60	20	0	224	731
04:30 PM	13	254	5	0	272	9	52	37	0	98	13	91	66	0	170	136	75	28	0	239	779
04:45 PM	9	328	4	0	341	3	37	25	0	65	17	96	61	0	174	145	64	24	0	233	813
Total	58	1106	28	0	1192	23	164	101	0	288	66	362	258	0	686	581	265	94	0	940	3106
05:00 PM	21	239	4	0	264	3	61	35	0	99	18	67	72	0	157	163	87	33	0	283	803
05:15 PM	13	258	5	0	276	3	46	32	0	81	20	84	67	0	171	166	67	28	0	261	789
05:30 PM	14	211	4	0	229	5	52	17	0	74	10	68	67	0	145	145	78	38	0	261	709
05:45 PM	19	163	4	0	186	5	47	10	0	62	14	86	59	0	159	131	68	42	0	241	648
Total	67	871	17	0	955	16	206	94	0	316	62	305	265	0	632	605	300	141	0	1046	2949
06:00 PM	22	183	4	0	209	3	45	18	0	66	19	68	32	0	119	113	55	34	0	202	596
06:15 PM	21	157	3	0	181	10	21	14	0	45	10	58	44	0	112	91	63	29	0	183	521
06:30 PM	9	139	4	0	152	5	31	10	0	46	13	59	41	0	113	98	58	42	0	198	509
06:45 PM	14	89	5	0	108	8	17	11	0	36	10	51	44	0	105	58	54	34	0	146	395
Total	66	568	16	0	650	26	114	53	0	193	52	236	161	0	449	360	230	139	0	729	2021

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Groups Printed- Combined

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	789	5976	267	0	7032	324	1789	839	1	2953	741	4092	2635	1	7469	4151	2431	1486	0	8068	25522
Apprch %	11.2	85	3.8	0		11	60.6	28.4	0		9.9	54.8	35.3	0		51.5	30.1	18.4	0		
Total %	3.1	23.4	1	0	27.6	1.3	7	3.3	0	11.6	2.9	16	10.3	0	29.3	16.3	9.5	5.8	0	31.6	

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**21**	38	2	61	**8**	45	13	66	13	88	**69**	170	54	38	24	116	413
07:30 AM	14	44	0	58	3	44	11	58	16	**129**	66	**211**	57	42	23	122	449
07:45 AM	14	**60**	**5**	**79**	7	**54**	10	**71**	**23**	98	67	188	52	**78**	**28**	**158**	**496**
08:00 AM	13	58	4	75	4	37	**17**	58	21	85	65	171	**58**	43	19	120	424
Total Volume	62	200	11	273	22	180	51	253	73	400	267	740	221	201	94	516	1782
% App. Total	22.7	73.3	4		8.7	71.1	20.2		9.9	54.1	36.1		42.8	39	18.2		
PHF	.738	.833	.550	.864	.688	.833	.750	.891	.793	.775	.967	.877	.953	.644	.839	.816	.898
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	13	254	**5**	272	**9**	52	**37**	98	13	91	66	170	136	75	28	239	779
04:45 PM	9	**328**	4	**341**	3	37	25	65	17	**96**	61	**174**	145	64	24	233	**813**
05:00 PM	**21**	239	4	264	3	**61**	35	**99**	18	67	**72**	157	163	**87**	**33**	**283**	803
05:15 PM	13	258	5	276	3	46	32	81	**20**	84	67	171	**166**	67	28	261	789
Total Volume	56	1079	18	1153	18	196	129	343	68	338	266	672	610	293	113	1016	3184
% App. Total	4.9	93.6	1.6		5.2	57.1	37.6		10.1	50.3	39.6		60	28.8	11.1		
PHF	.667	.822	.900	.845	.500	.803	.872	.866	.850	.880	.924	.966	.919	.842	.856	.898	.979

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd
City: Fredericksburg
Control: Signalized

Project ID: 23-260018-002
Date: 2/1/2023

Data - Total

NS/EW Streets:	US 1/Rlchmond Hwy				US 1/Rlchmond Hwy				American Legion Rd/Eskimo Hill Rd				American Legion Rd/Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	4	98	3	0	5	33	0	0	2	0	1	0	1	1	22	0	170
6:15 AM	5	151	3	0	7	53	3	0	6	0	1	0	3	1	26	0	259
6:30 AM	7	176	2	0	4	49	5	0	6	2	5	0	4	6	15	0	281
6:45 AM	10	234	4	0	11	73	8	0	4	2	6	0	9	9	28	0	398
7:00 AM	7	182	2	0	6	57	5	0	7	4	4	0	11	9	47	0	341
7:15 AM	3	197	4	0	19	75	5	0	4	5	4	0	8	8	70	0	402
7:30 AM	10	371	8	0	12	105	0	0	8	4	9	0	6	11	73	0	617
7:45 AM	13	289	9	0	16	92	9	0	7	8	15	0	3	5	53	0	519
8:00 AM	9	285	7	0	19	83	3	0	11	2	6	0	10	3	35	0	473
8:15 AM	3	271	4	0	28	102	3	0	5	1	7	0	7	2	38	0	471
8:30 AM	5	198	11	0	24	113	4	0	6	4	11	0	7	3	35	0	421
8:45 AM	5	178	18	0	22	80	6	0	4	1	12	0	5	1	21	0	353
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	81	2630	75	0	173	915	51	0	70	33	81	0	74	59	463	0	4705
APPROACH %'s :	2.91%	94.40%	2.69%	0.00%	15.19%	80.33%	4.48%	0.00%	38.04%	17.93%	44.02%	0.00%	12.42%	9.90%	77.68%	0.00%	
PEAK HR :	**07:30 AM - 08:30 AM**																TOTAL
PEAK HR VOL :	35	1216	28	0	75	382	15	0	31	15	37	0	26	21	199	0	2080
PEAK HR FACTOR :	0.673	0.819	0.778	0.000	0.670	0.910	0.417	0.000	0.705	0.469	0.617	0.000	0.650	0.477	0.682	0.000	0.843
		0.822				0.887				0.692				0.683			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	101	2	0	44	349	9	0	12	11	18	0	9	6	19	0	589
4:15 PM	6	104	5	0	58	326	10	0	4	13	18	0	16	5	32	0	597
4:30 PM	9	130	4	0	56	399	8	0	10	5	14	0	8	6	15	0	664
4:45 PM	4	114	7	0	51	353	10	0	9	19	9	0	9	8	14	0	607
5:00 PM	15	121	6	0	48	258	10	0	7	5	13	0	9	4	12	0	508
5:15 PM	8	123	5	0	3	9	0	0	4	6	11	0	8	3	17	0	197
5:30 PM	12	97	3	0	7	44	0	0	7	2	17	0	18	4	12	0	223
5:45 PM	14	76	4	0	18	154	10	0	9	6	15	0	9	8	12	0	335
6:00 PM	13	80	2	0	14	203	14	0	6	1	8	0	10	4	21	0	376
6:15 PM	11	81	4	0	30	192	12	0	9	2	11	0	7	1	13	0	373
6:30 PM	6	75	4	0	22	120	20	0	3	4	6	0	2	1	8	0	271
6:45 PM	4	52	5	0	16	106	14	0	9	1	1	0	4	1	3	0	216
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	111	1154	51	0	367	2513	117	0	89	75	141	0	109	51	178	0	4956
APPROACH %'s :	8.43%	87.69%	3.88%	0.00%	12.25%	83.85%	3.90%	0.00%	29.18%	24.59%	46.23%	0.00%	32.25%	15.09%	52.66%	0.00%	
PEAK HR :	**04:00 PM - 05:00 PM**																TOTAL
PEAK HR VOL :	28	449	18	0	209	1427	37	0	35	48	59	0	42	25	80	0	2457
PEAK HR FACTOR :	0.778	0.863	0.643	0.000	0.901	0.894	0.925	0.000	0.729	0.632	0.819	0.000	0.656	0.781	0.625	0.000	0.925
		0.865				0.903				0.866				0.693			

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd
City: Fredericksburg
Control: Signalized

Project ID: 23-260018-002
Date: 2/1/2023

Data - Cars

NS/EW Streets:	US 1/Rlchmond Hwy				US 1/Rlchmond Hwy				American Legion Rd/Eskimo Hill Rd				American Legion Rd/Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	4	95	3	0	3	33	0	0	2	0	1	0	1	1	22	0	165
6:15 AM	5	141	3	0	7	53	3	0	6	0	1	0	2	0	25	0	246
6:30 AM	6	160	2	0	2	46	5	0	6	2	4	0	4	6	15	0	258
6:45 AM	10	220	3	0	9	68	7	0	4	2	6	0	9	9	27	0	374
7:00 AM	7	168	1	0	5	52	5	0	7	3	4	0	10	9	45	0	316
7:15 AM	3	186	4	0	17	66	5	0	4	3	3	0	8	8	67	0	374
7:30 AM	10	357	7	0	12	98	0	0	5	4	9	0	5	10	67	0	584
7:45 AM	13	280	8	0	15	84	8	0	6	8	14	0	2	5	48	0	491
8:00 AM	8	270	7	0	14	74	3	0	10	1	6	0	10	3	34	0	440
8:15 AM	3	262	3	0	22	98	3	0	4	1	5	0	6	2	35	0	444
8:30 AM	5	188	10	0	22	105	3	0	6	4	8	0	5	3	32	0	391
8:45 AM	4	164	17	0	19	73	6	0	4	1	10	0	5	1	18	0	322
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	78	2491	68	0	147	850	48	0	64	29	71	0	67	57	435	0	4405
APPROACH %'s :	2.96%	94.46%	2.58%	0.00%	14.07%	81.34%	4.59%	0.00%	39.02%	17.68%	43.29%	0.00%	11.99%	10.20%	77.82%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	34	1169	25	0	63	354	14	0	25	14	34	0	23	20	184	0	1959
PEAK HR FACTOR :	0.654	0.819	0.781	0.000	0.716	0.903	0.438	0.000	0.625	0.438	0.607	0.000	0.575	0.500	0.687	0.000	0.839
	0.821				0.876				0.652				0.692				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	94	2	0	42	343	9	0	12	11	18	0	9	6	14	0	569
4:15 PM	6	100	3	0	53	317	9	0	4	13	18	0	15	5	29	0	572
4:30 PM	9	123	4	0	56	381	7	0	9	4	13	0	6	6	14	0	632
4:45 PM	4	111	7	0	51	338	10	0	8	19	9	0	9	7	14	0	587
5:00 PM	15	117	6	0	47	248	10	0	5	5	13	0	9	4	12	0	491
5:15 PM	8	118	3	0	3	8	0	0	4	6	11	0	8	3	16	0	188
5:30 PM	12	96	3	0	7	44	0	0	6	2	17	0	17	4	11	0	219
5:45 PM	14	74	4	0	17	144	8	0	9	6	15	0	8	7	11	0	317
6:00 PM	12	79	2	0	14	197	14	0	6	1	8	0	9	4	21	0	367
6:15 PM	10	78	4	0	30	187	11	0	9	2	11	0	4	1	13	0	360
6:30 PM	6	74	3	0	22	117	16	0	3	4	6	0	2	1	8	0	262
6:45 PM	4	51	4	0	16	105	14	0	9	1	1	0	4	1	3	0	213
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	109	1115	45	0	358	2429	108	0	84	74	140	0	100	49	166	0	4777
APPROACH %'s :	8.59%	87.86%	3.55%	0.00%	12.37%	83.90%	3.73%	0.00%	28.19%	24.83%	46.98%	0.00%	31.75%	15.56%	52.70%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	28	428	16	0	202	1379	35	0	33	47	58	0	39	24	71	0	2360
PEAK HR FACTOR :	0.778	0.870	0.571	0.000	0.902	0.905	0.875	0.000	0.688	0.618	0.806	0.000	0.650	0.857	0.612	0.000	0.934
	0.868				0.910				0.841				0.684				

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd
City: Fredericksburg
Control: Signalized

Project ID: 23-260018-002
Date: 2/1/2023

Data - HT

NS/EW Streets:	US 1/Rlchmond Hwy				US 1/Rlchmond Hwy				American Legion Rd/Eskimo Hill Rd				American Legion Rd/Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5
6:15 AM	0	10	0	0	0	0	0	0	0	0	0	0	1	1	1	0	13
6:30 AM	1	16	0	0	2	3	0	0	0	0	1	0	0	0	0	0	23
6:45 AM	0	14	1	0	2	5	1	0	0	0	0	0	0	0	1	0	24
7:00 AM	0	14	1	0	1	5	0	0	0	1	0	0	1	0	2	0	25
7:15 AM	0	11	0	0	2	9	0	0	0	2	1	0	0	0	3	0	28
7:30 AM	0	14	1	0	0	7	0	0	3	0	0	0	1	1	6	0	33
7:45 AM	0	9	1	0	1	8	1	0	1	0	1	0	1	0	5	0	28
8:00 AM	1	15	0	0	5	9	0	0	1	1	0	0	0	0	1	0	33
8:15 AM	0	9	1	0	6	4	0	0	1	0	2	0	1	0	3	0	27
8:30 AM	0	10	1	0	2	8	1	0	0	0	3	0	2	0	3	0	30
8:45 AM	1	14	1	0	3	7	0	0	0	0	2	0	0	0	3	0	31
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	139	7	0	26	65	3	0	6	4	10	0	7	2	28	0	300
APPROACH %'s :	2.01%	93.29%	4.70%	0.00%	27.66%	69.15%	3.19%	0.00%	30.00%	20.00%	50.00%	0.00%	18.92%	5.41%	75.68%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	47	3	0	12	28	1	0	6	1	3	0	3	1	15	0	121
PEAK HR FACTOR :	0.250	0.783	0.750	0.000	0.500	0.778	0.250	0.000	0.500	0.250	0.375	0.000	0.750	0.250	0.625	0.000	0.917
	0.797				0.732				0.833				0.594				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	7	0	0	2	6	0	0	0	0	0	0	0	0	5	0	20
4:15 PM	0	4	2	0	5	9	1	0	0	0	0	0	1	0	3	0	25
4:30 PM	0	7	0	0	0	18	1	0	1	1	1	0	2	0	1	0	32
4:45 PM	0	3	0	0	0	15	0	0	1	0	0	0	0	1	0	0	20
5:00 PM	0	4	0	0	1	10	0	0	2	0	0	0	0	0	0	0	17
5:15 PM	0	5	2	0	0	1	0	0	0	0	0	0	0	0	1	0	9
5:30 PM	0	1	0	0	0	0	0	0	1	0	0	0	1	0	1	0	4
5:45 PM	0	2	0	0	1	10	2	0	0	0	0	0	1	1	1	0	18
6:00 PM	1	1	0	0	0	6	0	0	0	0	0	0	1	0	0	0	9
6:15 PM	1	3	0	0	0	5	1	0	0	0	0	0	3	0	0	0	13
6:30 PM	0	1	1	0	0	3	4	0	0	0	0	0	0	0	0	0	9
6:45 PM	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	39	6	0	9	84	9	0	5	1	1	0	9	2	12	0	179
APPROACH %'s :	4.26%	82.98%	12.77%	0.00%	8.82%	82.35%	8.82%	0.00%	71.43%	14.29%	14.29%	0.00%	39.13%	8.70%	52.17%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	21	2	0	7	48	2	0	2	1	1	0	3	1	9	0	97
PEAK HR FACTOR :	0.000	0.750	0.250	0.000	0.350	0.667	0.500	0.000	0.500	0.250	0.250	0.000	0.375	0.250	0.450	0.000	0.758
	0.821				0.750				0.333				0.650				

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Richmond Hwy & American Legion Rd/Eskimo Hill Rd
City: Fredericksburg
Control: Signalized

Project ID: 23-260018-002
Date: 2/1/2023

Data - Bikes

NS/EW Streets:	US 1/Richmond Hwy				US 1/Richmond Hwy				American Legion Rd/Eskimo Hill Rd				American Legion Rd/Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Richmond Hwy & American Legion Rd/Eskimo Hill Rd **Project ID:** 23-260018-002
City: Fredericksburg **Date:** 2/1/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	US 1/Richmond Hwy		US 1/Richmond Hwy		American Legion Rd/Eskimo Hill Rd		American Legion Rd/Eskimo Hill Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:30 AM - 08:30 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**04:00 PM - 05:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd

Peak Hour Turning Movement Count

ID: 23-260018-002
City: Fredericksburg

Day: Wednesday
Date: 2/1/2023

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	6:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	4:00 PM - 07:00 PM

SOUTHBOUND — US 1/Rlchmond Hwy

AM	15	382	75	0	1446	AM
NOON	0	0	0	0	0	NOON
PM	37	1427	209	0	564	PM

EASTBOUND — American Legion Rd/Eskimo Hill Rd

AM	NOON	PM		
71	0	90		
0	0	0	0	
31	0	35	0	
15	0	48	1	
37	0	59	0	
AM	NOON	PM		

WESTBOUND — American Legion Rd/Eskimo Hill Rd

PM	NOON	AM		
80	0	199	0	
25	0	21	1	
42	0	26	0	
0	0	0	0	
275	0	118		
PM	NOON	AM		

NORTHBOUND — US 1/Rlchmond Hwy

PM	1528	0	28	449	18	PM
NOON	0	0	0	0	0	NOON
AM	445	0	35	1216	28	AM

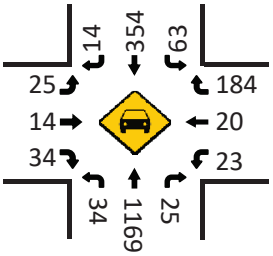
	0	2	1	0
	0	1	2	0

CONTROL

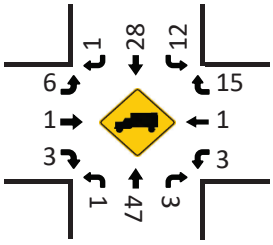
Signalized

TEV	2080 AM	0 NOON	2457 PM
PHF	0.84		0.93

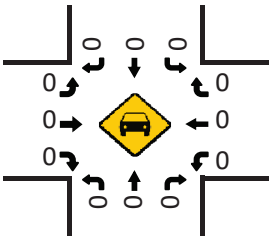
Cars (AM)



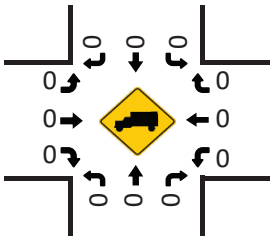
HT (AM)



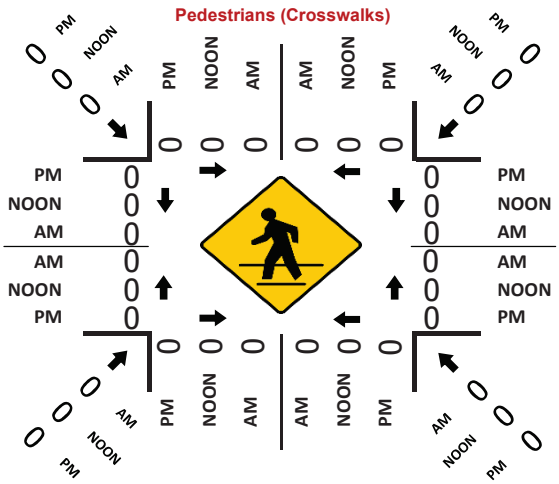
Cars (NOON)



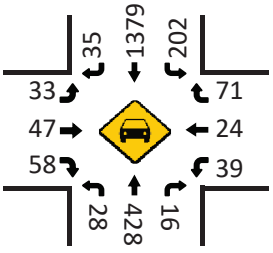
HT (NOON)



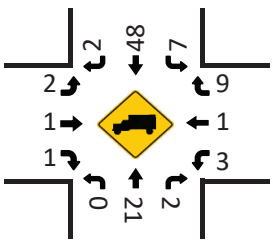
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Project ID:
Location: US 1 / Sage Lane
City: Fredericksburg

Day: Wednesday
Date: 2/1/2023

Groups Printed - Cars, PU, Vans - Heavy Trucks

	US 1/RIchmond Hwy Northbound						US 1/RIchmond Hwy Southbound						Sage Lane Eastbound						N/A Westbound						
Start Time	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	8	0	0	0	0	8	0	0	1	0	0	1	6	0	8	0	0	14	0	0	0	0	0	0	23
7:15 AM	1	0	0	0	0	1	0	0	8	0	0	8	4	0	5	0	0	9	0	0	0	0	0	0	18
7:30 AM	8	0	0	0	0	8	0	0	4	0	0	4	3	0	6	0	0	9	0	0	0	0	0	0	21
7:45 AM	9	0	0	0	0	9	0	0	6	0	0	6	5	0	3	0	0	8	0	0	0	0	0	0	23
Total	26	0	0	0	0	26	0	0	19	0	0	19	18	0	22	0	0	40	0	0	0	0	0	0	85
8:00 AM	6	0	0	0	0	6	0	0	6	0	0	6	3	0	3	0	0	6	0	0	0	0	0	0	18
8:15 AM	9	0	0	0	0	9	0	0	9	0	0	9	5	0	2	0	0	7	0	0	0	0	0	0	25
8:30 AM	6	0	0	0	0	6	0	0	4	0	0	4	5	0	2	0	0	7	0	0	0	0	0	0	17
8:45 AM	11	0	0	0	0	11	0	0	6	0	0	6	4	0	3	0	0	7	0	0	0	0	0	0	24
Total	32	0	0	0	0	32	0	0	25	0	0	25	17	0	10	0	0	27	0	0	0	0	0	0	84
BREAK																									
4:00 PM	3	0	0	0	0	3	0	0	5	0	0	5	4	0	2	0	0	6	0	0	0	0	0	0	14
4:15 PM	6	0	0	0	0	6	0	0	6	0	0	6	4	0	2	0	0	6	0	0	0	0	0	0	18
4:30 PM	2	0	0	0	0	2	0	0	5	0	0	5	3	0	10	0	0	13	0	0	0	0	0	0	20
4:45 PM	4	0	0	0	0	4	0	0	5	0	0	5	3	0	11	0	0	14	0	0	0	0	0	0	23
Total	15	0	0	0	0	15	0	0	21	0	0	21	14	0	25	0	0	39	0	0	0	0	0	0	75
5:00 PM	11	0	0	0	0	11	0	0	5	0	0	5	5	0	13	0	0	18	0	0	0	0	0	0	34
5:15 PM	6	0	0	0	0	6	0	0	5	0	0	5	5	0	6	0	0	11	0	0	0	0	0	0	22
5:30 PM	6	0	0	0	0	6	0	0	3	0	0	3	5	0	10	0	0	15	0	0	0	0	0	0	24
5:45 PM	4	0	0	0	0	4	0	0	6	0	0	6	6	0	7	0	0	13	0	0	0	0	0	0	23
Total	27	0	0	0	0	27	0	0	19	0	0	19	21	0	36	0	0	57	0	0	0	0	0	0	103
Grand Total	100	0	0	0	0	100	0	0	84	0	0	84	70	0	93	0	0	163	0	0	0	0	0	0	347
Apprch %	100.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		42.9	0.0	57.1	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	28.8	0.0	0.0	0.0	0.0	28.8	0.0	0.0	24.2	0.0	0.0	24.2	20.2	0.0	26.8	0.0	0.0	47.0	0.0	0.0	0.0	0.0	0.0	0.0	

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File Name : 41-US 1 & Centreport Pkwy
Site Code :
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Groups Printed- Cars

	US 1 Southbound				Centreport Pkwy Westbound				US 1 Northbound					
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	22	2	0	24	19	18	0	37	136	77	0	0	213	274
06:15 AM	41	12	0	53	13	14	0	27	143	84	0	0	227	307
06:30 AM	42	8	0	50	18	28	0	46	152	113	0	0	265	361
06:45 AM	45	7	0	52	29	42	0	71	190	140	0	0	330	453
Total	150	29	0	179	79	102	0	181	621	414	0	0	1035	1395
07:00 AM	59	9	0	68	19	51	0	70	191	129	0	0	320	458
07:15 AM	67	6	0	73	33	44	0	77	193	175	1	0	369	519
07:30 AM	88	12	0	100	22	55	0	77	212	182	5	0	399	576
07:45 AM	98	6	0	104	34	65	0	99	184	195	1	0	380	583
Total	312	33	0	345	108	215	0	323	780	681	7	0	1468	2136
08:00 AM	74	6	0	80	25	81	0	106	152	133	0	0	285	471
08:15 AM	74	3	0	77	18	56	0	74	152	141	0	0	293	444
08:30 AM	87	3	0	90	22	55	0	77	148	135	0	0	283	450
08:45 AM	77	2	0	79	17	61	0	78	113	125	0	0	238	395
Total	312	14	0	326	82	253	0	335	565	534	0	0	1099	1760
09:00 AM	91	6	0	97	14	58	0	72	122	111	1	0	234	403
09:15 AM	95	13	0	108	18	43	0	61	118	107	3	0	228	397
09:30 AM	77	5	0	82	14	60	0	74	102	74	0	0	176	332
09:45 AM	84	11	0	95	14	44	0	58	94	75	1	0	170	323
Total	347	35	0	382	60	205	0	265	436	367	5	0	808	1455
10:00 AM	83	10	0	93	14	34	0	48	82	77	0	0	159	300
10:15 AM	81	7	0	88	18	39	0	57	85	72	0	0	157	302
10:30 AM	82	10	0	92	11	57	0	68	100	74	1	0	175	335
10:45 AM	94	8	0	102	15	53	0	68	76	88	0	0	164	334
Total	340	35	0	375	58	183	0	241	343	311	1	0	655	1271
11:00 AM	98	7	0	105	11	46	0	57	81	81	0	0	162	324
11:15 AM	98	1	0	99	7	59	0	66	65	77	1	0	143	308
11:30 AM	99	12	0	111	8	53	0	61	79	93	1	0	173	345
11:45 AM	107	10	0	117	4	46	0	50	68	65	0	0	133	300
Total	402	30	0	432	30	204	0	234	293	316	2	0	611	1277
12:00 PM	118	9	0	127	3	53	0	56	65	100	0	0	165	348
12:15 PM	108	11	0	119	13	72	0	85	80	110	2	0	192	396
12:30 PM	100	8	0	108	10	73	0	83	74	115	0	0	189	380
12:45 PM	106	6	0	112	14	60	0	74	77	94	3	0	174	360
Total	432	34	0	466	40	258	0	298	296	419	5	0	720	1484
01:00 PM	112	13	0	125	11	65	0	76	76	65	3	0	144	345
01:15 PM	116	6	0	122	6	69	0	75	79	102	1	0	182	379
01:30 PM	109	13	0	122	9	82	0	91	82	91	0	0	173	386
01:45 PM	109	7	0	116	14	78	0	92	82	73	0	0	155	363
Total	446	39	0	485	40	294	0	334	319	331	4	0	654	1473
02:00 PM	142	9	0	151	17	83	0	100	76	95	2	0	173	424
02:15 PM	153	12	0	165	14	87	0	101	80	90	1	0	171	437
02:30 PM	181	18	0	199	13	85	0	98	71	91	1	0	163	460
02:45 PM	197	13	0	210	9	72	0	81	64	93	1	0	158	449
Total	673	52	0	725	53	327	0	380	291	369	5	0	665	1770
03:00 PM	230	26	0	256	16	84	0	100	76	78	2	0	156	512
03:15 PM	294	14	0	308	9	94	0	103	101	121	2	0	224	635
03:30 PM	299	12	0	311	19	72	0	91	102	116	1	0	219	621
03:45 PM	284	32	0	316	12	96	0	108	107	109	0	0	216	640
Total	1107	84	0	1191	56	346	0	402	386	424	5	0	815	2408
04:00 PM	399	41	0	440	13	91	0	104	120	93	0	0	213	757
04:15 PM	374	23	0	397	15	111	0	126	124	93	0	0	217	740
04:30 PM	422	35	0	457	15	104	0	119	123	87	0	0	210	786
04:45 PM	382	20	0	402	12	125	0	137	127	81	3	0	211	750
Total	1577	119	0	1696	55	431	0	486	494	354	3	0	851	3033
05:00 PM	372	64	0	436	8	84	0	92	117	121	0	0	238	766
05:15 PM	369	27	0	396	14	104	0	118	164	85	0	0	249	763
05:30 PM	349	53	0	402	13	98	0	111	140	116	1	0	257	770
05:45 PM	393	97	0	490	12	76	0	88	124	101	0	0	225	803
Total	1483	241	0	1724	47	362	0	409	545	423	1	0	969	3102

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File Name : 41-US 1 & Centreport Pkwy
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Groups Printed- Cars

	US 1 Southbound				Centreport Pkwy Westbound				US 1 Northbound					
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	7581	745	0	8326	708	3180	0	3888	5369	4943	38	0	10350	22564
Apprch %	91.1	8.9	0		18.2	81.8	0		51.9	47.8	0.4	0		
Total %	33.6	3.3	0	36.9	3.1	14.1	0	17.2	23.8	21.9	0.2	0	45.9	

	US 1 Southbound			Centreport Pkwy Westbound			US 1 Northbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	67	6	73	33	44	77	193	175	1	369	519
07:30 AM	88	**12**	100	22	55	77	**212**	182	**5**	**399**	576
07:45 AM	**98**	6	**104**	**34**	65	99	184	**195**	1	380	**583**
08:00 AM	74	6	80	25	**81**	**106**	152	133	0	285	471
Total Volume	327	30	357	114	245	359	741	685	7	1433	2149
% App. Total	91.6	8.4		31.8	68.2		51.7	47.8	0.5		
PHF	.834	.625	.858	.838	.756	.847	.874	.878	.350	.898	.922
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 05:00 PM											
05:00 PM	372	64	436	8	84	92	117	**121**	0	238	766
05:15 PM	369	27	396	**14**	**104**	**118**	**164**	85	0	249	763
05:30 PM	349	53	402	13	98	111	140	116	**1**	**257**	770
05:45 PM	**393**	**97**	**490**	12	76	88	124	101	0	225	**803**
Total Volume	1483	241	1724	47	362	409	545	423	1	969	3102
% App. Total	86	14		11.5	88.5		56.2	43.7	0.1		
PHF	.943	.621	.880	.839	.870	.867	.831	.874	.250	.943	.966

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Groups Printed- Trucks

	US 1 Southbound				Centreport Pkwy Westbound				US 1 Northbound					
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	2	1	0	3	3	0	0	3	5	5	0	0	10	16
06:15 AM	1	1	0	2	1	0	0	1	3	3	0	0	6	9
06:30 AM	3	0	0	3	4	1	0	5	5	6	0	0	11	19
06:45 AM	1	1	0	2	1	4	0	5	10	10	0	0	20	27
Total	7	3	0	10	9	5	0	14	23	24	0	0	47	71
07:00 AM	1	4	0	5	1	1	0	2	6	4	0	0	10	17
07:15 AM	3	1	0	4	1	1	0	2	1	6	0	0	7	13
07:30 AM	7	0	0	7	1	0	0	1	5	11	0	0	16	24
07:45 AM	7	2	0	9	0	2	0	2	8	9	0	0	17	28
Total	18	7	0	25	3	4	0	7	20	30	0	0	50	82
08:00 AM	5	1	0	6	0	9	0	9	6	10	0	0	16	31
08:15 AM	3	2	0	5	0	5	0	5	8	9	0	0	17	27
08:30 AM	6	0	0	6	2	4	0	6	2	5	0	0	7	19
08:45 AM	7	2	0	9	2	2	0	4	11	10	0	0	21	34
Total	21	5	0	26	4	20	0	24	27	34	0	0	61	111
09:00 AM	9	4	0	13	0	4	0	4	5	10	0	0	15	32
09:15 AM	8	1	0	9	2	8	0	10	9	7	0	0	16	35
09:30 AM	18	2	0	20	2	4	0	6	7	12	0	0	19	45
09:45 AM	12	0	0	12	1	8	0	9	6	6	1	0	13	34
Total	47	7	0	54	5	24	0	29	27	35	1	0	63	146
10:00 AM	7	1	0	8	1	12	0	13	6	9	0	0	15	36
10:15 AM	6	1	0	7	4	5	0	9	3	5	0	0	8	24
10:30 AM	7	2	0	9	5	8	0	13	4	10	0	0	14	36
10:45 AM	7	3	0	10	1	2	0	3	5	11	0	0	16	29
Total	27	7	0	34	11	27	0	38	18	35	0	0	53	125
11:00 AM	5	4	0	9	2	5	0	7	5	13	0	0	18	34
11:15 AM	10	2	0	12	0	1	0	1	1	14	1	0	16	29
11:30 AM	6	2	0	8	3	4	0	7	4	4	0	0	8	23
11:45 AM	7	0	0	7	0	2	0	2	2	8	0	0	10	19
Total	28	8	0	36	5	12	0	17	12	39	1	0	52	105
12:00 PM	11	1	0	12	2	3	0	5	2	16	0	0	18	35
12:15 PM	12	0	0	12	1	1	0	2	7	4	0	0	11	25
12:30 PM	5	0	0	5	3	6	0	9	3	7	0	0	10	24
12:45 PM	10	1	0	11	3	2	0	5	7	7	0	0	14	30
Total	38	2	0	40	9	12	0	21	19	34	0	0	53	114
01:00 PM	12	3	0	15	1	1	0	2	3	9	0	0	12	29
01:15 PM	7	1	0	8	1	1	0	2	3	6	0	0	9	19
01:30 PM	9	1	0	10	3	2	0	5	9	11	0	0	20	35
01:45 PM	4	3	0	7	2	1	0	3	3	11	0	0	14	24
Total	32	8	0	40	7	5	0	12	18	37	0	0	55	107
02:00 PM	2	2	0	4	1	3	0	4	3	9	0	0	12	20
02:15 PM	12	0	0	12	1	5	0	6	7	6	0	0	13	31
02:30 PM	10	0	0	10	4	3	0	7	2	9	0	0	11	28
02:45 PM	9	1	0	10	1	5	0	6	6	6	0	0	12	28
Total	33	3	0	36	7	16	0	23	18	30	0	0	48	107
03:00 PM	9	1	0	10	0	3	0	3	5	4	0	0	9	22
03:15 PM	11	0	0	11	2	1	0	3	1	5	0	0	6	20
03:30 PM	13	1	0	14	3	6	0	9	4	8	0	0	12	35
03:45 PM	10	1	0	11	6	3	0	9	5	6	0	0	11	31
Total	43	3	0	46	11	13	0	24	15	23	0	0	38	108
04:00 PM	18	2	0	20	2	1	0	3	4	2	0	0	6	29
04:15 PM	12	0	0	12	5	3	0	8	1	0	0	0	1	21
04:30 PM	11	0	0	11	2	4	0	6	2	4	0	0	6	23
04:45 PM	9	0	0	9	0	6	0	6	2	2	0	0	4	19
Total	50	2	0	52	9	14	0	23	9	8	0	0	17	92
05:00 PM	8	1	0	9	0	7	0	7	2	3	0	0	5	21
05:15 PM	3	0	0	3	1	3	0	4	3	2	0	0	5	12
05:30 PM	3	2	0	5	2	2	0	4	2	1	0	0	3	12
05:45 PM	8	3	0	11	1	0	0	1	1	0	0	0	1	13
Total	22	6	0	28	4	12	0	16	8	6	0	0	14	58

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Groups Printed- Trucks

	US 1 Southbound				Centreport Pkwy Westbound				US 1 Northbound					
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	366	61	0	427	84	164	0	248	214	335	2	0	551	1226
Apprch %	85.7	14.3	0		33.9	66.1	0		38.8	60.8	0.4	0		
Total %	29.9	5	0	34.8	6.9	13.4	0	20.2	17.5	27.3	0.2	0	44.9	

	US 1 Southbound			Centreport Pkwy Westbound			US 1 Northbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 09:15 AM											
09:15 AM	8	1	9	**2**	8	10	**9**	7	0	16	35
09:30 AM	**18**	**2**	**20**	2	4	6	7	**12**	0	**19**	**45**
09:45 AM	12	0	12	1	8	9	6	6	**1**	13	34
10:00 AM	7	1	8	1	**12**	**13**	6	9	0	15	36
Total Volume	45	4	49	6	32	38	28	34	1	63	150
% App. Total	91.8	8.2		15.8	84.2		44.4	54	1.6		
PHF	.625	.500	.613	.750	.667	.731	.778	.708	.250	.829	.833
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 03:30 PM											
03:30 PM	13	1	14	3	**6**	**9**	4	**8**	0	**12**	**35**
03:45 PM	10	1	11	**6**	3	9	**5**	6	0	11	31
04:00 PM	**18**	**2**	**20**	2	1	3	4	2	0	6	29
04:15 PM	12	0	12	5	3	8	1	0	0	1	21
Total Volume	53	4	57	16	13	29	14	16	0	30	116
% App. Total	93	7		55.2	44.8		46.7	53.3	0		
PHF	.736	.500	.713	.667	.542	.806	.700	.500	.000	.625	.829

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File Name : 41-US 1 & Centreport Pkwy
Site Code :
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Groups Printed- Combined

	US 1 Southbound				Centreport Pkwy Westbound				US 1 Northbound					
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	24	3	0	27	22	18	0	40	141	82	0	0	223	290
06:15 AM	42	13	0	55	14	14	0	28	146	87	0	0	233	316
06:30 AM	45	8	0	53	22	29	0	51	157	119	0	0	276	380
06:45 AM	46	8	0	54	30	46	0	76	200	150	0	0	350	480
Total	157	32	0	189	88	107	0	195	644	438	0	0	1082	1466
07:00 AM	60	13	0	73	20	52	0	72	197	133	0	0	330	475
07:15 AM	70	7	0	77	34	45	0	79	194	181	1	0	376	532
07:30 AM	95	12	0	107	23	55	0	78	217	193	5	0	415	600
07:45 AM	105	8	0	113	34	67	0	101	192	204	1	0	397	611
Total	330	40	0	370	111	219	0	330	800	711	7	0	1518	2218
08:00 AM	79	7	0	86	25	90	0	115	158	143	0	0	301	502
08:15 AM	77	5	0	82	18	61	0	79	160	150	0	0	310	471
08:30 AM	93	3	0	96	24	59	0	83	150	140	0	0	290	469
08:45 AM	84	4	0	88	19	63	0	82	124	135	0	0	259	429
Total	333	19	0	352	86	273	0	359	592	568	0	0	1160	1871
09:00 AM	100	10	0	110	14	62	0	76	127	121	1	0	249	435
09:15 AM	103	14	0	117	20	51	0	71	127	114	3	0	244	432
09:30 AM	95	7	0	102	16	64	0	80	109	86	0	0	195	377
09:45 AM	96	11	0	107	15	52	0	67	100	81	2	0	183	357
Total	394	42	0	436	65	229	0	294	463	402	6	0	871	1601
10:00 AM	90	11	0	101	15	46	0	61	88	86	0	0	174	336
10:15 AM	87	8	0	95	22	44	0	66	88	77	0	0	165	326
10:30 AM	89	12	0	101	16	65	0	81	104	84	1	0	189	371
10:45 AM	101	11	0	112	16	55	0	71	81	99	0	0	180	363
Total	367	42	0	409	69	210	0	279	361	346	1	0	708	1396
11:00 AM	103	11	0	114	13	51	0	64	86	94	0	0	180	358
11:15 AM	108	3	0	111	7	60	0	67	66	91	2	0	159	337
11:30 AM	105	14	0	119	11	57	0	68	83	97	1	0	181	368
11:45 AM	114	10	0	124	4	48	0	52	70	73	0	0	143	319
Total	430	38	0	468	35	216	0	251	305	355	3	0	663	1382
12:00 PM	129	10	0	139	5	56	0	61	67	116	0	0	183	383
12:15 PM	120	11	0	131	14	73	0	87	87	114	2	0	203	421
12:30 PM	105	8	0	113	13	79	0	92	77	122	0	0	199	404
12:45 PM	116	7	0	123	17	62	0	79	84	101	3	0	188	390
Total	470	36	0	506	49	270	0	319	315	453	5	0	773	1598
01:00 PM	124	16	0	140	12	66	0	78	79	74	3	0	156	374
01:15 PM	123	7	0	130	7	70	0	77	82	108	1	0	191	398
01:30 PM	118	14	0	132	12	84	0	96	91	102	0	0	193	421
01:45 PM	113	10	0	123	16	79	0	95	85	84	0	0	169	387
Total	478	47	0	525	47	299	0	346	337	368	4	0	709	1580
02:00 PM	144	11	0	155	18	86	0	104	79	104	2	0	185	444
02:15 PM	165	12	0	177	15	92	0	107	87	96	1	0	184	468
02:30 PM	191	18	0	209	17	88	0	105	73	100	1	0	174	488
02:45 PM	206	14	0	220	10	77	0	87	70	99	1	0	170	477
Total	706	55	0	761	60	343	0	403	309	399	5	0	713	1877
03:00 PM	239	27	0	266	16	87	0	103	81	82	2	0	165	534
03:15 PM	305	14	0	319	11	95	0	106	102	126	2	0	230	655
03:30 PM	312	13	0	325	22	78	0	100	106	124	1	0	231	656
03:45 PM	294	33	0	327	18	99	0	117	112	115	0	0	227	671
Total	1150	87	0	1237	67	359	0	426	401	447	5	0	853	2516
04:00 PM	417	43	0	460	15	92	0	107	124	95	0	0	219	786
04:15 PM	386	23	0	409	20	114	0	134	125	93	0	0	218	761
04:30 PM	433	35	0	468	17	108	0	125	125	91	0	0	216	809
04:45 PM	391	20	0	411	12	131	0	143	129	83	3	0	215	769
Total	1627	121	0	1748	64	445	0	509	503	362	3	0	868	3125
05:00 PM	380	65	0	445	8	91	0	99	119	124	0	0	243	787
05:15 PM	372	27	0	399	15	107	0	122	167	87	0	0	254	775
05:30 PM	352	55	0	407	15	100	0	115	142	117	1	0	260	782
05:45 PM	401	100	0	501	13	76	0	89	125	101	0	0	226	816
Total	1505	247	0	1752	51	374	0	425	553	429	1	0	983	3160

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	US 1 Southbound				Centreport Pkwy Westbound				US 1 Northbound					
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	7947	806	0	8753	792	3344	0	4136	5583	5278	40	0	10901	23790
Apprch %	90.8	9.2	0		19.1	80.9	0		51.2	48.4	0.4	0		
Total %	33.4	3.4	0	36.8	3.3	14.1	0	17.4	23.5	22.2	0.2	0	45.8	

	US 1 Southbound			Centreport Pkwy Westbound			US 1 Northbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	70	7	77	**34**	45	79	194	181	1	376	532
07:30 AM	95	**12**	107	23	55	78	**217**	193	**5**	**415**	600
07:45 AM	**105**	8	**113**	34	67	101	192	**204**	1	397	**611**
08:00 AM	79	7	86	25	**90**	**115**	158	143	0	301	502
Total Volume	349	34	383	116	257	373	761	721	7	1489	2245
% App. Total	91.1	8.9		31.1	68.9		51.1	48.4	0.5		
PHF	.831	.708	.847	.853	.714	.811	.877	.884	.350	.897	.919
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 05:00 PM											
05:00 PM	380	65	445	8	91	99	119	**124**	0	243	787
05:15 PM	372	27	399	**15**	**107**	**122**	**167**	87	0	254	775
05:30 PM	352	55	407	15	100	115	142	117	**1**	**260**	782
05:45 PM	**401**	**100**	**501**	13	76	89	125	101	0	226	**816**
Total Volume	1505	247	1752	51	374	425	553	429	1	983	3160
% App. Total	85.9	14.1		12	88		56.3	43.6	0.1		
PHF	.938	.618	.874	.850	.874	.871	.828	.865	.250	.945	.968

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Groups Printed- Cars

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	9	28	1	0	38	1	0	0	0	1	1	183	16	0	200	4	0	42	0	46	285
06:15 AM	10	48	0	0	58	2	0	1	0	3	0	192	12	0	204	5	0	20	0	25	290
06:30 AM	15	58	0	0	73	0	0	0	0	0	0	229	16	0	245	3	0	35	0	38	356
06:45 AM	22	65	0	0	87	1	0	1	0	2	1	286	22	0	309	6	0	54	0	60	458
Total	56	199	1	0	256	4	0	2	0	6	2	890	66	0	958	18	0	151	0	169	1389
07:00 AM	26	77	0	0	103	3	1	2	0	6	0	249	17	0	266	13	1	63	0	77	452
07:15 AM	26	77	1	0	104	2	1	1	0	4	3	302	30	0	335	17	0	63	0	80	523
07:30 AM	36	121	0	0	157	0	1	3	0	4	0	325	50	0	375	19	0	66	0	85	621
07:45 AM	41	120	2	0	163	4	1	5	0	10	2	321	50	0	373	27	0	67	0	94	640
Total	129	395	3	0	527	9	4	11	0	24	5	1197	147	0	1349	76	1	259	0	336	2236
08:00 AM	37	105	0	0	142	0	1	5	0	6	4	231	50	0	285	22	0	53	0	75	508
08:15 AM	32	85	0	0	117	4	2	0	0	6	6	259	61	0	326	18	0	60	0	78	527
08:30 AM	28	106	0	0	134	1	3	3	0	7	3	229	99	0	331	16	0	63	0	79	551
08:45 AM	33	108	0	0	141	2	1	1	0	4	1	188	126	0	315	85	1	58	0	144	604
Total	130	404	0	0	534	7	7	9	0	23	14	907	336	0	1257	141	1	234	0	376	2190
09:00 AM	49	83	2	0	134	1	14	5	0	20	13	202	129	0	344	74	1	41	0	116	614
09:15 AM	41	104	0	0	145	2	1	2	0	5	0	163	35	0	198	66	1	52	0	119	467
09:30 AM	22	103	0	0	125	2	0	3	0	5	2	146	15	0	163	28	0	30	0	58	351
09:45 AM	31	105	1	0	137	2	0	0	0	2	1	132	19	0	152	25	0	25	0	50	341
Total	143	395	3	0	541	7	15	10	0	32	16	643	198	0	857	193	2	148	0	343	1773
10:00 AM	21	93	0	0	114	4	0	1	0	5	1	124	15	0	140	14	0	33	0	47	306
10:15 AM	22	101	1	0	124	0	1	1	0	2	0	115	15	0	130	14	1	35	0	50	306
10:30 AM	29	109	2	0	140	0	1	3	0	4	2	130	9	0	141	17	1	45	0	63	348
10:45 AM	23	122	0	0	145	0	1	3	0	4	1	123	25	0	149	19	1	42	0	62	360
Total	95	425	3	0	523	4	3	8	0	15	4	492	64	0	560	64	3	155	0	222	1320
11:00 AM	27	118	0	0	145	2	0	1	0	3	1	121	11	0	133	16	0	32	0	48	329
11:15 AM	26	125	1	0	152	0	0	1	0	1	2	113	17	0	132	14	0	35	0	49	334
11:30 AM	38	119	0	0	157	2	1	0	0	3	1	120	16	0	137	18	1	35	0	54	351
11:45 AM	35	114	0	0	149	0	1	2	0	3	2	108	14	0	124	20	1	32	0	53	329
Total	126	476	1	0	603	4	2	4	0	10	6	462	58	0	526	68	2	134	0	204	1343
12:00 PM	31	139	1	0	171	0	0	1	0	1	2	138	18	0	158	28	0	30	0	58	388
12:15 PM	44	122	0	0	166	0	0	1	0	1	2	159	22	0	183	24	1	34	0	59	409
12:30 PM	35	132	1	0	168	1	1	2	0	4	4	154	17	0	175	24	0	33	0	57	404
12:45 PM	41	135	1	0	177	1	0	2	0	3	4	142	24	0	170	17	0	30	0	47	397
Total	151	528	3	0	682	2	1	6	0	9	12	593	81	0	686	93	1	127	0	221	1598
01:00 PM	26	141	5	0	172	2	2	1	0	5	3	123	12	0	138	22	0	29	0	51	366
01:15 PM	24	151	4	0	179	1	1	3	0	5	2	141	16	0	159	21	1	26	0	48	391
01:30 PM	34	156	4	0	194	0	0	1	0	1	2	147	15	0	164	27	0	22	0	49	408
01:45 PM	27	149	1	0	177	3	0	1	0	4	0	117	23	0	140	19	1	29	0	49	370
Total	111	597	14	0	722	6	3	6	0	15	7	528	66	0	601	89	2	106	0	197	1535
02:00 PM	36	181	2	0	219	2	0	1	0	3	1	137	24	0	162	44	0	28	0	72	456
02:15 PM	57	166	3	0	226	2	0	1	0	3	2	138	17	0	157	30	0	28	0	58	444
02:30 PM	47	240	1	0	288	3	0	1	0	4	2	132	28	0	162	27	1	28	0	56	510
02:45 PM	48	211	2	0	261	1	0	0	0	1	3	121	48	0	172	24	1	29	0	54	488
Total	188	798	8	0	994	8	0	3	0	11	8	528	117	0	653	125	2	113	0	240	1898
03:00 PM	57	256	0	0	313	1	0	1	0	2	0	120	37	0	157	21	0	34	0	55	527
03:15 PM	74	297	0	0	371	2	2	4	0	8	2	174	70	0	246	27	1	45	0	73	698
03:30 PM	78	246	2	0	326	0	1	3	0	4	5	135	48	0	188	151	1	67	0	219	737
03:45 PM	101	282	0	0	383	2	2	2	0	6	3	167	28	0	198	158	0	43	0	201	788
Total	310	1081	2	0	1393	5	5	10	0	20	10	596	183	0	789	357	2	189	0	548	2750
04:00 PM	102	444	1	0	547	0	1	0	0	1	1	164	39	0	204	84	1	48	0	133	885
04:15 PM	109	359	0	0	468	0	1	1	0	2	1	161	40	0	202	54	1	52	0	107	779
04:30 PM	109	406	1	0	516	2	1	0	0	3	2	158	40	0	200	88	0	42	0	130	849
04:45 PM	114	390	6	0	510	1	1	2	0	4	4	186	56	0	246	69	0	50	0	119	879
Total	434	1599	8	0	2041	3	4	3	0	10	8	669	175	0	852	295	2	192	0	489	3392
05:00 PM	105	413	1	0	519	2	1	0	0	3	3	166	54	0	223	75	2	51	0	128	873
05:15 PM	109	382	5	0	496	2	1	4	0	7	4	188	79	0	271	75	0	57	0	132	906
05:30 PM	97	345	5	0	447	2	1	3	0	6	0	195	50	0	245	73	2	63	0	138	836
05:45 PM	108	381	3	0	492	1	1	1	0	3	2	163	48	0	213	57	1	49	0	107	815
Total	419	1521	14	0	1954	7	4	8	0	19	9	712	231	0	952	280	5	220	0	505	3430

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Groups Printed- Cars

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	2292	8418	60	0	10770	66	48	80	0	194	101	8217	1722	0	10040	1799	23	2028	0	3850	24854
Apprch %	21.3	78.2	0.6	0		34	24.7	41.2	0		1	81.8	17.2	0		46.7	0.6	52.7	0		
Total %	9.2	33.9	0.2	0	43.3	0.3	0.2	0.3	0	0.8	0.4	33.1	6.9	0	40.4	7.2	0.1	8.2	0	15.5	

	US 1 Southbound				Cranes Corner Rd Westbound				US 1 Northbound				Enon Rd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	36	**121**	0	157	0	1	3	4	0	**325**	50	**375**	19	0	66	85	621
07:45 AM	**41**	120	**2**	**163**	**4**	1	**5**	**10**	2	321	50	373	**27**	0	**67**	**94**	**640**
08:00 AM	37	105	0	142	0	1	5	6	4	231	50	285	22	0	53	75	508
08:15 AM	32	85	0	117	4	**2**	0	6	**6**	259	**61**	326	18	0	60	78	527
Total Volume	146	431	2	579	8	5	13	26	12	1136	211	1359	86	0	246	332	2296
% App. Total	25.2	74.4	0.3		30.8	19.2	50		0.9	83.6	15.5		25.9	0	74.1		
PHF	.890	.890	.250	.888	.500	.625	.650	.650	.500	.874	.865	.906	.796	.000	.918	.883	.897
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	109	406	1	516	**2**	**1**	0	3	2	158	40	200	**88**	0	42	130	849
04:45 PM	**114**	390	**6**	510	1	1	2	4	**4**	186	56	246	69	0	50	119	879
05:00 PM	105	**413**	1	**519**	2	1	0	3	3	166	54	223	75	**2**	51	128	873
05:15 PM	109	382	5	496	2	1	**4**	**7**	4	**188**	**79**	**271**	75	0	**57**	**132**	**906**
Total Volume	437	1591	13	2041	7	4	6	17	13	698	229	940	307	2	200	509	3507
% App. Total	21.4	78	0.6		41.2	23.5	35.3		1.4	74.3	24.4		60.3	0.4	39.3		
PHF	.958	.963	.542	.983	.875	1.00	.375	.607	.813	.928	.725	.867	.872	.250	.877	.964	.968

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Groups Printed- Trucks

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	1	0	0	2	0	0	0	0	0	0	6	0	0	6	0	1	5	0	6	14
06:15 AM	1	0	0	0	1	1	0	0	0	1	0	2	0	0	2	0	0	3	0	3	7
06:30 AM	2	2	0	0	4	0	0	0	0	0	0	4	0	0	4	1	0	6	0	7	15
06:45 AM	2	3	0	0	5	0	2	0	0	2	0	6	0	0	6	3	0	11	0	14	27
Total	6	6	0	0	12	1	2	0	0	3	0	18	0	0	18	4	1	25	0	30	63
07:00 AM	1	1	0	0	2	0	0	0	0	0	0	7	0	0	7	6	1	4	0	11	20
07:15 AM	0	4	0	0	4	0	1	0	0	1	0	6	0	0	6	2	0	7	0	9	20
07:30 AM	3	4	0	0	7	1	0	0	0	1	0	8	2	0	10	1	0	4	0	5	23
07:45 AM	2	7	0	0	9	0	0	0	0	0	0	12	1	0	13	5	0	3	0	8	30
Total	6	16	0	0	22	1	1	0	0	2	0	33	3	0	36	14	1	18	0	33	93
08:00 AM	2	11	0	0	13	0	1	0	0	1	1	15	5	0	21	2	0	2	0	4	39
08:15 AM	0	10	0	0	10	0	0	0	0	0	0	12	0	0	12	1	0	6	0	7	29
08:30 AM	3	10	0	0	13	0	0	0	0	0	0	8	0	0	8	1	0	2	0	3	24
08:45 AM	3	9	0	0	12	0	0	0	0	0	0	10	3	0	13	2	0	7	0	9	34
Total	8	40	0	0	48	0	1	0	0	1	1	45	8	0	54	6	0	17	0	23	126
09:00 AM	4	9	0	0	13	0	0	0	0	0	0	9	25	0	34	9	0	6	0	15	62
09:15 AM	11	7	0	0	18	0	0	0	0	0	0	14	12	0	26	13	0	2	0	15	59
09:30 AM	12	12	0	0	24	0	0	0	0	0	0	14	2	0	16	3	0	5	0	8	48
09:45 AM	14	10	0	0	24	0	0	0	0	0	0	8	2	0	10	3	0	4	0	7	41
Total	41	38	0	0	79	0	0	0	0	0	0	45	41	0	86	28	0	17	0	45	210
10:00 AM	14	5	0	0	19	0	0	0	0	0	0	11	3	0	14	3	0	5	0	8	41
10:15 AM	8	4	0	0	12	0	0	0	0	0	0	6	0	0	6	2	0	2	0	4	22
10:30 AM	6	8	0	0	14	0	0	0	0	0	1	8	0	0	9	0	1	6	0	7	30
10:45 AM	2	7	0	0	9	0	0	1	0	1	0	4	1	0	5	5	0	10	0	15	30
Total	30	24	0	0	54	0	0	1	0	1	1	29	4	0	34	10	1	23	0	34	123
11:00 AM	2	10	0	0	12	1	0	0	0	1	0	13	0	0	13	4	0	5	0	9	35
11:15 AM	5	8	0	0	13	0	0	0	0	0	0	12	3	0	15	2	0	4	0	6	34
11:30 AM	2	8	0	0	10	0	0	0	0	0	0	7	3	0	10	2	0	5	0	7	27
11:45 AM	2	6	0	0	8	0	0	0	0	0	0	7	4	0	11	3	1	8	0	12	31
Total	11	32	0	0	43	1	0	0	0	1	0	39	10	0	49	11	1	22	0	34	127
12:00 PM	6	10	0	0	16	1	0	0	0	1	0	11	0	0	11	0	0	6	0	6	34
12:15 PM	3	11	0	0	14	0	0	0	0	0	0	6	0	0	6	1	0	5	0	6	26
12:30 PM	10	2	0	0	12	0	0	0	0	0	0	7	2	0	9	1	0	3	0	4	25
12:45 PM	3	8	0	0	11	0	0	0	0	0	0	6	1	0	7	4	0	6	0	10	28
Total	22	31	0	0	53	1	0	0	0	1	0	30	3	0	33	6	0	20	0	26	113
01:00 PM	10	4	0	0	14	0	0	0	0	0	0	12	1	0	13	2	0	2	0	4	31
01:15 PM	5	6	0	0	11	0	0	0	0	0	0	8	2	0	10	3	0	3	0	6	27
01:30 PM	2	10	0	0	12	0	0	0	0	0	0	4	1	0	5	6	0	14	0	20	37
01:45 PM	2	4	0	0	6	0	0	0	0	0	0	9	0	0	9	7	0	8	0	15	30
Total	19	24	0	0	43	0	0	0	0	0	0	33	4	0	37	18	0	27	0	45	125
02:00 PM	2	4	0	0	6	0	0	0	0	0	0	8	1	0	9	5	0	4	0	9	24
02:15 PM	7	11	0	0	18	0	0	0	0	0	0	9	1	0	10	2	0	5	0	7	35
02:30 PM	5	9	0	0	14	0	0	0	0	0	1	7	1	0	9	2	0	3	0	5	28
02:45 PM	6	10	0	0	16	0	1	0	0	1	0	9	0	0	9	1	0	3	0	4	30
Total	20	34	0	0	54	0	1	0	0	1	1	33	3	0	37	10	0	15	0	25	117
03:00 PM	5	9	0	0	14	0	0	0	0	0	0	7	2	0	9	6	0	4	0	10	33
03:15 PM	6	4	0	0	10	0	1	0	0	1	1	7	3	0	11	0	0	1	0	1	23
03:30 PM	8	11	0	0	19	0	0	0	0	0	0	5	13	0	18	2	0	9	0	11	48
03:45 PM	7	8	0	0	15	0	0	0	0	0	0	7	11	0	18	19	0	5	0	24	57
Total	26	32	0	0	58	0	1	0	0	1	1	26	29	0	56	27	0	19	0	46	161
04:00 PM	2	10	0	0	12	1	0	0	0	1	0	4	6	0	10	11	1	2	0	14	37
04:15 PM	8	11	0	0	19	0	0	0	0	0	0	3	6	0	9	3	0	4	0	7	35
04:30 PM	10	3	0	0	13	0	0	0	0	0	0	4	2	0	6	0	0	2	0	2	21
04:45 PM	7	9	1	0	17	0	0	0	0	0	0	3	4	0	7	0	0	3	0	3	27
Total	27	33	1	0	61	1	0	0	0	1	0	14	18	0	32	14	1	11	0	26	120
05:00 PM	4	7	0	0	11	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	17
05:15 PM	3	4	0	0	7	0	0	0	0	0	0	5	0	0	5	2	0	1	0	3	15
05:30 PM	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7
05:45 PM	1	6	0	0	7	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	8
Total	8	22	0	0	30	0	0	0	0	0	0	13	0	0	13	3	0	1	0	4	47

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Groups Printed- Trucks

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	224	332	1	0	557	5	6	1	0	12	4	358	123	0	485	151	5	215	0	371	1425
Apprch %	40.2	59.6	0.2	0		41.7	50	8.3	0		0.8	73.8	25.4	0		40.7	1.3	58	0		
Total %	15.7	23.3	0.1	0	39.1	0.4	0.4	0.1	0	0.8	0.3	25.1	8.6	0	34	10.6	0.4	15.1	0	26	

	US 1 Southbound				Cranes Corner Rd Westbound				US 1 Northbound				Enon Rd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 AM																	
09:00 AM	4	9	0	13	0	0	0	0	0	9	**25**	**34**	9	0	**6**	**15**	**62**
09:15 AM	11	7	0	18	0	0	0	0	0	**14**	12	26	**13**	0	2	15	59
09:30 AM	12	**12**	0	**24**	0	0	0	0	0	14	2	16	3	0	5	8	48
09:45 AM	**14**	10	0	24	0	0	0	0	0	8	2	10	3	0	4	7	41
Total Volume	41	38	0	79	0	0	0	0	0	45	41	86	28	0	17	45	210
% App. Total	51.9	48.1	0		0	0	0		0	52.3	47.7		62.2	0	37.8		
PHF	.732	.792	.000	.823	.000	.000	.000	.000	.000	.804	.410	.632	.538	.000	.708	.750	.847
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	**8**	**11**	0	**19**	0	0	0	0	0	5	**13**	**18**	2	0	**9**	11	48
03:45 PM	7	8	0	15	0	0	0	0	0	**7**	11	18	**19**	0	5	**24**	**57**
04:00 PM	2	10	0	12	**1**	0	0	**1**	0	4	6	10	11	**1**	2	14	37
04:15 PM	8	11	0	19	0	0	0	0	0	3	6	9	3	0	4	7	35
Total Volume	25	40	0	65	1	0	0	1	0	19	36	55	35	1	20	56	177
% App. Total	38.5	61.5	0		100	0	0		0	34.5	65.5		62.5	1.8	35.7		
PHF	.781	.909	.000	.855	.250	.000	.000	.250	.000	.679	.692	.764	.461	.250	.556	.583	.776

Peggy Malone & Associates
(888) 247-8602

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Groups Printed- Combined

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	10	29	1	0	40	1	0	0	0	1	1	189	16	0	206	4	1	47	0	52	299
06:15 AM	11	48	0	0	59	3	0	1	0	4	0	194	12	0	206	5	0	23	0	28	297
06:30 AM	17	60	0	0	77	0	0	0	0	0	0	233	16	0	249	4	0	41	0	45	371
06:45 AM	24	68	0	0	92	1	2	1	0	4	1	292	22	0	315	9	0	65	0	74	485
Total	62	205	1	0	268	5	2	2	0	9	2	908	66	0	976	22	1	176	0	199	1452
07:00 AM	27	78	0	0	105	3	1	2	0	6	0	256	17	0	273	19	2	67	0	88	472
07:15 AM	26	81	1	0	108	2	2	1	0	5	3	308	30	0	341	19	0	70	0	89	543
07:30 AM	39	125	0	0	164	1	1	3	0	5	0	333	52	0	385	20	0	70	0	90	644
07:45 AM	43	127	2	0	172	4	1	5	0	10	2	333	51	0	386	32	0	70	0	102	670
Total	135	411	3	0	549	10	5	11	0	26	5	1230	150	0	1385	90	2	277	0	369	2329
08:00 AM	39	116	0	0	155	0	2	5	0	7	5	246	55	0	306	24	0	55	0	79	547
08:15 AM	32	95	0	0	127	4	2	0	0	6	6	271	61	0	338	19	0	66	0	85	556
08:30 AM	31	116	0	0	147	1	3	3	0	7	3	237	99	0	339	17	0	65	0	82	575
08:45 AM	36	117	0	0	153	2	1	1	0	4	1	198	129	0	328	87	1	65	0	153	638
Total	138	444	0	0	582	7	8	9	0	24	15	952	344	0	1311	147	1	251	0	399	2316
09:00 AM	53	92	2	0	147	1	14	5	0	20	13	211	154	0	378	83	1	47	0	131	676
09:15 AM	52	111	0	0	163	2	1	2	0	5	0	177	47	0	224	79	1	54	0	134	526
09:30 AM	34	115	0	0	149	2	0	3	0	5	2	160	17	0	179	31	0	35	0	66	399
09:45 AM	45	115	1	0	161	2	0	0	0	2	1	140	21	0	162	28	0	29	0	57	382
Total	184	433	3	0	620	7	15	10	0	32	16	688	239	0	943	221	2	165	0	388	1983
10:00 AM	35	98	0	0	133	4	0	1	0	5	1	135	18	0	154	17	0	38	0	55	347
10:15 AM	30	105	1	0	136	0	1	1	0	2	0	121	15	0	136	16	1	37	0	54	328
10:30 AM	35	117	2	0	154	0	1	3	0	4	3	138	9	0	150	17	2	51	0	70	378
10:45 AM	25	129	0	0	154	0	1	4	0	5	1	127	26	0	154	24	1	52	0	77	390
Total	125	449	3	0	577	4	3	9	0	16	5	521	68	0	594	74	4	178	0	256	1443
11:00 AM	29	128	0	0	157	3	0	1	0	4	1	134	11	0	146	20	0	37	0	57	364
11:15 AM	31	133	1	0	165	0	0	1	0	1	2	125	20	0	147	16	0	39	0	55	368
11:30 AM	40	127	0	0	167	2	1	0	0	3	1	127	19	0	147	20	1	40	0	61	378
11:45 AM	37	120	0	0	157	0	1	2	0	3	2	115	18	0	135	23	2	40	0	65	360
Total	137	508	1	0	646	5	2	4	0	11	6	501	68	0	575	79	3	156	0	238	1470
12:00 PM	37	149	1	0	187	1	0	1	0	2	2	149	18	0	169	28	0	36	0	64	422
12:15 PM	47	133	0	0	180	0	0	1	0	1	2	165	22	0	189	25	1	39	0	65	435
12:30 PM	45	134	1	0	180	1	1	2	0	4	4	161	19	0	184	25	0	36	0	61	429
12:45 PM	44	143	1	0	188	1	0	2	0	3	4	148	25	0	177	21	0	36	0	57	425
Total	173	559	3	0	735	3	1	6	0	10	12	623	84	0	719	99	1	147	0	247	1711
01:00 PM	36	145	5	0	186	2	2	1	0	5	3	135	13	0	151	24	0	31	0	55	397
01:15 PM	29	157	4	0	190	1	1	3	0	5	2	149	18	0	169	24	1	29	0	54	418
01:30 PM	36	166	4	0	206	0	0	1	0	1	2	151	16	0	169	33	0	36	0	69	445
01:45 PM	29	153	1	0	183	3	0	1	0	4	0	126	23	0	149	26	1	37	0	64	400
Total	130	621	14	0	765	6	3	6	0	15	7	561	70	0	638	107	2	133	0	242	1660
02:00 PM	38	185	2	0	225	2	0	1	0	3	1	145	25	0	171	49	0	32	0	81	480
02:15 PM	64	177	3	0	244	2	0	1	0	3	2	147	18	0	167	32	0	33	0	65	479
02:30 PM	52	249	1	0	302	3	0	1	0	4	3	139	29	0	171	29	1	31	0	61	538
02:45 PM	54	221	2	0	277	1	1	0	0	2	3	130	48	0	181	25	1	32	0	58	518
Total	208	832	8	0	1048	8	1	3	0	12	9	561	120	0	690	135	2	128	0	265	2015
03:00 PM	62	265	0	0	327	1	0	1	0	2	0	127	39	0	166	27	0	38	0	65	560
03:15 PM	80	301	0	0	381	2	3	4	0	9	3	181	73	0	257	27	1	46	0	74	721
03:30 PM	86	257	2	0	345	0	1	3	0	4	5	140	61	0	206	153	1	76	0	230	785
03:45 PM	108	290	0	0	398	2	2	2	0	6	3	174	39	0	216	177	0	48	0	225	845
Total	336	1113	2	0	1451	5	6	10	0	21	11	622	212	0	845	384	2	208	0	594	2911
04:00 PM	104	454	1	0	559	1	1	0	0	2	1	168	45	0	214	95	2	50	0	147	922
04:15 PM	117	370	0	0	487	0	1	1	0	2	1	164	46	0	211	57	1	56	0	114	814
04:30 PM	119	409	1	0	529	2	1	0	0	3	2	162	42	0	206	88	0	44	0	132	870
04:45 PM	121	399	7	0	527	1	1	2	0	4	4	189	60	0	253	69	0	53	0	122	906
Total	461	1632	9	0	2102	4	4	3	0	11	8	683	193	0	884	309	3	203	0	515	3512
05:00 PM	109	420	1	0	530	2	1	0	0	3	3	171	54	0	228	76	2	51	0	129	890
05:15 PM	112	386	5	0	503	2	1	4	0	7	4	193	79	0	276	77	0	58	0	135	921
05:30 PM	97	350	5	0	452	2	1	3	0	6	0	197	50	0	247	73	2	63	0	138	843
05:45 PM	109	387	3	0	499	1	1	1	0	3	2	164	48	0	214	57	1	49	0	107	823
Total	427	1543	14	0	1984	7	4	8	0	19	9	725	231	0	965	283	5	221	0	509	3477

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Groups Printed- Combined

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	2516	8750	61	0	11327	71	54	81	0	206	105	8575	1845	0	10525	1950	28	2243	0	4221	26279
Apprch %	22.2	77.2	0.5	0		34.5	26.2	39.3	0		1	81.5	17.5	0		46.2	0.7	53.1	0		
Total %	9.6	33.3	0.2	0	43.1	0.3	0.2	0.3	0	0.8	0.4	32.6	7	0	40.1	7.4	0.1	8.5	0	16.1	

	US 1 Southbound				Cranes Corner Rd Westbound				US 1 Northbound				Enon Rd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:15 AM																	
08:15 AM	32	95	0	127	**4**	2	0	6	6	**271**	61	338	19	0	**66**	85	556
08:30 AM	31	116	0	147	1	3	3	7	3	237	99	339	17	0	65	82	575
08:45 AM	36	**117**	0	**153**	2	1	1	4	1	198	129	328	**87**	**1**	65	**153**	638
09:00 AM	**53**	92	**2**	147	1	**14**	**5**	**20**	**13**	211	**154**	**378**	83	1	47	131	**676**
Total Volume	152	420	2	574	8	20	9	37	23	917	443	1383	206	2	243	451	2445
% App. Total	26.5	73.2	0.3		21.6	54.1	24.3		1.7	66.3	32		45.7	0.4	53.9		
PHF	.717	.897	.250	.938	.500	.357	.450	.463	.442	.846	.719	.915	.592	.500	.920	.737	.904
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	119	409	1	529	**2**	**1**	0	3	2	162	42	206	**88**	0	44	132	870
04:45 PM	**121**	399	**7**	527	1	1	2	4	**4**	189	60	253	69	0	53	122	906
05:00 PM	109	**420**	1	**530**	2	1	0	3	3	171	54	228	76	**2**	51	129	890
05:15 PM	112	386	5	503	2	1	**4**	**7**	4	**193**	**79**	**276**	77	0	**58**	**135**	**921**
Total Volume	461	1614	14	2089	7	4	6	17	13	715	235	963	310	2	206	518	3587
% App. Total	22.1	77.3	0.7		41.2	23.5	35.3		1.3	74.2	24.4		59.8	0.4	39.8		
PHF	.952	.961	.500	.985	.875	1.00	.375	.607	.813	.926	.744	.872	.881	.250	.888	.959	.974

Peggy Malone & Associates
(888) 247-8602

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Groups Printed- Cars

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	135	18	0	0	153	25	1	16	0	42	0	12	4	0	16	211
06:15 AM	0	0	0	0	0	123	30	0	0	153	13	0	21	0	34	0	19	4	0	23	210
06:30 AM	0	0	0	0	0	129	27	0	0	156	20	0	62	0	82	0	31	2	0	33	271
06:45 AM	0	0	0	0	0	155	42	0	0	197	33	1	60	0	94	0	35	1	0	36	327
Total	0	0	0	0	0	542	117	0	0	659	91	2	159	0	252	0	97	11	0	108	1019
07:00 AM	0	0	0	0	0	166	37	0	0	203	22	0	55	0	77	0	46	0	0	46	326
07:15 AM	0	0	0	0	0	160	47	0	0	207	35	0	62	0	97	0	41	3	0	44	348
07:30 AM	0	0	0	0	0	152	61	0	0	213	29	0	51	0	80	0	60	3	0	63	356
07:45 AM	0	0	0	0	0	143	54	0	0	197	46	0	49	0	95	0	51	6	0	57	349
Total	0	0	0	0	0	621	199	0	0	820	132	0	217	0	349	0	198	12	0	210	1379
08:00 AM	0	0	0	0	0	116	41	0	0	157	31	0	34	0	65	0	64	2	0	66	288
08:15 AM	0	0	0	0	0	134	32	0	0	166	25	0	33	0	58	0	49	2	0	51	275
08:30 AM	0	0	0	0	0	120	31	0	0	151	24	0	27	0	51	0	51	1	0	52	254
08:45 AM	0	0	0	0	0	91	21	0	0	112	22	0	23	0	45	0	46	8	0	54	211
Total	0	0	0	0	0	461	125	0	0	586	102	0	117	0	219	0	210	13	0	223	1028
09:00 AM	0	0	0	0	0	94	29	0	0	123	27	0	23	0	50	0	43	3	0	46	219
09:15 AM	0	0	0	0	0	100	43	0	0	143	18	0	21	0	39	0	42	2	0	44	226
09:30 AM	0	0	0	0	0	83	24	0	0	107	16	0	17	0	33	0	57	2	0	59	199
09:45 AM	0	0	0	0	0	70	32	0	0	102	15	0	24	0	39	0	46	1	0	47	188
Total	0	0	0	0	0	347	128	0	0	475	76	0	85	0	161	0	188	8	0	196	832
10:00 AM	0	0	0	0	0	68	22	0	0	90	18	1	18	0	37	0	34	4	0	38	165
10:15 AM	0	0	0	0	0	75	16	0	0	91	19	0	22	0	41	0	41	0	0	41	173
10:30 AM	0	0	0	0	0	84	32	0	0	116	20	1	16	0	37	0	46	4	0	50	203
10:45 AM	0	0	0	0	0	71	19	0	0	90	15	1	13	0	29	0	51	1	0	52	171
Total	0	0	0	0	0	298	89	0	0	387	72	3	69	0	144	0	172	9	0	181	712
11:00 AM	0	0	0	0	0	60	24	0	0	84	13	0	15	0	28	0	49	5	0	54	166
11:15 AM	0	0	0	0	0	49	18	0	0	67	9	0	17	0	26	0	56	3	0	59	152
11:30 AM	0	0	0	0	0	55	28	0	0	83	9	0	18	0	27	0	51	4	0	55	165
11:45 AM	0	0	0	0	0	57	24	0	0	81	11	0	22	0	33	0	42	1	0	43	157
Total	0	0	0	0	0	221	94	0	0	315	42	0	72	0	114	0	198	13	0	211	640
12:00 PM	0	0	0	0	0	46	25	0	0	71	7	0	19	0	26	0	51	4	0	55	152
12:15 PM	0	0	0	0	0	60	31	0	0	91	15	0	27	0	42	0	66	2	0	68	201
12:30 PM	0	0	0	0	0	58	28	0	0	86	15	0	29	0	44	0	63	1	0	64	194
12:45 PM	0	0	0	0	0	57	23	0	0	80	19	1	19	0	39	0	64	3	0	67	186
Total	0	0	0	0	0	221	107	0	0	328	56	1	94	0	151	0	244	10	0	254	733
01:00 PM	0	0	0	0	0	59	35	0	0	94	14	1	16	0	31	0	60	3	0	63	188
01:15 PM	0	0	0	0	0	48	35	0	0	83	13	0	28	0	41	0	65	1	0	66	190
01:30 PM	0	0	0	0	0	61	34	0	0	95	15	1	25	0	41	0	69	2	0	71	207
01:45 PM	0	0	0	0	0	61	26	0	0	87	22	1	27	0	50	0	70	2	0	72	209
Total	0	0	0	0	0	229	130	0	0	359	64	3	96	0	163	0	264	8	0	272	794
02:00 PM	0	0	0	0	0	50	28	0	0	78	17	0	27	0	44	0	89	2	0	91	213
02:15 PM	0	0	0	0	0	63	33	0	0	96	20	0	20	0	40	0	82	2	0	84	220
02:30 PM	0	0	0	0	0	60	28	0	0	88	14	0	26	0	40	0	79	1	0	80	208
02:45 PM	0	0	0	0	0	48	31	0	0	79	17	1	21	0	39	0	66	2	0	68	186
Total	0	0	0	0	0	221	120	0	0	341	68	1	94	0	163	0	316	7	0	323	827
03:00 PM	0	0	0	0	0	60	44	0	0	104	19	1	26	0	46	0	76	2	0	78	228
03:15 PM	0	0	0	0	0	58	57	0	0	115	18	3	31	0	52	0	77	8	0	85	252
03:30 PM	0	0	0	0	0	75	39	0	0	114	19	1	29	0	49	0	73	2	0	75	238
03:45 PM	0	0	0	0	0	78	54	0	0	132	14	0	26	0	40	0	99	5	0	104	276
Total	0	0	0	0	0	271	194	0	0	465	70	5	112	0	187	0	325	17	0	342	994
04:00 PM	0	0	0	0	0	83	71	0	0	154	21	0	27	0	48	0	78	3	0	81	283
04:15 PM	0	0	0	0	0	85	52	0	0	137	20	0	27	0	47	0	107	4	0	111	295
04:30 PM	0	0	0	0	0	80	66	0	0	146	26	0	28	0	54	0	83	4	0	87	287
04:45 PM	0	0	0	0	0	92	59	0	0	151	16	0	23	0	39	0	112	2	0	114	304
Total	0	0	0	0	0	340	248	0	0	588	83	0	105	0	188	0	380	13	0	393	1169
05:00 PM	0	0	0	0	0	85	98	0	0	183	15	1	33	0	49	0	91	3	0	94	326
05:15 PM	0	0	0	0	0	119	61	0	0	180	29	0	48	0	77	0	87	6	0	93	350
05:30 PM	0	0	0	0	0	101	98	0	0	199	24	0	46	0	70	0	80	3	0	83	352
05:45 PM	0	0	0	0	0	87	128	0	0	215	19	0	31	0	50	0	82	4	0	86	351
Total	0	0	0	0	0	392	385	0	0	777	87	1	158	0	246	0	340	16	0	356	1379

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Groups Printed- Cars

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	4164	1936	0	0	6100	943	16	1378	0	2337	0	2932	137	0	3069	11506
Apprch %	0	0	0	0		68.3	31.7	0	0		40.4	0.7	59	0		0	95.5	4.5	0		
Total %	0	0	0	0	0	36.2	16.8	0	0	53	8.2	0.1	12	0	20.3	0	25.5	1.2	0	26.7	

	I-95 NB On Ramp Southbound				Centreport Pkwy Westbound				I-95 NB Off Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	**166**	37	0	203	22	0	55	77	0	46	0	46	326
07:15 AM	0	0	0	0	160	47	0	207	35	0	**62**	**97**	0	41	3	44	348
07:30 AM	0	0	0	0	152	**61**	0	**213**	29	0	51	80	0	**60**	3	**63**	**356**
07:45 AM	0	0	0	0	143	54	0	197	**46**	0	49	95	0	51	**6**	57	349
Total Volume	0	0	0	0	621	199	0	820	132	0	217	349	0	198	12	210	1379
% App. Total	0	0	0		75.7	24.3	0		37.8	0	62.2		0	94.3	5.7		
PHF	.000	.000	.000	.000	.935	.816	.000	.962	.717	.000	.875	.899	.000	.825	.500	.833	.968
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	85	98	0	183	15	**1**	33	49	0	**91**	3	**94**	326
05:15 PM	0	0	0	0	**119**	61	0	180	**29**	0	**48**	**77**	0	87	**6**	93	350
05:30 PM	0	0	0	0	101	98	0	199	24	0	46	70	0	80	3	83	**352**
05:45 PM	0	0	0	0	87	**128**	0	**215**	19	0	31	50	0	82	4	86	351
Total Volume	0	0	0	0	392	385	0	777	87	1	158	246	0	340	16	356	1379
% App. Total	0	0	0		50.5	49.5	0		35.4	0.4	64.2		0	95.5	4.5		
PHF	.000	.000	.000	.000	.824	.752	.000	.903	.750	.250	.823	.799	.000	.934	.667	.947	.979

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(888) 247-8602

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Groups Printed- Trucks

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	4	4	0	0	8	3	0	2	0	5	0	0	0	0	0	13
06:15 AM	0	0	0	0	0	1	3	0	0	4	2	1	2	0	5	0	0	0	0	0	9
06:30 AM	0	0	0	0	0	2	3	0	0	5	3	0	2	0	5	0	2	0	0	2	12
06:45 AM	0	0	0	0	0	4	7	0	0	11	1	0	3	0	4	0	3	2	0	5	20
Total	0	0	0	0	0	11	17	0	0	28	9	1	9	0	19	0	5	2	0	7	54
07:00 AM	0	0	0	0	0	2	6	0	0	8	1	0	4	0	5	0	2	0	0	2	15
07:15 AM	0	0	0	0	0	0	2	0	0	2	1	0	2	0	3	0	0	0	0	0	5
07:30 AM	0	0	0	0	0	1	3	0	0	4	1	0	7	0	8	0	0	0	0	0	12
07:45 AM	0	0	0	0	0	2	7	0	0	9	0	0	5	0	5	0	3	1	0	4	18
Total	0	0	0	0	0	5	18	0	0	23	3	0	18	0	21	0	5	1	0	6	50
08:00 AM	0	0	0	0	0	2	5	0	0	7	0	0	3	0	3	0	7	1	0	8	18
08:15 AM	0	0	0	0	0	6	4	0	0	10	0	0	5	0	5	0	7	1	0	8	23
08:30 AM	0	0	0	0	0	0	3	0	0	3	2	0	3	0	5	0	4	1	0	5	13
08:45 AM	0	0	0	0	0	3	9	0	0	12	3	0	3	0	6	0	5	0	0	5	23
Total	0	0	0	0	0	11	21	0	0	32	5	0	14	0	19	0	23	3	0	26	77
09:00 AM	0	0	0	0	0	1	5	0	0	6	2	0	4	0	6	0	5	0	0	5	17
09:15 AM	0	0	0	0	0	5	4	0	0	9	2	0	5	0	7	0	7	0	0	7	23
09:30 AM	0	0	0	0	0	3	6	0	0	9	2	0	3	0	5	0	8	0	0	8	22
09:45 AM	0	0	0	0	0	2	3	0	0	5	1	0	5	0	6	0	12	0	0	12	23
Total	0	0	0	0	0	11	18	0	0	29	7	0	17	0	24	0	32	0	0	32	85
10:00 AM	0	0	0	0	0	3	5	0	0	8	0	1	3	0	4	0	6	0	0	6	18
10:15 AM	0	0	0	0	0	2	1	0	0	3	5	0	9	0	14	0	3	0	0	3	20
10:30 AM	0	0	0	0	0	4	1	0	0	5	5	0	8	0	13	0	8	0	0	8	26
10:45 AM	0	0	0	0	0	5	3	0	0	8	3	1	5	0	9	0	3	1	0	4	21
Total	0	0	0	0	0	14	10	0	0	24	13	2	25	0	40	0	20	1	0	21	85
11:00 AM	0	0	0	0	0	4	5	0	0	9	2	0	6	0	8	0	5	1	0	6	23
11:15 AM	0	0	0	0	0	1	4	0	0	5	2	0	5	0	7	0	1	0	0	1	13
11:30 AM	0	0	0	0	0	5	3	0	0	8	1	0	5	0	6	0	4	1	0	5	19
11:45 AM	0	0	0	0	0	2	2	0	0	4	1	0	10	0	11	0	2	1	0	3	18
Total	0	0	0	0	0	12	14	0	0	26	6	0	26	0	32	0	12	3	0	15	73
12:00 PM	0	0	0	0	0	0	6	0	0	6	1	0	4	0	5	0	3	0	0	3	14
12:15 PM	0	0	0	0	0	4	2	0	0	6	2	0	8	0	10	0	1	0	0	1	17
12:30 PM	0	0	0	0	0	1	2	0	0	3	1	1	15	0	17	0	8	0	0	8	28
12:45 PM	0	0	0	0	0	2	6	0	0	8	3	0	12	0	15	0	2	2	0	4	27
Total	0	0	0	0	0	7	16	0	0	23	7	1	39	0	47	0	14	2	0	16	86
01:00 PM	0	0	0	0	0	2	4	0	0	6	1	0	4	0	5	0	2	1	0	3	14
01:15 PM	0	0	0	0	0	1	3	0	0	4	2	0	2	0	4	0	1	0	0	1	9
01:30 PM	0	0	0	0	0	3	5	0	0	8	5	0	9	0	14	0	1	2	0	3	25
01:45 PM	0	0	0	0	0	4	4	0	0	8	1	0	6	0	7	0	2	1	0	3	18
Total	0	0	0	0	0	10	16	0	0	26	9	0	21	0	30	0	6	4	0	10	66
02:00 PM	0	0	0	0	0	1	3	0	0	4	1	0	5	0	6	0	2	1	0	3	13
02:15 PM	0	0	0	0	0	5	1	0	0	6	3	0	5	0	8	0	1	0	0	1	15
02:30 PM	0	0	0	0	0	0	2	0	0	2	1	0	2	0	3	0	6	0	0	6	11
02:45 PM	0	0	0	0	0	2	5	0	0	7	1	0	6	0	7	0	2	1	0	3	17
Total	0	0	0	0	0	8	11	0	0	19	6	0	18	0	24	0	11	2	0	13	56
03:00 PM	0	0	0	0	0	5	1	0	0	6	0	0	3	0	3	0	3	0	0	3	12
03:15 PM	0	0	0	0	0	1	1	0	0	2	2	0	9	0	11	0	0	1	0	1	14
03:30 PM	0	0	0	0	0	2	3	0	0	5	3	0	1	0	4	0	6	2	0	8	17
03:45 PM	0	0	0	0	0	2	3	0	0	5	6	0	3	0	9	0	4	1	0	5	19
Total	0	0	0	0	0	10	8	0	0	18	11	0	16	0	27	0	13	4	0	17	62
04:00 PM	0	0	0	0	0	2	7	0	0	9	1	0	4	0	5	0	2	0	0	2	16
04:15 PM	1	0	0	0	1	0	3	0	0	3	6	0	8	0	14	0	2	1	0	3	21
04:30 PM	0	0	0	0	0	0	3	0	0	3	1	0	3	0	4	0	2	1	0	3	10
04:45 PM	0	0	0	0	0	0	3	0	0	3	2	0	7	0	9	0	4	0	0	4	16
Total	1	0	0	0	1	2	16	0	0	18	10	0	22	0	32	0	10	2	0	12	63
05:00 PM	0	0	0	0	0	1	4	0	0	5	0	0	3	0	3	0	8	0	0	8	16
05:15 PM	0	0	0	0	0	2	1	0	0	3	2	0	2	0	4	0	2	0	0	2	9
05:30 PM	0	0	0	0	0	1	4	0	0	5	1	0	0	0	1	0	2	0	0	2	8
05:45 PM	0	0	0	0	0	0	4	0	0	4	1	0	3	0	4	0	1	0	0	1	9
Total	0	0	0	0	0	4	13	0	0	17	4	0	8	0	12	0	13	0	0	13	42

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Groups Printed- Trucks

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	1	0	0	0	1	105	178	0	0	283	90	4	233	0	327	0	164	24	0	188	799
Apprch %	100	0	0	0		37.1	62.9	0	0		27.5	1.2	71.3	0		0	87.2	12.8	0		
Total %	0.1	0	0	0	0.1	13.1	22.3	0	0	35.4	11.3	0.5	29.2	0	40.9	0	20.5	3	0	23.5	

	I-95 NB On Ramp Southbound				Centreport Pkwy Westbound				I-95 NB Off Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 10:15 AM																	
10:15 AM	0	0	0	0	2	1	0	3	**5**	0	**9**	**14**	0	3	0	3	20
10:30 AM	0	0	0	0	4	1	0	5	5	0	8	13	0	**8**	0	**8**	**26**
10:45 AM	0	0	0	0	**5**	3	0	8	3	**1**	5	9	0	3	**1**	4	21
11:00 AM	0	0	0	0	4	**5**	0	**9**	2	0	6	8	0	5	1	6	23
Total Volume	0	0	0	0	15	10	0	25	15	1	28	44	0	19	2	21	90
% App. Total	0	0	0		60	40	0		34.1	2.3	63.6		0	90.5	9.5		
PHF	.000	.000	.000	.000	.750	.500	.000	.694	.750	.250	.778	.786	.000	.594	.500	.656	.865
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	**6**	0	6	1	0	4	5	0	3	0	3	14
12:15 PM	0	0	0	0	**4**	2	0	6	2	0	8	10	0	1	0	1	17
12:30 PM	0	0	0	0	1	2	0	3	1	**1**	**15**	**17**	0	**8**	0	**8**	**28**
12:45 PM	0	0	0	0	2	6	0	**8**	**3**	0	12	15	0	2	**2**	4	27
Total Volume	0	0	0	0	7	16	0	23	7	1	39	47	0	14	2	16	86
% App. Total	0	0	0		30.4	69.6	0		14.9	2.1	83		0	87.5	12.5		
PHF	.000	.000	.000	.000	.438	.667	.000	.719	.583	.250	.650	.691	.000	.438	.250	.500	.768

Peggy Malone & Associates
(888) 247-8602

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Groups Printed- Combined

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	139	22	0	0	161	28	1	18	0	47	0	12	4	0	16	224
06:15 AM	0	0	0	0	0	124	33	0	0	157	15	1	23	0	39	0	19	4	0	23	219
06:30 AM	0	0	0	0	0	131	30	0	0	161	23	0	64	0	87	0	33	2	0	35	283
06:45 AM	0	0	0	0	0	159	49	0	0	208	34	1	63	0	98	0	38	3	0	41	347
Total	0	0	0	0	0	553	134	0	0	687	100	3	168	0	271	0	102	13	0	115	1073
07:00 AM	0	0	0	0	0	168	43	0	0	211	23	0	59	0	82	0	48	0	0	48	341
07:15 AM	0	0	0	0	0	160	49	0	0	209	36	0	64	0	100	0	41	3	0	44	353
07:30 AM	0	0	0	0	0	153	64	0	0	217	30	0	58	0	88	0	60	3	0	63	368
07:45 AM	0	0	0	0	0	145	61	0	0	206	46	0	54	0	100	0	54	7	0	61	367
Total	0	0	0	0	0	626	217	0	0	843	135	0	235	0	370	0	203	13	0	216	1429
08:00 AM	0	0	0	0	0	118	46	0	0	164	31	0	37	0	68	0	71	3	0	74	306
08:15 AM	0	0	0	0	0	140	36	0	0	176	25	0	38	0	63	0	56	3	0	59	298
08:30 AM	0	0	0	0	0	120	34	0	0	154	26	0	30	0	56	0	55	2	0	57	267
08:45 AM	0	0	0	0	0	94	30	0	0	124	25	0	26	0	51	0	51	8	0	59	234
Total	0	0	0	0	0	472	146	0	0	618	107	0	131	0	238	0	233	16	0	249	1105
09:00 AM	0	0	0	0	0	95	34	0	0	129	29	0	27	0	56	0	48	3	0	51	236
09:15 AM	0	0	0	0	0	105	47	0	0	152	20	0	26	0	46	0	49	2	0	51	249
09:30 AM	0	0	0	0	0	86	30	0	0	116	18	0	20	0	38	0	65	2	0	67	221
09:45 AM	0	0	0	0	0	72	35	0	0	107	16	0	29	0	45	0	58	1	0	59	211
Total	0	0	0	0	0	358	146	0	0	504	83	0	102	0	185	0	220	8	0	228	917
10:00 AM	0	0	0	0	0	71	27	0	0	98	18	2	21	0	41	0	40	4	0	44	183
10:15 AM	0	0	0	0	0	77	17	0	0	94	24	0	31	0	55	0	44	0	0	44	193
10:30 AM	0	0	0	0	0	88	33	0	0	121	25	1	24	0	50	0	54	4	0	58	229
10:45 AM	0	0	0	0	0	76	22	0	0	98	18	2	18	0	38	0	54	2	0	56	192
Total	0	0	0	0	0	312	99	0	0	411	85	5	94	0	184	0	192	10	0	202	797
11:00 AM	0	0	0	0	0	64	29	0	0	93	15	0	21	0	36	0	54	6	0	60	189
11:15 AM	0	0	0	0	0	50	22	0	0	72	11	0	22	0	33	0	57	3	0	60	165
11:30 AM	0	0	0	0	0	60	31	0	0	91	10	0	23	0	33	0	55	5	0	60	184
11:45 AM	0	0	0	0	0	59	26	0	0	85	12	0	32	0	44	0	44	2	0	46	175
Total	0	0	0	0	0	233	108	0	0	341	48	0	98	0	146	0	210	16	0	226	713
12:00 PM	0	0	0	0	0	46	31	0	0	77	8	0	23	0	31	0	54	4	0	58	166
12:15 PM	0	0	0	0	0	64	33	0	0	97	17	0	35	0	52	0	67	2	0	69	218
12:30 PM	0	0	0	0	0	59	30	0	0	89	16	1	44	0	61	0	71	1	0	72	222
12:45 PM	0	0	0	0	0	59	29	0	0	88	22	1	31	0	54	0	66	5	0	71	213
Total	0	0	0	0	0	228	123	0	0	351	63	2	133	0	198	0	258	12	0	270	819
01:00 PM	0	0	0	0	0	61	39	0	0	100	15	1	20	0	36	0	62	4	0	66	202
01:15 PM	0	0	0	0	0	49	38	0	0	87	15	0	30	0	45	0	66	1	0	67	199
01:30 PM	0	0	0	0	0	64	39	0	0	103	20	1	34	0	55	0	70	4	0	74	232
01:45 PM	0	0	0	0	0	65	30	0	0	95	23	1	33	0	57	0	72	3	0	75	227
Total	0	0	0	0	0	239	146	0	0	385	73	3	117	0	193	0	270	12	0	282	860
02:00 PM	0	0	0	0	0	51	31	0	0	82	18	0	32	0	50	0	91	3	0	94	226
02:15 PM	0	0	0	0	0	68	34	0	0	102	23	0	25	0	48	0	83	2	0	85	235
02:30 PM	0	0	0	0	0	60	30	0	0	90	15	0	28	0	43	0	85	1	0	86	219
02:45 PM	0	0	0	0	0	50	36	0	0	86	18	1	27	0	46	0	68	3	0	71	203
Total	0	0	0	0	0	229	131	0	0	360	74	1	112	0	187	0	327	9	0	336	883
03:00 PM	0	0	0	0	0	65	45	0	0	110	19	1	29	0	49	0	79	2	0	81	240
03:15 PM	0	0	0	0	0	59	58	0	0	117	20	3	40	0	63	0	77	9	0	86	266
03:30 PM	0	0	0	0	0	77	42	0	0	119	22	1	30	0	53	0	79	4	0	83	255
03:45 PM	0	0	0	0	0	80	57	0	0	137	20	0	29	0	49	0	103	6	0	109	295
Total	0	0	0	0	0	281	202	0	0	483	81	5	128	0	214	0	338	21	0	359	1056
04:00 PM	0	0	0	0	0	85	78	0	0	163	22	0	31	0	53	0	80	3	0	83	299
04:15 PM	1	0	0	0	1	85	55	0	0	140	26	0	35	0	61	0	109	5	0	114	316
04:30 PM	0	0	0	0	0	80	69	0	0	149	27	0	31	0	58	0	85	5	0	90	297
04:45 PM	0	0	0	0	0	92	62	0	0	154	18	0	30	0	48	0	116	2	0	118	320
Total	1	0	0	0	1	342	264	0	0	606	93	0	127	0	220	0	390	15	0	405	1232
05:00 PM	0	0	0	0	0	86	102	0	0	188	15	1	36	0	52	0	99	3	0	102	342
05:15 PM	0	0	0	0	0	121	62	0	0	183	31	0	50	0	81	0	89	6	0	95	359
05:30 PM	0	0	0	0	0	102	102	0	0	204	25	0	46	0	71	0	82	3	0	85	360
05:45 PM	0	0	0	0	0	87	132	0	0	219	20	0	34	0	54	0	83	4	0	87	360
Total	0	0	0	0	0	396	398	0	0	794	91	1	166	0	258	0	353	16	0	369	1421

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Groups Printed- Combined

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	1	0	0	0	1	4269	2114	0	0	6383	1033	20	1611	0	2664	0	3096	161	0	3257	12305
Apprch %	100	0	0	0		66.9	33.1	0	0		38.8	0.8	60.5	0		0	95.1	4.9	0		
Total %	0	0	0	0	0	34.7	17.2	0	0	51.9	8.4	0.2	13.1	0	21.6	0	25.2	1.3	0	26.5	

	I-95 NB On Ramp Southbound				Centreport Pkwy Westbound				I-95 NB Off Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	**168**	43	0	211	23	0	59	82	0	48	0	48	341
07:15 AM	0	0	0	0	160	49	0	209	36	0	**64**	**100**	0	41	3	44	353
07:30 AM	0	0	0	0	153	**64**	0	**217**	30	0	58	88	0	**60**	3	**63**	**368**
07:45 AM	0	0	0	0	145	61	0	206	**46**	0	54	100	0	54	**7**	61	367
Total Volume	0	0	0	0	626	217	0	843	135	0	235	370	0	203	13	216	1429
% App. Total	0	0	0		74.3	25.7	0		36.5	0	63.5		0	94	6		
PHF	.000	.000	.000	.000	.932	.848	.000	.971	.734	.000	.918	.925	.000	.846	.464	.857	.971
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	86	102	0	188	15	**1**	36	52	0	**99**	3	**102**	342
05:15 PM	0	0	0	0	**121**	62	0	183	**31**	0	**50**	**81**	0	89	**6**	95	359
05:30 PM	0	0	0	0	102	102	0	204	25	0	46	71	0	82	3	85	**360**
05:45 PM	0	0	0	0	87	**132**	0	**219**	20	0	34	54	0	83	4	87	360
Total Volume	0	0	0	0	396	398	0	794	91	1	166	258	0	353	16	369	1421
% App. Total	0	0	0		49.9	50.1	0		35.3	0.4	64.3		0	95.7	4.3		
PHF	.000	.000	.000	.000	.818	.754	.000	.906	.734	.250	.830	.796	.000	.891	.667	.904	.987

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Groups Printed- Cars

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	3	0	12	0	15	0	24	8	0	32	0	0	0	0	0	9	4	0	0	13	60
06:15 AM	7	0	11	0	18	0	30	17	0	47	0	0	0	0	0	17	12	0	0	29	94
06:30 AM	6	0	26	0	32	0	80	12	0	92	0	0	0	0	0	20	7	0	0	27	151
06:45 AM	11	0	34	0	45	0	92	11	0	103	0	0	0	0	0	32	6	0	0	38	186
Total	27	0	83	0	110	0	226	48	0	274	0	0	0	0	0	78	29	0	0	107	491
07:00 AM	5	0	22	0	27	0	69	15	0	84	0	0	0	0	0	24	20	0	0	44	155
07:15 AM	3	0	32	0	35	0	98	18	0	116	0	0	0	0	0	35	11	0	0	46	197
07:30 AM	9	1	46	0	56	0	88	20	0	108	0	0	0	0	0	53	19	0	0	72	236
07:45 AM	8	0	39	0	47	0	90	15	0	105	0	0	0	0	0	53	22	0	0	75	227
Total	25	1	139	0	165	0	345	68	0	413	0	0	0	0	0	165	72	0	0	237	815
08:00 AM	3	0	31	0	34	0	66	15	0	81	0	0	0	0	0	47	28	0	0	75	190
08:15 AM	1	0	39	0	40	0	52	12	0	64	0	0	0	0	0	30	14	0	0	44	148
08:30 AM	3	1	35	0	39	0	47	11	0	58	0	0	0	0	0	45	16	0	0	61	158
08:45 AM	1	0	36	0	37	0	36	10	0	46	0	0	0	0	0	27	20	0	0	47	130
Total	8	1	141	0	150	0	201	48	0	249	0	0	0	0	0	149	78	0	0	227	626
09:00 AM	2	2	29	0	33	0	40	16	0	56	0	0	0	0	0	41	16	0	0	57	146
09:15 AM	2	1	29	0	32	0	32	27	0	59	0	0	0	0	0	27	17	0	0	44	135
09:30 AM	0	0	34	0	34	0	29	12	0	41	0	0	0	0	0	37	24	0	0	61	136
09:45 AM	1	0	34	0	35	0	40	14	0	54	0	0	0	0	0	33	12	0	0	45	134
Total	5	3	126	0	134	0	141	69	0	210	0	0	0	0	0	138	69	0	0	207	551
10:00 AM	1	1	26	0	28	0	29	17	0	46	0	0	0	0	0	35	9	0	0	44	118
10:15 AM	5	0	32	0	37	0	26	10	0	36	0	0	0	0	0	26	14	0	0	40	113
10:30 AM	0	1	25	0	26	0	28	21	0	49	0	0	0	0	0	39	20	0	0	59	134
10:45 AM	2	1	39	0	42	0	21	10	0	31	0	0	0	0	0	30	12	0	0	42	115
Total	8	3	122	0	133	0	104	58	0	162	0	0	0	0	0	130	55	0	0	185	480
11:00 AM	2	0	41	0	43	0	24	13	0	37	0	0	0	0	0	21	13	0	0	34	114
11:15 AM	1	0	36	0	37	0	28	11	0	39	0	0	0	0	0	18	22	0	0	40	116
11:30 AM	1	1	41	0	43	0	26	17	0	43	0	0	0	0	0	27	14	0	0	41	127
11:45 AM	1	0	28	0	29	0	36	15	0	51	0	0	0	0	0	29	17	0	0	46	126
Total	5	1	146	0	152	0	114	56	0	170	0	0	0	0	0	95	66	0	0	161	483
12:00 PM	0	2	34	0	36	0	31	14	0	45	0	0	0	0	0	21	23	0	0	44	125
12:15 PM	1	0	46	0	47	0	33	21	0	54	0	0	0	0	0	42	14	0	0	56	157
12:30 PM	1	0	54	0	55	0	36	25	0	61	0	0	0	0	0	19	19	0	0	38	154
12:45 PM	2	0	41	0	43	0	29	13	0	42	0	0	0	0	0	25	17	0	0	42	127
Total	4	2	175	0	181	0	129	73	0	202	0	0	0	0	0	107	73	0	0	180	563
01:00 PM	0	1	52	0	53	0	33	19	0	52	0	0	0	0	0	28	13	0	0	41	146
01:15 PM	0	0	50	0	50	0	39	23	0	62	0	0	0	0	0	22	16	0	0	38	150
01:30 PM	4	0	49	0	53	0	31	26	0	57	0	0	0	0	0	25	21	0	0	46	156
01:45 PM	0	0	52	0	52	0	36	15	0	51	0	0	0	0	0	30	20	0	0	50	153
Total	4	1	203	0	208	0	139	83	0	222	0	0	0	0	0	105	70	0	0	175	605
02:00 PM	0	0	73	0	73	0	40	18	0	58	0	0	0	0	0	27	17	0	0	44	175
02:15 PM	1	1	59	0	61	0	34	18	0	52	0	0	0	0	0	36	27	0	0	63	176
02:30 PM	1	0	57	0	58	0	32	22	0	54	0	0	0	0	0	28	17	0	0	45	157
02:45 PM	5	0	60	0	65	0	31	23	0	54	0	0	0	0	0	31	16	0	0	47	166
Total	7	1	249	0	257	0	137	81	0	218	0	0	0	0	0	122	77	0	0	199	674
03:00 PM	3	1	52	0	56	0	33	32	0	65	0	0	0	0	0	57	22	0	0	79	200
03:15 PM	3	0	61	0	64	0	64	30	0	94	0	0	0	0	0	64	25	0	0	89	247
03:30 PM	1	1	62	0	64	0	47	26	0	73	0	0	0	0	0	58	21	0	0	79	216
03:45 PM	1	1	59	0	61	0	48	33	0	81	0	0	0	0	0	81	44	0	0	125	267
Total	8	3	234	0	245	0	192	121	0	313	0	0	0	0	0	260	112	0	0	372	930
04:00 PM	4	1	57	0	62	0	43	56	0	99	0	0	0	0	0	74	29	0	0	103	264
04:15 PM	1	1	57	0	59	0	44	30	0	74	0	0	0	0	0	73	55	0	0	128	261
04:30 PM	1	1	37	0	39	0	49	41	0	90	0	0	0	0	0	82	44	0	0	126	255
04:45 PM	2	3	75	0	80	0	48	23	0	71	0	0	0	0	0	91	42	0	0	133	284
Total	8	6	226	0	240	0	184	150	0	334	0	0	0	0	0	320	170	0	0	490	1064
05:00 PM	1	1	56	0	58	0	72	63	0	135	0	0	0	0	0	99	36	0	0	135	328
05:15 PM	0	4	54	0	58	0	70	46	0	116	0	0	0	0	0	104	43	0	0	147	321
05:30 PM	2	5	46	0	53	0	74	63	0	137	0	0	0	0	0	88	33	0	0	121	311
05:45 PM	2	0	51	0	53	0	62	99	0	161	0	0	0	0	0	69	35	0	0	104	318
Total	5	10	207	0	222	0	278	271	0	549	0	0	0	0	0	360	147	0	0	507	1278

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Groups Printed- Cars

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	114	32	2051	0	2197	0	2190	1126	0	3316	0	0	0	0	0	2029	1018	0	0	3047	8560
Apprch %	5.2	1.5	93.4	0		0	66	34	0		0	0	0	0		66.6	33.4	0	0		
Total %	1.3	0.4	24	0	25.7	0	25.6	13.2	0	38.7	0	0	0	0	0	23.7	11.9	0	0	35.6	

	I-95 SB Off Ramp Southbound				Centreport Pkwy Westbound				I-95 SB On Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	0	32	35	0	**98**	18	**116**	0	0	0	0	35	11	0	46	197
07:30 AM	**9**	**1**	**46**	**56**	0	88	**20**	108	0	0	0	0	**53**	19	0	72	**236**
07:45 AM	8	0	39	47	0	90	15	105	0	0	0	0	53	22	0	**75**	227
08:00 AM	3	0	31	34	0	66	15	81	0	0	0	0	47	**28**	0	75	190
Total Volume	23	1	148	172	0	342	68	410	0	0	0	0	188	80	0	268	850
% App. Total	13.4	0.6	86		0	83.4	16.6		0	0	0		70.1	29.9	0		
PHF	.639	.250	.804	.768	.000	.872	.850	.884	.000	.000	.000	.000	.887	.714	.000	.893	.900
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	1	1	**56**	**58**	0	72	63	135	0	0	0	0	99	36	0	135	**328**
05:15 PM	0	4	54	58	0	70	46	116	0	0	0	0	**104**	**43**	0	**147**	321
05:30 PM	**2**	**5**	46	53	0	**74**	63	137	0	0	0	0	88	33	0	121	311
05:45 PM	2	0	51	53	0	62	**99**	**161**	0	0	0	0	69	35	0	104	318
Total Volume	5	10	207	222	0	278	271	549	0	0	0	0	360	147	0	507	1278
% App. Total	2.3	4.5	93.2		0	50.6	49.4		0	0	0		71	29	0		
PHF	.625	.500	.924	.957	.000	.939	.684	.852	.000	.000	.000	.000	.865	.855	.000	.862	.974

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(888) 247-8602

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Groups Printed- Trucks

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	2	0	0	2	0	4	2	0	6	0	0	0	0	0	0	0	0	0	0	8
06:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	2	0	0	0	2	6
06:30 AM	2	0	1	0	3	0	4	1	0	5	0	0	0	0	0	1	1	0	0	2	10
06:45 AM	1	0	2	0	3	0	6	1	0	7	0	0	0	0	0	2	3	0	0	5	15
Total	3	2	3	0	8	0	18	4	0	22	0	0	0	0	0	5	4	0	0	9	39
07:00 AM	0	0	2	0	2	0	9	3	0	12	0	0	0	0	0	5	0	0	0	5	19
07:15 AM	0	0	0	0	0	0	2	2	0	4	0	0	0	0	0	3	0	0	0	3	7
07:30 AM	1	0	0	0	1	0	7	3	0	10	0	0	0	0	0	4	0	0	0	4	15
07:45 AM	1	0	2	0	3	0	4	6	0	10	0	0	0	0	0	6	3	0	0	9	22
Total	2	0	4	0	6	0	22	14	0	36	0	0	0	0	0	18	3	0	0	21	63
08:00 AM	0	0	1	0	1	0	6	3	0	9	0	0	0	0	0	10	8	0	0	18	28
08:15 AM	1	0	3	0	4	0	4	5	0	9	0	0	0	0	0	8	4	0	0	12	25
08:30 AM	0	0	1	0	1	0	3	2	0	5	0	0	0	0	0	11	4	0	0	15	21
08:45 AM	0	0	3	0	3	0	7	4	0	11	0	0	0	0	0	9	1	0	0	10	24
Total	1	0	8	0	9	0	20	14	0	34	0	0	0	0	0	38	17	0	0	55	98
09:00 AM	0	0	1	0	1	0	8	4	0	12	0	0	0	0	0	4	5	0	0	9	22
09:15 AM	2	0	1	0	3	0	3	7	0	10	0	0	0	0	0	7	6	0	0	13	26
09:30 AM	2	0	2	0	4	0	7	2	0	9	0	0	0	0	0	7	7	0	0	14	27
09:45 AM	0	0	1	0	1	0	4	5	0	9	0	0	0	0	0	5	11	0	0	16	26
Total	4	0	5	0	9	0	22	18	0	40	0	0	0	0	0	23	29	0	0	52	101
10:00 AM	0	0	2	0	2	0	3	5	0	8	0	0	0	0	0	5	6	0	0	11	21
10:15 AM	0	0	2	0	2	0	7	2	0	9	0	0	0	0	0	1	1	0	0	2	13
10:30 AM	1	1	2	0	4	0	5	5	0	10	0	0	0	0	0	7	6	0	0	13	27
10:45 AM	0	0	3	0	3	0	2	5	0	7	0	0	0	0	0	8	1	0	0	9	19
Total	1	1	9	0	11	0	17	17	0	34	0	0	0	0	0	21	14	0	0	35	80
11:00 AM	3	0	3	0	6	0	6	7	0	13	0	0	0	0	0	4	3	0	0	7	26
11:15 AM	1	0	1	0	2	0	3	4	0	7	0	0	0	0	0	5	3	0	0	8	17
11:30 AM	0	0	2	0	2	0	5	4	0	9	0	0	0	0	0	2	2	0	0	4	15
11:45 AM	0	0	1	0	1	0	6	5	0	11	0	0	0	0	0	7	3	0	0	10	22
Total	4	0	7	0	11	0	20	20	0	40	0	0	0	0	0	18	11	0	0	29	80
12:00 PM	0	0	2	0	2	0	6	4	0	10	0	0	0	0	0	1	1	0	0	2	14
12:15 PM	0	0	2	0	2	0	4	4	0	8	0	0	0	0	0	7	2	0	0	9	19
12:30 PM	0	0	4	0	4	0	10	6	0	16	0	0	0	0	0	5	3	0	0	8	28
12:45 PM	0	0	3	0	3	0	13	6	0	19	0	0	0	0	0	9	3	0	0	12	34
Total	0	0	11	0	11	0	33	20	0	53	0	0	0	0	0	22	9	0	0	31	95
01:00 PM	0	0	2	0	2	0	5	3	0	8	0	0	0	0	0	2	1	0	0	3	13
01:15 PM	0	0	1	0	1	0	4	1	0	5	0	0	0	0	0	3	1	0	0	4	10
01:30 PM	1	1	2	0	4	0	8	5	0	13	0	0	0	0	0	6	0	0	0	6	23
01:45 PM	0	1	0	0	1	0	6	4	0	10	0	0	0	0	0	5	3	0	0	8	19
Total	1	2	5	0	8	0	23	13	0	36	0	0	0	0	0	16	5	0	0	21	65
02:00 PM	0	0	2	0	2	0	6	1	0	7	0	0	0	0	0	2	4	0	0	6	15
02:15 PM	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	4	1	0	0	5	12
02:30 PM	3	0	2	0	5	0	2	3	0	5	0	0	0	0	0	1	4	0	0	5	15
02:45 PM	1	0	3	0	4	0	9	1	0	10	0	0	0	0	0	5	1	0	0	6	20
Total	4	0	7	0	11	0	22	7	0	29	0	0	0	0	0	12	10	0	0	22	62
03:00 PM	1	1	4	0	6	0	2	2	0	4	0	0	0	0	0	2	0	0	0	2	12
03:15 PM	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	2	1	0	0	3	10
03:30 PM	0	0	2	0	2	0	3	0	0	3	0	0	0	0	0	4	6	0	0	10	15
03:45 PM	0	0	1	0	1	0	5	1	0	6	0	0	0	0	0	3	4	0	0	7	14
Total	1	1	7	0	9	0	15	5	0	20	0	0	0	0	0	11	11	0	0	22	51
04:00 PM	0	0	1	0	1	0	7	4	0	11	0	0	0	0	0	1	1	0	0	2	14
04:15 PM	0	0	1	0	1	0	8	4	0	12	0	0	0	0	0	1	2	0	0	3	16
04:30 PM	1	1	0	0	2	0	7	0	0	7	0	0	0	0	0	1	3	0	0	4	13
04:45 PM	0	1	3	0	4	0	7	2	0	9	0	0	0	0	0	1	2	0	0	3	16
Total	1	2	5	0	8	0	29	10	0	39	0	0	0	0	0	4	8	0	0	12	59
05:00 PM	1	0	3	0	4	0	7	2	0	9	0	0	0	0	0	4	4	0	0	8	21
05:15 PM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	5	2	0	0	7	11
05:30 PM	0	0	2	0	2	0	2	2	0	4	0	0	0	0	0	3	0	0	0	3	9
05:45 PM	0	0	0	0	0	0	3	4	0	7	0	0	0	0	0	2	0	0	0	2	9
Total	1	0	6	0	7	0	15	8	0	23	0	0	0	0	0	14	6	0	0	20	50

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Groups Printed- Trucks

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	23	8	77	0	108	0	256	150	0	406	0	0	0	0	0	202	127	0	0	329	843
Apprch %	21.3	7.4	71.3	0		0	63.1	36.9	0		0	0	0	0		61.4	38.6	0	0		
Total %	2.7	0.9	9.1	0	12.8	0	30.4	17.8	0	48.2	0	0	0	0	0	24	15.1	0	0	39	

	I-95 SB Off Ramp Southbound				Centreport Pkwy Westbound				I-95 SB On Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 AM																	
09:00 AM	0	0	1	1	0	**8**	4	**12**	0	0	0	0	4	5	0	9	22
09:15 AM	**2**	0	1	3	0	3	**7**	10	0	0	0	0	**7**	6	0	13	26
09:30 AM	2	0	**2**	**4**	0	7	2	9	0	0	0	0	7	7	0	14	**27**
09:45 AM	0	0	1	1	0	4	5	9	0	0	0	0	5	**11**	0	**16**	26
Total Volume	4	0	5	9	0	22	18	40	0	0	0	0	23	29	0	52	101
% App. Total	44.4	0	55.6		0	55	45		0	0	0		44.2	55.8	0		
PHF	.500	.000	.625	.563	.000	.688	.643	.833	.000	.000	.000	.000	.821	.659	.000	.813	.935
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	2	2	0	6	4	10	0	0	0	0	1	1	0	2	14
12:15 PM	0	0	2	2	0	4	4	8	0	0	0	0	7	2	0	9	19
12:30 PM	0	0	**4**	**4**	0	10	**6**	16	0	0	0	0	5	**3**	0	8	28
12:45 PM	0	0	3	3	0	**13**	6	**19**	0	0	0	0	**9**	3	0	**12**	**34**
Total Volume	0	0	11	11	0	33	20	53	0	0	0	0	22	9	0	31	95
% App. Total	0	0	100		0	62.3	37.7		0	0	0		71	29	0		
PHF	.000	.000	.688	.688	.000	.635	.833	.697	.000	.000	.000	.000	.611	.750	.000	.646	.699

Peggy Malone & Associates
(888) 247-8602

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	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	3	2	12	0	17	0	28	10	0	38	0	0	0	0	0	9	4	0	0	13	68
06:15 AM	7	0	11	0	18	0	34	17	0	51	0	0	0	0	0	19	12	0	0	31	100
06:30 AM	8	0	27	0	35	0	84	13	0	97	0	0	0	0	0	21	8	0	0	29	161
06:45 AM	12	0	36	0	48	0	98	12	0	110	0	0	0	0	0	34	9	0	0	43	201
Total	30	2	86	0	118	0	244	52	0	296	0	0	0	0	0	83	33	0	0	116	530
07:00 AM	5	0	24	0	29	0	78	18	0	96	0	0	0	0	0	29	20	0	0	49	174
07:15 AM	3	0	32	0	35	0	100	20	0	120	0	0	0	0	0	38	11	0	0	49	204
07:30 AM	10	1	46	0	57	0	95	23	0	118	0	0	0	0	0	57	19	0	0	76	251
07:45 AM	9	0	41	0	50	0	94	21	0	115	0	0	0	0	0	59	25	0	0	84	249
Total	27	1	143	0	171	0	367	82	0	449	0	0	0	0	0	183	75	0	0	258	878
08:00 AM	3	0	32	0	35	0	72	18	0	90	0	0	0	0	0	57	36	0	0	93	218
08:15 AM	2	0	42	0	44	0	56	17	0	73	0	0	0	0	0	38	18	0	0	56	173
08:30 AM	3	1	36	0	40	0	50	13	0	63	0	0	0	0	0	56	20	0	0	76	179
08:45 AM	1	0	39	0	40	0	43	14	0	57	0	0	0	0	0	36	21	0	0	57	154
Total	9	1	149	0	159	0	221	62	0	283	0	0	0	0	0	187	95	0	0	282	724
09:00 AM	2	2	30	0	34	0	48	20	0	68	0	0	0	0	0	45	21	0	0	66	168
09:15 AM	4	1	30	0	35	0	35	34	0	69	0	0	0	0	0	34	23	0	0	57	161
09:30 AM	2	0	36	0	38	0	36	14	0	50	0	0	0	0	0	44	31	0	0	75	163
09:45 AM	1	0	35	0	36	0	44	19	0	63	0	0	0	0	0	38	23	0	0	61	160
Total	9	3	131	0	143	0	163	87	0	250	0	0	0	0	0	161	98	0	0	259	652
10:00 AM	1	1	28	0	30	0	32	22	0	54	0	0	0	0	0	40	15	0	0	55	139
10:15 AM	5	0	34	0	39	0	33	12	0	45	0	0	0	0	0	27	15	0	0	42	126
10:30 AM	1	2	27	0	30	0	33	26	0	59	0	0	0	0	0	46	26	0	0	72	161
10:45 AM	2	1	42	0	45	0	23	15	0	38	0	0	0	0	0	38	13	0	0	51	134
Total	9	4	131	0	144	0	121	75	0	196	0	0	0	0	0	151	69	0	0	220	560
11:00 AM	5	0	44	0	49	0	30	20	0	50	0	0	0	0	0	25	16	0	0	41	140
11:15 AM	2	0	37	0	39	0	31	15	0	46	0	0	0	0	0	23	25	0	0	48	133
11:30 AM	1	1	43	0	45	0	31	21	0	52	0	0	0	0	0	29	16	0	0	45	142
11:45 AM	1	0	29	0	30	0	42	20	0	62	0	0	0	0	0	36	20	0	0	56	148
Total	9	1	153	0	163	0	134	76	0	210	0	0	0	0	0	113	77	0	0	190	563
12:00 PM	0	2	36	0	38	0	37	18	0	55	0	0	0	0	0	22	24	0	0	46	139
12:15 PM	1	0	48	0	49	0	37	25	0	62	0	0	0	0	0	49	16	0	0	65	176
12:30 PM	1	0	58	0	59	0	46	31	0	77	0	0	0	0	0	24	22	0	0	46	182
12:45 PM	2	0	44	0	46	0	42	19	0	61	0	0	0	0	0	34	20	0	0	54	161
Total	4	2	186	0	192	0	162	93	0	255	0	0	0	0	0	129	82	0	0	211	658
01:00 PM	0	1	54	0	55	0	38	22	0	60	0	0	0	0	0	30	14	0	0	44	159
01:15 PM	0	0	51	0	51	0	43	24	0	67	0	0	0	0	0	25	17	0	0	42	160
01:30 PM	5	1	51	0	57	0	39	31	0	70	0	0	0	0	0	31	21	0	0	52	179
01:45 PM	0	1	52	0	53	0	42	19	0	61	0	0	0	0	0	35	23	0	0	58	172
Total	5	3	208	0	216	0	162	96	0	258	0	0	0	0	0	121	75	0	0	196	670
02:00 PM	0	0	75	0	75	0	46	19	0	65	0	0	0	0	0	29	21	0	0	50	190
02:15 PM	1	1	59	0	61	0	39	20	0	59	0	0	0	0	0	40	28	0	0	68	188
02:30 PM	4	0	59	0	63	0	34	25	0	59	0	0	0	0	0	29	21	0	0	50	172
02:45 PM	6	0	63	0	69	0	40	24	0	64	0	0	0	0	0	36	17	0	0	53	186
Total	11	1	256	0	268	0	159	88	0	247	0	0	0	0	0	134	87	0	0	221	736
03:00 PM	4	2	56	0	62	0	35	34	0	69	0	0	0	0	0	59	22	0	0	81	212
03:15 PM	3	0	61	0	64	0	69	32	0	101	0	0	0	0	0	66	26	0	0	92	257
03:30 PM	1	1	64	0	66	0	50	26	0	76	0	0	0	0	0	62	27	0	0	89	231
03:45 PM	1	1	60	0	62	0	53	34	0	87	0	0	0	0	0	84	48	0	0	132	281
Total	9	4	241	0	254	0	207	126	0	333	0	0	0	0	0	271	123	0	0	394	981
04:00 PM	4	1	58	0	63	0	50	60	0	110	0	0	0	0	0	75	30	0	0	105	278
04:15 PM	1	1	58	0	60	0	52	34	0	86	0	0	0	0	0	74	57	0	0	131	277
04:30 PM	2	2	37	0	41	0	56	41	0	97	0	0	0	0	0	83	47	0	0	130	268
04:45 PM	2	4	78	0	84	0	55	25	0	80	0	0	0	0	0	92	44	0	0	136	300
Total	9	8	231	0	248	0	213	160	0	373	0	0	0	0	0	324	178	0	0	502	1123
05:00 PM	2	1	59	0	62	0	79	65	0	144	0	0	0	0	0	103	40	0	0	143	349
05:15 PM	0	4	55	0	59	0	73	46	0	119	0	0	0	0	0	109	45	0	0	154	332
05:30 PM	2	5	48	0	55	0	76	65	0	141	0	0	0	0	0	91	33	0	0	124	320
05:45 PM	2	0	51	0	53	0	65	103	0	168	0	0	0	0	0	71	35	0	0	106	327
Total	6	10	213	0	229	0	293	279	0	572	0	0	0	0	0	374	153	0	0	527	1328

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	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	137	40	2128	0	2305	0	2446	1276	0	3722	0	0	0	0	0	2231	1145	0	0	3376	9403
Apprch %	5.9	1.7	92.3	0		0	65.7	34.3	0		0	0	0	0		66.1	33.9	0	0		
Total %	1.5	0.4	22.6	0	24.5	0	26	13.6	0	39.6	0	0	0	0	0	23.7	12.2	0	0	35.9	

	I-95 SB Off Ramp Southbound				Centreport Pkwy Westbound				I-95 SB On Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	0	32	35	0	**100**	20	**120**	0	0	0	0	38	11	0	49	204
07:30 AM	**10**	**1**	**46**	**57**	0	95	**23**	118	0	0	0	0	57	19	0	76	**251**
07:45 AM	9	0	41	50	0	94	21	115	0	0	0	0	**59**	25	0	84	249
08:00 AM	3	0	32	35	0	72	18	90	0	0	0	0	57	**36**	0	**93**	218
Total Volume	25	1	151	177	0	361	82	443	0	0	0	0	211	91	0	302	922
% App. Total	14.1	0.6	85.3		0	81.5	18.5		0	0	0		69.9	30.1	0		
PHF	.625	.250	.821	.776	.000	.903	.891	.923	.000	.000	.000	.000	.894	.632	.000	.812	.918
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**2**	1	**59**	**62**	0	**79**	65	144	0	0	0	0	103	40	0	143	**349**
05:15 PM	0	4	55	59	0	73	46	119	0	0	0	0	**109**	**45**	0	**154**	332
05:30 PM	2	**5**	48	55	0	76	65	141	0	0	0	0	91	33	0	124	320
05:45 PM	2	0	51	53	0	65	**103**	**168**	0	0	0	0	71	35	0	106	327
Total Volume	6	10	213	229	0	293	279	572	0	0	0	0	374	153	0	527	1328
% App. Total	2.6	4.4	93		0	51.2	48.8		0	0	0		71	29	0		
PHF	.750	.500	.903	.923	.000	.927	.677	.851	.000	.000	.000	.000	.858	.850	.000	.856	.951

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Control: 2-Way Stop(NB/SB)

Project ID: 23-260018-003
Date: 2/1/2023

Data - Total

NS/EW Streets:	Greenstead Rd				Greenstead Rd				Eskimo Hill Rd/Big Spring Ln				Eskimo Hill Rd/Big Spring Ln				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	19	0	2	0	0	0	0	0	0	4	4	0	1	5	0	0	35
6:15 AM	26	0	0	0	0	0	0	0	0	5	5	0	0	3	0	0	39
6:30 AM	21	1	0	0	0	0	1	0	0	2	6	0	0	4	0	0	35
6:45 AM	42	0	1	0	0	0	0	0	1	8	7	0	0	4	0	0	63
7:00 AM	61	1	1	0	0	0	0	0	0	4	8	0	0	2	0	0	77
7:15 AM	83	0	1	0	0	0	0	0	1	11	16	0	0	3	0	0	115
7:30 AM	83	1	1	0	0	1	2	0	4	13	7	0	0	4	0	0	116
7:45 AM	54	0	3	0	1	0	2	0	4	11	16	0	2	6	0	0	99
8:00 AM	37	0	1	0	0	0	1	1	1	12	16	0	0	8	0	0	77
8:15 AM	42	0	1	0	0	0	2	0	2	11	20	0	0	3	0	0	81
8:30 AM	34	0	2	0	2	0	1	0	6	18	14	0	0	10	0	0	87
8:45 AM	21	0	1	0	0	0	1	0	0	26	16	0	2	4	0	0	71
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	523	3	14	0	3	1	10	1	19	125	135	0	5	56	0	0	895
APPROACH %'s :	96.85%	0.56%	2.59%	0.00%	20.00%	6.67%	66.67%	6.67%	6.81%	44.80%	48.39%	0.00%	8.20%	91.80%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	257	1	6	0	1	1	5	1	10	47	55	0	2	21	0	0	407
PEAK HR FACTOR :	0.774	0.250	0.500	0.000	0.250	0.250	0.625	0.250	0.625	0.904	0.859	0.000	0.250	0.656	0.000	0.000	0.877
	0.776				0.667				0.903				0.719				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	22	0	0	0	0	1	3	0	1	5	52	0	3	11	0	0	98
4:15 PM	29	0	0	0	0	0	4	0	1	7	67	0	1	19	0	0	128
4:30 PM	18	0	0	0	1	0	0	0	0	4	63	0	0	10	0	0	96
4:45 PM	20	0	0	0	0	0	2	0	0	8	68	0	0	10	0	0	108
5:00 PM	18	0	0	1	0	0	0	0	0	7	56	0	0	7	0	0	89
5:15 PM	16	0	0	0	0	0	1	0	0	1	13	0	0	10	0	0	41
5:30 PM	25	0	0	0	0	0	0	0	0	5	6	0	0	11	0	0	47
5:45 PM	32	0	0	0	0	0	0	0	0	5	21	0	2	2	0	0	62
6:00 PM	25	0	1	0	0	0	0	0	0	3	20	0	0	2	0	0	51
6:15 PM	11	0	0	0	0	0	0	0	0	8	25	0	0	10	0	0	54
6:30 PM	7	0	0	0	0	1	1	0	1	6	24	0	0	3	0	0	43
6:45 PM	4	0	0	0	0	0	0	0	0	4	18	0	1	3	0	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	227	0	1	1	1	2	11	0	3	63	433	0	7	98	0	0	847
APPROACH %'s :	99.13%	0.00%	0.44%	0.44%	7.14%	14.29%	78.57%	0.00%	0.60%	12.63%	86.77%	0.00%	6.67%	93.33%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	89	0	0	0	1	1	9	0	2	24	250	0	4	50	0	0	430
PEAK HR FACTOR :	0.767	0.000	0.000	0.000	0.250	0.250	0.563	0.000	0.500	0.750	0.919	0.000	0.333	0.658	0.000	0.000	0.840
	0.767				0.688				0.908				0.675				

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Control: 2-Way Stop(NB/SB)

Project ID: 23-260018-003
Date: 2/1/2023

Data - Cars

NS/EW Streets:	Greenstead Rd				Greenstead Rd				Eskimo Hill Rd/Big Spring Ln				Eskimo Hill Rd/Big Spring Ln				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	19	0	1	0	0	0	0	0	0	4	2	0	0	5	0	0	31
6:15 AM	22	0	0	0	0	0	0	0	0	5	5	0	0	3	0	0	35
6:30 AM	21	1	0	0	0	0	1	0	0	2	4	0	0	4	0	0	33
6:45 AM	40	0	1	0	0	0	0	0	0	6	7	0	0	4	0	0	58
7:00 AM	59	1	1	0	0	0	0	0	0	4	5	0	0	2	0	0	72
7:15 AM	80	0	1	0	0	0	0	0	1	10	13	0	0	3	0	0	108
7:30 AM	78	1	1	0	0	1	1	0	4	12	7	0	0	2	0	0	107
7:45 AM	50	0	2	0	1	0	0	0	3	11	15	0	1	6	0	0	89
8:00 AM	35	0	1	0	0	0	1	1	0	12	11	0	0	8	0	0	69
8:15 AM	40	0	1	0	0	0	1	0	2	8	16	0	0	3	0	0	71
8:30 AM	31	0	1	0	2	0	0	0	4	17	14	0	0	9	0	0	78
8:45 AM	18	0	1	0	0	0	1	0	0	24	14	0	1	4	0	0	63
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	493	3	11	0	3	1	5	1	14	115	113	0	2	53	0	0	814
APPROACH %'s :	97.24%	0.59%	2.17%	0.00%	30.00%	10.00%	50.00%	10.00%	5.79%	47.52%	46.69%	0.00%	3.64%	96.36%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	243	1	5	0	1	1	2	1	8	45	46	0	1	19	0	0	373
PEAK HR FACTOR :	0.759	0.250	0.625	0.000	0.250	0.250	0.500	0.250	0.500	0.938	0.767	0.000	0.250	0.594	0.000	0.000	0.863
	0.769				0.625				0.853				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	0	0	0	0	1	0	0	1	3	52	0	3	11	0	0	91
4:15 PM	28	0	0	0	0	0	1	0	0	4	65	0	0	19	0	0	117
4:30 PM	15	0	0	0	0	0	0	0	0	4	60	0	0	10	0	0	89
4:45 PM	20	0	0	0	0	0	1	0	0	8	68	0	0	10	0	0	107
5:00 PM	18	0	0	1	0	0	0	0	0	7	55	0	0	7	0	0	88
5:15 PM	16	0	0	0	0	0	1	0	0	0	12	0	0	9	0	0	38
5:30 PM	24	0	0	0	0	0	0	0	0	5	6	0	0	10	0	0	45
5:45 PM	30	0	0	0	0	0	0	0	0	5	20	0	2	1	0	0	58
6:00 PM	24	0	1	0	0	0	0	0	0	3	19	0	0	2	0	0	49
6:15 PM	11	0	0	0	0	0	0	0	0	8	25	0	0	7	0	0	51
6:30 PM	7	0	0	0	0	0	1	0	0	6	24	0	0	3	0	0	41
6:45 PM	4	0	0	0	0	0	0	0	0	4	17	0	1	3	0	0	29
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	217	0	1	1	0	1	4	0	1	57	423	0	6	92	0	0	803
APPROACH %'s :	99.09%	0.00%	0.46%	0.46%	0.00%	20.00%	80.00%	0.00%	0.21%	11.85%	87.94%	0.00%	6.12%	93.88%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	83	0	0	0	0	1	2	0	1	19	245	0	3	50	0	0	404
PEAK HR FACTOR :	0.741	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.250	0.594	0.901	0.000	0.250	0.658	0.000	0.000	0.863
	0.741				0.750				0.872				0.697				

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Control: 2-Way Stop(NB/SB)

Project ID: 23-260018-003
Date: 2/1/2023

Data - HT

NS/EW Streets:	Greenstead Rd				Greenstead Rd				Eskimo Hill Rd/Big Spring Ln				Eskimo Hill Rd/Big Spring Ln				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	1	0	0	0	0	0	0	0	2	0	1	0	0	0	4
6:15 AM	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
6:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
6:45 AM	2	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	5
7:00 AM	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5
7:15 AM	3	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	7
7:30 AM	5	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0	9
7:45 AM	4	0	1	0	0	0	2	0	1	0	1	0	1	0	0	0	10
8:00 AM	2	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	8
8:15 AM	2	0	0	0	0	0	1	0	0	3	4	0	0	0	0	0	10
8:30 AM	3	0	1	0	0	0	1	0	2	1	0	0	0	1	0	0	9
8:45 AM	3	0	0	0	0	0	0	0	0	2	2	0	1	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	30	0	3	0	0	0	5	0	5	10	22	0	3	3	0	0	81
APPROACH %'s :	90.91%	0.00%	9.09%	0.00%	0.00%	0.00%	100.00%	0.00%	13.51%	27.03%	59.46%	0.00%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	14	0	1	0	0	0	3	0	2	2	9	0	1	2	0	0	34
PEAK HR FACTOR :	0.700	0.000	0.250	0.000	0.000	0.000	0.375	0.000	0.500	0.500	0.450	0.000	0.250	0.250	0.000	0.000	0.850
	0.750				0.375				0.542				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	7
4:15 PM	1	0	0	0	0	0	3	0	1	3	2	0	1	0	0	0	11
4:30 PM	3	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	7
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	3
5:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5:45 PM	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4
6:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
6:30 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
6:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	0	0	0	1	1	7	0	2	6	10	0	1	6	0	0	44
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	11.11%	11.11%	77.78%	0.00%	11.11%	33.33%	55.56%	0.00%	14.29%	85.71%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	6	0	0	0	1	0	7	0	1	5	5	0	1	0	0	0	26
PEAK HR FACTOR :	0.500	0.000	0.000	0.000	0.250	0.000	0.583	0.000	0.250	0.417	0.417	0.000	0.250	0.000	0.000	0.000	0.591
	0.500				0.667				0.458				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Control: 2-Way Stop(NB/SB)

Project ID: 23-260018-003
Date: 2/1/2023

Data - Bikes

NS/EW Streets:	Greenstead Rd				Greenstead Rd				Eskimo Hill Rd/Big Spring Ln				Eskimo Hill Rd/Big Spring Ln				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Project ID: 23-260018-003
Date: 2/1/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Greenstead Rd		Greenstead Rd		Eskimo Hill Rd/Big Spring Ln		Eskimo Hill Rd/Big Spring Ln		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:15 AM - 08:15 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**04:00 PM - 05:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Greenstead Rd & Eskimo Hill Rd/Big Spring Ln

Peak Hour Turning Movement Count

ID: 23-260018-003
City: Stafford

Day: Wednesday
Date: 2/1/2023

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	6:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	4:00 PM - 07:00 PM

SOUTHBOUND (Greenstead Rd)

AM	5	1	1	1	12	AM
NOON	0	0	0	0	0	NOON
PM	9	1	1	0	2	PM

EASTBOUND (Eskimo Hill Rd/Big Spring Ln)

AM	NOON	PM	
283	0	148	
0	0	0	0
10	0	2	0
47	0	24	1
55	0	250	0
AM	NOON	PM	

WESTBOUND (Eskimo Hill Rd/Big Spring Ln)

PM	NOON	AM	
0	0	0	0
50	0	21	1
4	0	2	0
0	0	0	0
25	0	54	
PM	NOON	AM	

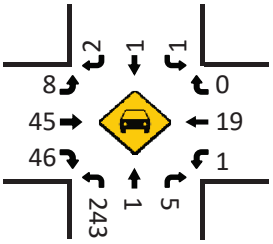
CONTROL: 2-Way Stop(NB/SB)

TEV	407 AM	0 NOON	430 PM
PHF	0.88		0.84

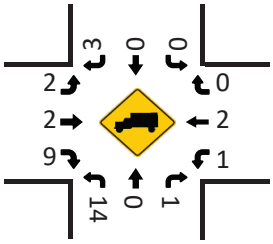
NORTHBOUND (Greenstead Rd)

PM	255	0	89	0	0	PM
NOON	0	0	0	0	0	NOON
AM	58	0	257	1	6	AM

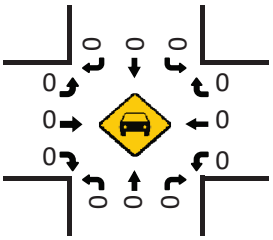
Cars (AM)



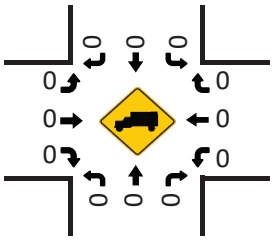
HT (AM)



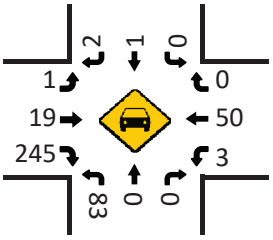
Cars (NOON)



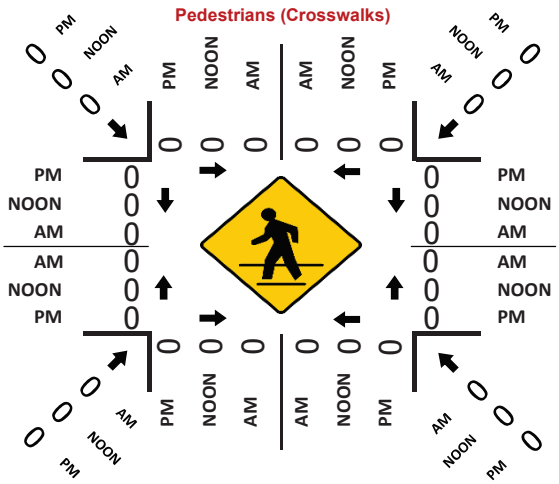
HT (NOON)



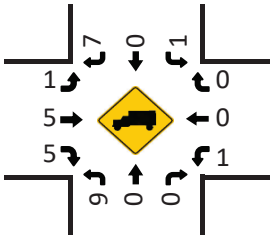
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Control: 1-Way Stop(WB)

Project ID: 23-260018-004
Date: 2/1/2023

Data - Total

NS/EW Streets:	State Shop Rd				State Shop Rd				Eskimo Hill Rd				Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	3	3	0	5	0	0	0	0	0	0	0	1	0	18	0	30
6:15 AM	0	3	2	0	5	0	0	0	0	0	0	0	1	0	25	0	36
6:30 AM	0	0	2	0	5	1	0	0	0	0	0	0	2	0	22	0	32
6:45 AM	0	1	1	0	7	0	0	0	0	0	0	0	1	0	48	0	58
7:00 AM	0	3	0	0	9	0	0	0	0	0	0	0	6	0	62	0	80
7:15 AM	0	2	4	0	14	2	0	0	0	0	0	0	2	0	81	0	105
7:30 AM	1	3	3	0	7	0	1	0	0	0	0	0	0	0	81	0	96
7:45 AM	0	3	6	0	17	1	0	0	0	0	0	0	4	0	55	0	86
8:00 AM	0	0	5	0	15	0	1	0	0	0	0	0	3	0	37	0	61
8:15 AM	0	3	4	0	20	0	0	0	0	0	0	0	0	0	40	0	67
8:30 AM	0	1	5	0	14	0	0	0	0	0	0	0	6	0	36	0	62
8:45 AM	0	1	11	0	15	3	0	0	0	0	0	0	1	0	20	0	51
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	23	46	0	133	7	2	0	0	0	0	0	27	0	525	0	764
APPROACH %'s :	1.43%	32.86%	65.71%	0.00%	93.66%	4.93%	1.41%	0.00%					4.89%	0.00%	95.11%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	11	13	0	47	3	1	0	0	0	0	0	12	0	279	0	367
PEAK HR FACTOR :	0.250	0.917	0.542	0.000	0.691	0.375	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.861	0.000	0.874
		0.694				0.708								0.877			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	9	0	56	2	0	0	0	0	0	0	1	0	21	0	90
4:15 PM	0	2	7	0	67	1	0	0	0	0	0	0	1	0	27	0	105
4:30 PM	0	0	5	0	62	1	0	0	0	0	0	0	2	0	18	0	88
4:45 PM	0	0	7	0	66	1	0	0	0	0	0	0	2	0	24	0	100
5:00 PM	0	1	5	0	58	0	0	0	0	0	0	0	4	0	14	0	82
5:15 PM	0	1	6	0	12	1	0	1	0	0	0	0	3	0	15	0	39
5:30 PM	0	0	12	0	6	0	0	0	0	0	0	0	2	0	25	0	45
5:45 PM	0	2	11	0	23	1	0	0	0	0	0	0	6	0	30	0	73
6:00 PM	0	2	9	0	19	1	0	0	0	0	0	0	0	0	26	0	57
6:15 PM	0	1	0	0	25	0	0	0	0	0	0	0	3	0	9	0	38
6:30 PM	0	0	4	0	25	0	0	0	0	0	0	0	2	0	6	0	37
6:45 PM	0	1	4	0	17	2	0	0	0	0	0	0	1	0	3	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	11	79	0	436	10	0	1	0	0	0	0	27	0	218	0	782
APPROACH %'s :	0.00%	12.22%	87.78%	0.00%	97.54%	2.24%	0.00%	0.22%					11.02%	0.00%	88.98%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	3	28	0	251	5	0	0	0	0	0	0	6	0	90	0	383
PEAK HR FACTOR :	0.000	0.375	0.778	0.000	0.937	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.833	0.000	0.912
		0.775				0.941								0.857			

National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Control: 1-Way Stop(WB)

Project ID: 23-260018-004
Date: 2/1/2023

Data - Cars

NS/EW Streets:	State Shop Rd				State Shop Rd				Eskimo Hill Rd				Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	2	3	0	2	0	0	0	0	0	0	0	1	0	18	0	26
6:15 AM	0	2	0	0	5	0	0	0	0	0	0	0	1	0	22	0	30
6:30 AM	0	0	2	0	3	1	0	0	0	0	0	0	2	0	22	0	30
6:45 AM	0	1	1	0	7	0	0	0	0	0	0	0	1	0	46	0	56
7:00 AM	0	3	0	0	6	0	0	0	0	0	0	0	6	0	60	0	75
7:15 AM	0	2	4	0	11	2	0	0	0	0	0	0	2	0	78	0	99
7:30 AM	1	3	3	0	7	0	1	0	0	0	0	0	0	0	76	0	91
7:45 AM	0	1	4	0	15	1	0	0	0	0	0	0	4	0	52	0	77
8:00 AM	0	0	4	0	10	0	1	0	0	0	0	0	3	0	35	0	53
8:15 AM	0	2	2	0	16	0	0	0	0	0	0	0	0	0	39	0	59
8:30 AM	0	0	2	0	14	0	0	0	0	0	0	0	5	0	33	0	54
8:45 AM	0	1	4	0	14	1	0	0	0	0	0	0	1	0	17	0	38
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	17	29	0	110	5	2	0	0	0	0	0	26	0	498	0	688
APPROACH %'s :	2.13%	36.17%	61.70%	0.00%	94.02%	4.27%	1.71%	0.00%					4.96%	0.00%	95.04%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	1	9	11	0	39	3	1	0	0	0	0	0	12	0	266	0	342
PEAK HR FACTOR :	0.250	0.750	0.688	0.000	0.650	0.375	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.853	0.000	0.864
		0.750				0.672								0.869			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	6	0	56	2	0	0	0	0	0	0	1	0	19	0	85
4:15 PM	0	2	7	0	64	1	0	0	0	0	0	0	1	0	26	0	101
4:30 PM	0	0	5	0	60	0	0	0	0	0	0	0	2	0	15	0	82
4:45 PM	0	0	5	0	66	1	0	0	0	0	0	0	2	0	24	0	98
5:00 PM	0	1	5	0	57	0	0	0	0	0	0	0	4	0	14	0	81
5:15 PM	0	1	6	0	11	1	0	1	0	0	0	0	2	0	15	0	37
5:30 PM	0	0	12	0	6	0	0	0	0	0	0	0	2	0	24	0	44
5:45 PM	0	2	11	0	22	1	0	0	0	0	0	0	5	0	28	0	69
6:00 PM	0	2	8	0	18	1	0	0	0	0	0	0	0	0	25	0	54
6:15 PM	0	1	0	0	25	0	0	0	0	0	0	0	3	0	9	0	38
6:30 PM	0	0	3	0	24	0	0	0	0	0	0	0	2	0	6	0	35
6:45 PM	0	1	3	0	17	1	0	0	0	0	0	0	1	0	3	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	11	71	0	426	8	0	1	0	0	0	0	25	0	208	0	750
APPROACH %'s :	0.00%	13.41%	86.59%	0.00%	97.93%	1.84%	0.00%	0.23%					10.73%	0.00%	89.27%	0.00%	
PEAK HR :	**04:00 PM - 05:00 PM**																TOTAL
PEAK HR VOL :	0	3	23	0	246	4	0	0	0	0	0	0	6	0	84	0	366
PEAK HR FACTOR :	0.000	0.375	0.821	0.000	0.932	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.808	0.000	0.906
		0.722				0.933								0.833			

National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Control: 1-Way Stop(WB)

Project ID: 23-260018-004
Date: 2/1/2023

Data - HT

NS/EW Streets:	State Shop Rd				State Shop Rd				Eskimo Hill Rd				Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4
6:15 AM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	0	6
6:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
7:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	2	0	5
7:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	6
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5
7:45 AM	0	2	2	0	2	0	0	0	0	0	0	0	0	0	3	0	9
8:00 AM	0	0	1	0	5	0	0	0	0	0	0	0	0	0	2	0	8
8:15 AM	0	1	2	0	4	0	0	0	0	0	0	0	0	0	1	0	8
8:30 AM	0	1	3	0	0	0	0	0	0	0	0	0	1	0	3	0	8
8:45 AM	0	0	7	0	1	2	0	0	0	0	0	0	0	0	3	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	17	0	23	2	0	0	0	0	0	0	1	0	27	0	76
APPROACH %'s :	0.00%	26.09%	73.91%	0.00%	92.00%	8.00%	0.00%	0.00%					3.57%	0.00%	96.43%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	2	2	0	8	0	0	0	0	0	0	0	0	0	13	0	25
PEAK HR FACTOR :	0.000	0.250	0.250	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.650	0.000	0.694
		0.250				0.667								0.650			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	5
4:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	4
4:30 PM	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3	0	6
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0	4
6:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	3
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
6:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	8	0	10	2	0	0	0	0	0	0	2	0	10	0	32
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	83.33%	16.67%	0.00%	0.00%					16.67%	0.00%	83.33%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	5	0	5	1	0	0	0	0	0	0	0	0	6	0	17
PEAK HR FACTOR :	0.000	0.000	0.417	0.000	0.417	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.708
		0.417				0.500								0.500			

National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Control: 1-Way Stop(WB)

Project ID: 23-260018-004
Date: 2/1/2023

Data - Bikes

NS/EW Streets:	State Shop Rd				State Shop Rd				Eskimo Hill Rd				Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Project ID: 23-260018-004
Date: 2/1/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	State Shop Rd		State Shop Rd		Eskimo HilI Rd		Eskimo HilI Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:00 AM - 08:00 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	1
APPROACH %'s :					0.00%	100.00%			
PEAK HR :	**04:00 PM - 05:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	1
PEAK HR FACTOR :						0.250			0.250
						0.250			

Prepared by National Data & Surveying Services

State Shop Rd & Eskimo Hill Rd

Peak Hour Turning Movement Count

ID: 23-260018-004
City: Stafford

Day: Wednesday
Date: 2/1/2023

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	6:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 07:00 PM

SOUTHBOUND (State Shop Rd)

AM	1	3	47	0	290	AM
NOON	0	0	0	0	0	NOON
PM	0	5	251	0	93	PM

EASTBOUND (Eskimo Hill Rd)

AM	NOON	PM	
2	0	0	
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
AM	NOON	PM	

WESTBOUND (Eskimo Hill Rd)

PM	NOON	AM	
90	0	279	0
0	0	0	1
6	0	12	0
0	0	0	0
279	0	60	
PM	NOON	AM	

NORTHBOUND (State Shop Rd)

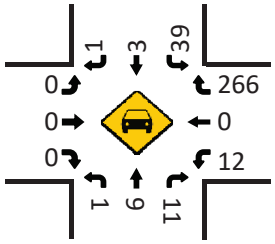
PM	11	0	0	3	28	PM
NOON	0	0	0	0	0	NOON
AM	15	0	1	11	13	AM

CONTROL

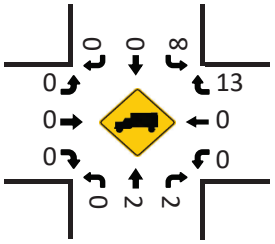
1-Way Stop(WB)

	AM	NOON	PM
TEV	367	0	383
PHF	0.87		0.91

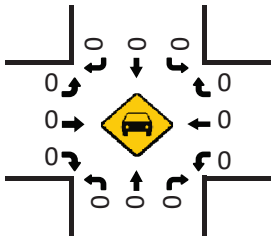
Cars (AM)



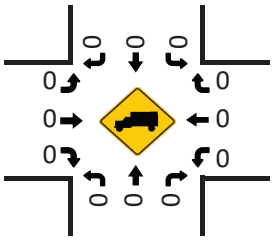
HT (AM)



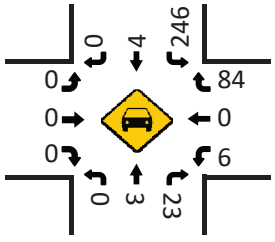
Cars (NOON)



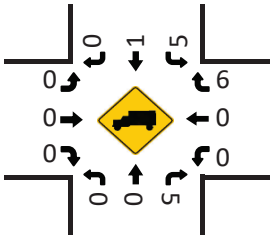
HT (NOON)



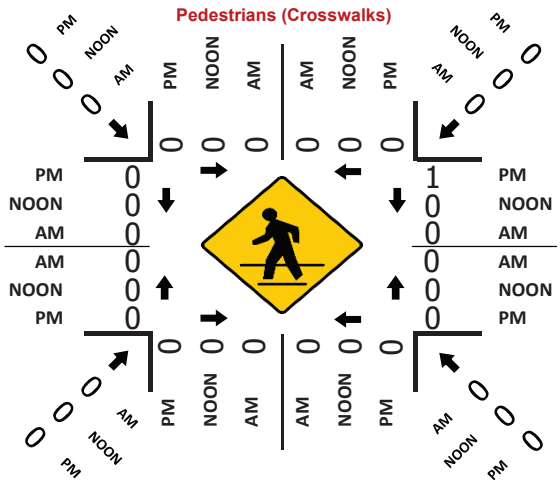
Cars (PM)



HT (PM)



Pedestrians (Crosswalks)



C. HCM Level of Service Definitions

TECHNICAL MEMORANDUM

Subject: Level of Service Definitions

Introduction

The purpose of this memorandum is to define the level of service (LOS) metric that commonly used as a measure of effectiveness (MOE) for traffic operations.

All capacity analyses are based on the procedures specified by the Transportation Research Board's (TRB) Highway Capacity Manual (HCM), which is currently on its sixth edition. Level of service ranges from A to F. A brief description of each level of service for signalized and unsignalized intersections is provided below.

Signalized Intersections

Level of service is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay associated with each directional movement. The levels of service for signalized intersections are defined below:

- **Level of Service A** describes operations with very low average delay per vehicle, i.e., less than 10.0 seconds. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop. Short signal cycle lengths may also contribute to low delay.
- **Level of Service B** describes operations with average delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
- **Level of Service C** describes operations with delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level although many still pass through the intersection without stopping. This is generally considered the lower end of the range of the acceptable level of service in rural areas.
- **Level of Service D** describes operations with delay in the range of 35.1 to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and/or high traffic volumes as compared to the roadway capacity. Many vehicles are required to stop and the number of vehicles that do not have to stop declines. Individual signal cycle failures, where all waiting vehicles do not clear the intersection during a single green time, are noticeable. This is generally considered the lower end of the range of the acceptable level of service in urban areas.
- **Level of Service E** describes operations with delay in the range of 55.1 to 80.0 seconds per vehicle. These higher delay values generally indicate poor progression, long cycle lengths, and high traffic volumes. Individual cycle failures are frequent occurrences. LOS E has been set as the limit of acceptable conditions.
- **Level of Service F** describes operations with average delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when traffic arrives at a flow rate that exceeds the capacity of the intersection. It may also occur at high volumes with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such delays.

Unsignalized Intersections

At an unsignalized intersection, the major street through traffic and right-turns are assumed to operate unimpeded and therefore receive no level of service rating. The level of service for the minor street and the major street left-turn traffic is dependent on the volume and capacity of the available lanes, and, the number and frequency of acceptable gaps in the major street traffic to make a conflicting turn. The level of service grade is provided for each conflicting movement at an unsignalized intersection and is based on the total average delay experienced by each vehicle. The delay includes the time it takes a vehicle to move from the back of a queue through the intersection.

The unsignalized intersection level of service analysis does not account for variations in driver behavior or the effects of nearby traffic signals. Therefore, the results from this analysis usually indicate worse levels of service than may be experienced in the field. The unsignalized intersection level of service descriptions are provided below:

- **Level of Service A** describes operations where there is very little to no conflicting traffic for a minor side street movement, i.e., an average total delay of less than 10.0 seconds per vehicle.
- **Level of Service B** describes operations with average total delay in the range of 10.1 to 15.0 seconds per vehicle.
- **Level of Service C** describes operations with average total delay in the range of 15.1 to 25.0 second per vehicle.
- **Level of Service D** describes operations with average total delay in the range of 25.1 to 35.0 seconds per vehicle.
- **Level of Service E** describes operations with average total delay in the range of 35.1 to 50.0 seconds per vehicle.
- **Level of Service F** describes operations with average total delay of 50 seconds per vehicle. LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through or enter a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queuing on the minor approaches. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal driver behavior.

D. 2023 Existing Conditions – Capacity Analysis Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	108	231	255	67	234	402	603	110	12	230	72
v/c Ratio	0.41	0.58	0.38	0.48	0.61	0.72	0.29	0.09	0.11	0.19	0.09
Control Delay	57.2	55.9	4.2	63.8	55.1	51.8	13.9	1.8	55.6	27.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	55.9	4.2	63.8	55.1	51.8	13.9	1.8	55.6	27.8	2.3
Queue Length 50th (ft)	41	91	0	50	88	149	95	0	9	63	0
Queue Length 95th (ft)	69	126	45	96	125	194	194	21	29	105	16
Internal Link Dist (ft)		1209			953		8667			1803	
Turn Bay Length (ft)	500			150		400		700	550		500
Base Capacity (vph)	396	823	679	166	712	558	2066	1189	267	1230	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.28	0.38	0.40	0.33	0.72	0.29	0.09	0.04	0.19	0.08

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	206	227	60	185	23	358	537	98	11	205	64
Future Volume (vph)	96	206	227	60	185	23	358	537	98	11	205	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3505	1404	1752	3410		2694	3438	1568	1805	3282	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3505	1404	1752	3410		2694	3438	1568	1805	3282	1495
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	108	231	255	67	208	26	402	603	110	12	230	72
RTOR Reduction (vph)	0	0	173	0	9	0	0	0	39	0	0	39
Lane Group Flow (vph)	108	231	82	67	225	0	402	603	71	12	230	33
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	9.2	13.7	38.6	9.6	13.3		24.9	67.8	77.4	3.0	45.0	54.2
Effective Green, g (s)	9.2	13.7	38.6	9.6	13.3		24.9	67.8	77.4	3.0	45.0	54.2
Actuated g/C Ratio	0.08	0.11	0.32	0.08	0.11		0.21	0.56	0.65	0.02	0.38	0.45
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	260	400	451	140	377		559	1942	1011	45	1230	675
v/s Ratio Prot	0.03	0.07	0.04	c0.04	c0.07		c0.15	c0.18	0.01	0.01	0.07	0.00
v/s Ratio Perm			0.02						0.04			0.02
v/c Ratio	0.42	0.58	0.18	0.48	0.60		0.72	0.31	0.07	0.27	0.19	0.05
Uniform Delay, d1	52.8	50.4	29.3	52.8	50.8		44.3	13.8	7.9	57.4	25.2	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	2.0	0.2	2.6	2.5		4.4	0.4	0.0	3.2	0.3	0.0
Delay (s)	53.9	52.4	29.5	55.4	53.3		48.7	14.2	7.9	60.6	25.5	18.5
Level of Service	D	D	C	E	D		D	B	A	E	C	B
Approach Delay (s)		42.9			53.8			26.0			25.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	206	227	60	185	23	358	537	98	11	205	64
Future Volume (veh/h)	96	206	227	60	185	23	358	537	98	11	205	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1678	1856	1841	1826	1455	1826	1856	1900	1752	1781
Adj Flow Rate, veh/h	108	231	255	67	208	26	402	603	110	12	230	72
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	15	3	4	5	30	5	3	0	10	8
Cap, veh/h	200	614	475	103	535	66	430	1827	920	35	1268	663
Arrive On Green	0.06	0.17	0.17	0.06	0.17	0.17	0.16	0.53	0.53	0.02	0.38	0.38
Sat Flow, veh/h	3428	3526	1422	1767	3133	387	2689	3469	1572	1810	3328	1510
Grp Volume(v), veh/h	108	231	255	67	115	119	402	603	110	12	230	72
Grp Sat Flow(s),veh/h/ln	1714	1763	1422	1767	1749	1771	1345	1735	1572	1810	1664	1510
Q Serve(g_s), s	3.7	6.9	17.5	4.5	7.0	7.2	17.7	11.9	3.7	0.8	5.5	3.4
Cycle Q Clear(g_c), s	3.7	6.9	17.5	4.5	7.0	7.2	17.7	11.9	3.7	0.8	5.5	3.4
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	614	475	103	299	302	430	1827	920	35	1268	663
V/C Ratio(X)	0.54	0.38	0.54	0.65	0.39	0.39	0.93	0.33	0.12	0.34	0.18	0.11
Avail Cap(c_a), veh/h	400	828	562	168	361	366	430	1827	920	268	1268	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	43.8	32.4	55.3	44.2	44.2	49.8	16.3	11.1	58.1	24.7	19.8
Incr Delay (d2), s/veh	2.3	0.4	0.9	6.7	0.8	0.8	21.4	0.3	0.2	5.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.0	6.0	2.2	3.1	3.2	7.2	4.7	1.3	0.4	2.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	44.2	33.4	62.0	45.0	45.1	71.2	16.6	11.3	63.9	25.0	20.1
LnGrp LOS	E	D	C	E	D	D	E	B	B	E	C	C
Approach Vol, veh/h		594			301			1115			314	
Approach Delay, s/veh		41.9			48.8			35.7			25.4	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	68.8	15.0	26.7	27.0	51.3	14.6	27.1
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	17.8	* 37	* 14	* 25	19.2	* 34	11.4	* 28
Max Q Clear Time (g_c+I1), s	2.8	13.9	5.7	9.2	19.7	7.5	6.5	19.5
Green Ext Time (p_c), s	0.0	15.9	0.2	0.7	0.0	7.5	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	153	322	78	916	73	487
v/c Ratio	0.46	0.74	0.16	0.67	0.23	0.36
Control Delay	24.8	33.3	10.4	23.8	11.3	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	33.3	10.4	23.8	11.3	18.9
Queue Length 50th (ft)	50	124	16	194	15	86
Queue Length 95th (ft)	104	215	43	318	41	154
Internal Link Dist (ft)	1275	420		3738		8667
Turn Bay Length (ft)			300		200	
Base Capacity (vph)	644	812	759	1603	643	1555
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.40	0.10	0.57	0.11	0.31

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	28	60	70	47	166	69	780	26	64	395	33
Future Volume (vph)	47	28	60	70	47	166	69	780	26	64	395	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.4			7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.94			0.92		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1653			1664		1736	3450		1719	3320	
Flt Permitted		0.71			0.88		0.46	1.00		0.20	1.00	
Satd. Flow (perm)		1191			1485		849	3450		369	3320	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	53	32	68	80	53	189	78	886	30	73	449	38
RTOR Reduction (vph)	0	28	0	0	49	0	0	2	0	0	5	0
Lane Group Flow (vph)	0	125	0	0	273	0	78	914	0	73	482	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		19.8			19.8		36.3	30.5		36.9	30.8	
Effective Green, g (s)		19.8			19.8		36.3	30.5		36.9	30.8	
Actuated g/C Ratio		0.26			0.26		0.47	0.39		0.48	0.40	
Clearance Time (s)		7.4			7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)		3.0			3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)		304			379		464	1359		282	1321	
v/s Ratio Prot							0.01	c0.26		c0.02	0.15	
v/s Ratio Perm		0.11			c0.18		0.07			0.10		
v/c Ratio		0.41			0.72		0.17	0.67		0.26	0.37	
Uniform Delay, d1		24.0			26.3		11.4	19.3		11.9	16.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			6.6		0.2	1.7		0.5	0.4	
Delay (s)		24.9			32.9		11.6	21.1		12.4	16.8	
Level of Service		C			C		B	C		B	B	
Approach Delay (s)		24.9			32.9			20.3			16.2	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	21.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

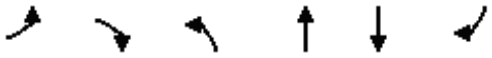
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	28	60	70	47	166	69	780	26	64	395	33
Future Volume (veh/h)	47	28	60	70	47	166	69	780	26	64	395	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	53	32	68	80	53	189	78	886	30	73	449	38
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	162	106	154	145	84	226	462	1314	44	310	1207	102
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.06	0.38	0.38	0.06	0.38	0.38
Sat Flow, veh/h	368	450	654	318	359	961	1753	3452	117	1739	3186	269
Grp Volume(v), veh/h	153	0	0	322	0	0	78	449	467	73	240	247
Grp Sat Flow(s),veh/h/ln	1473	0	0	1637	0	0	1753	1749	1820	1739	1706	1748
Q Serve(g_s), s	0.0	0.0	0.0	6.7	0.0	0.0	1.7	13.7	13.7	1.6	6.5	6.6
Cycle Q Clear(g_c), s	5.1	0.0	0.0	11.8	0.0	0.0	1.7	13.7	13.7	1.6	6.5	6.6
Prop In Lane	0.35		0.44	0.25		0.59	1.00		0.06	1.00		0.15
Lane Grp Cap(c), veh/h	422	0	0	455	0	0	462	666	693	310	646	662
V/C Ratio(X)	0.36	0.00	0.00	0.71	0.00	0.00	0.17	0.67	0.67	0.24	0.37	0.37
Avail Cap(c_a), veh/h	919	0	0	1005	0	0	995	906	943	841	884	906
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	0.0	0.0	23.1	0.0	0.0	11.0	16.5	16.5	12.3	14.4	14.4
Incr Delay (d2), s/veh	0.5	0.0	0.0	2.0	0.0	0.0	0.2	2.5	2.4	0.4	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	4.6	0.0	0.0	0.5	4.7	4.9	0.5	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	0.0	0.0	25.2	0.0	0.0	11.2	19.1	19.0	12.7	15.1	15.1
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		153			322			994			560	
Approach Delay, s/veh		21.2			25.2			18.4			14.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	31.1		22.4	10.4	31.2		22.4				
Change Period (Y+Rc), s	* 6.8	* 6.8		7.4	* 6.8	* 6.8		7.4				
Max Green Setting (Gmax), s	* 23	* 33		37.6	* 23	* 33		37.6				
Max Q Clear Time (g_c+I1), s	3.7	8.6		7.1	3.6	15.7		13.8				
Green Ext Time (p_c), s	0.2	5.2		0.5	0.2	8.7		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		18.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	17	24	860	501	24
Future Volume (Veh/h)	15	17	24	860	501	24
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	16	18	26	925	539	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1054	270	565			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1054	270	565			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	97			
cM capacity (veh/h)	216	728	1003			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	34	26	462	462	270	270	26
Volume Left	16	26	0	0	0	0	0
Volume Right	18	0	0	0	0	0	26
cSH	344	1003	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.03	0.27	0.27	0.16	0.16	0.02
Queue Length 95th (ft)	8	2	0	0	0	0	0
Control Delay (s)	16.6	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	A					
Approach Delay (s)	16.6	0.2			0.0		
Approach LOS	C						

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

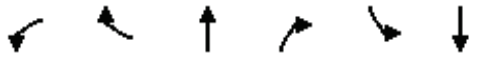
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	17	24	860	501	24
Future Vol, veh/h	15	17	24	860	501	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	415	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	18	26	925	539	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1054	270	565	0	-	0
Stage 1	539	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	221	728	1003	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	215	728	1003	-	-	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	565	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0.2	0
HCM LOS	C		

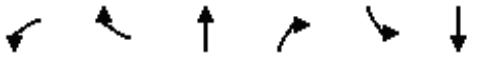
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1003	-	344	-	-
HCM Lane V/C Ratio	0.026	-	0.1	-	-
HCM Control Delay (s)	8.7	-	16.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	315	134	837	870	48	521
v/c Ratio	0.87	0.31	0.29	0.59	0.13	0.16
Control Delay	82.4	11.5	21.6	10.6	9.5	9.2
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	82.4	11.5	21.6	10.9	9.5	9.2
Queue Length 50th (ft)	311	7	202	259	15	65
Queue Length 95th (ft)	#479	66	m310	m675	30	81
Internal Link Dist (ft)	436		1047			2892
Turn Bay Length (ft)		225		180	345	
Base Capacity (vph)	363	433	2894	1475	385	3308
Starvation Cap Reductn	0	0	0	161	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.31	0.29	0.66	0.12	0.16

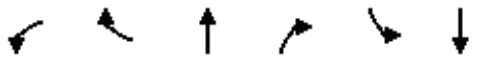
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	287	122	762	792	44	474
Future Volume (vph)	287	122	762	792	44	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	1612	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.31	1.00
Satd. Flow (perm)	1719	1583	4940	1568	530	4893
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	315	134	837	870	48	521
RTOR Reduction (vph)	0	99	0	181	0	0
Lane Group Flow (vph)	315	35	837	689	48	521
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	32.8	32.8	88.8	121.6	94.6	104.8
Effective Green, g (s)	32.8	32.8	88.8	121.6	94.6	104.8
Actuated g/C Ratio	0.21	0.21	0.57	0.78	0.61	0.68
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	363	334	2830	1230	363	3308
v/s Ratio Prot	c0.18		0.17	c0.12	0.00	c0.11
v/s Ratio Perm		0.02		0.32	0.08	
v/c Ratio	0.87	0.11	0.30	0.56	0.13	0.16
Uniform Delay, d1	59.0	49.3	17.0	6.4	12.2	9.1
Progression Factor	1.00	1.00	1.28	43.31	1.00	1.00
Incremental Delay, d2	21.4	0.4	0.2	1.0	0.2	0.1
Delay (s)	80.4	49.7	22.0	279.0	12.3	9.2
Level of Service	F	D	C	F	B	A
Approach Delay (s)	71.2		153.0			9.5
Approach LOS	E		F			A

Intersection Summary			
HCM 2000 Control Delay	109.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	287	122	762	792	44	474
Future Volume (veh/h)	287	122	762	792	44	474
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	315	134	837	870	48	521
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	345	314	2969	1248	249	3409
Arrive On Green	0.20	0.20	0.99	0.99	0.03	0.69
Sat Flow, veh/h	1739	1585	5149	1572	1640	5107
Grp Volume(v), veh/h	315	134	837	870	48	521
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1640	1648
Q Serve(g_s), s	27.5	11.5	0.2	3.1	1.8	5.7
Cycle Q Clear(g_c), s	27.5	11.5	0.2	3.1	1.8	5.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	345	314	2969	1248	249	3409
V/C Ratio(X)	0.91	0.43	0.28	0.70	0.19	0.15
Avail Cap(c_a), veh/h	368	335	2969	1248	286	3409
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.85	0.85	1.00	1.00
Uniform Delay (d), s/veh	60.8	54.4	0.2	0.0	11.3	8.3
Incr Delay (d2), s/veh	29.5	3.3	0.2	2.8	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.6	4.8	0.1	1.0	0.6	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	90.4	57.7	0.4	2.8	11.7	8.4
LnGrp LOS	F	E	A	A	B	A
Approach Vol, veh/h	449		1707			569
Approach Delay, s/veh	80.7		1.6			8.7
Approach LOS	F		A			A

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		117.1			14.6	102.5	37.9
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		104.8			7.8	86.8	32.8
Max Q Clear Time (g_c+I1), s		7.7			3.8	5.1	29.5
Green Ext Time (p_c), s		5.6			0.0	26.9	1.2

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	18	273	243	404
v/c Ratio	0.05	0.43	0.44	0.65
Control Delay	12.2	15.5	19.9	17.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.2	15.5	19.9	17.2
Queue Length 50th (ft)	3	53	47	59
Queue Length 95th (ft)	16	138	173	219
Internal Link Dist (ft)		2439	275	181
Turn Bay Length (ft)	275			
Base Capacity (vph)	869	1812	1537	1260
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.15	0.16	0.32

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	259	0	0	231	0	234	0	150	0	0	0
Future Volume (vph)	17	259	0	0	231	0	234	0	150	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1759			1659				
Flt Permitted	0.41	1.00			1.00			0.97				
Satd. Flow (perm)	697	1827			1759			1659				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	18	273	0	0	243	0	246	0	158	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	71	0	0	0	0
Lane Group Flow (vph)	18	273	0	0	243	0	0	333	0	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	24.3	24.3			15.9			17.0				
Effective Green, g (s)	24.3	24.3			15.9			17.0				
Actuated g/C Ratio	0.43	0.43			0.28			0.30				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	316	788			496			500				
v/s Ratio Prot	0.00	c0.15			c0.14							
v/s Ratio Perm	0.02							0.20				
v/c Ratio	0.06	0.35			0.49			0.67				
Uniform Delay, d1	9.7	10.7			16.8			17.2				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.1	0.3			0.8			3.4				
Delay (s)	9.8	11.0			17.6			20.5				
Level of Service	A	B			B			C				
Approach Delay (s)		10.9			17.6			20.5			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	22.4
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	259	0	0	231	0	234	0	150	0	0	0
Future Volume (veh/h)	17	259	0	0	231	0	234	0	150	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	18	273	0	0	243	0	246	0	158			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	306	758	0	0	429	0	302	0	194			
Arrive On Green	0.02	0.41	0.00	0.00	0.24	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	1626	1841	0	0	1781	0	1051	0	675			
Grp Volume(v), veh/h	18	273	0	0	243	0	404	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1726	0	0			
Q Serve(g_s), s	0.4	5.1	0.0	0.0	6.0	0.0	10.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.4	5.1	0.0	0.0	6.0	0.0	10.8	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.61		0.39			
Lane Grp Cap(c), veh/h	306	758	0	0	429	0	495	0	0			
V/C Ratio(X)	0.06	0.36	0.00	0.00	0.57	0.00	0.82	0.00	0.00			
Avail Cap(c_a), veh/h	1087	2861	0	0	1610	0	1213	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	12.9	10.1	0.0	0.0	16.6	0.0	16.5	0.0	0.0			
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	1.2	0.0	3.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.1	1.5	0.0	0.0	2.1	0.0	4.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	10.4	0.0	0.0	17.8	0.0	19.9	0.0	0.0			
LnGrp LOS	B	B	A	A	B	A	B	A	A			
Approach Vol, veh/h		291			243			404				
Approach Delay, s/veh		10.6			17.8			19.9				
Approach LOS		B			B			B				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		27.9		21.9	8.5	19.4			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		7.1		12.8	2.4	8.0			
Green Ext Time (p_c), s		1.6		1.5	0.0	1.4			

Intersection Summary		
HCM 6th Ctrl Delay		16.4
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	113	241	93	412	188
v/c Ratio	0.27	0.44	0.20	0.47	0.45
Control Delay	21.9	6.6	8.8	11.4	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	6.6	8.8	11.4	23.4
Queue Length 50th (ft)	32	0	14	78	54
Queue Length 95th (ft)	79	51	39	160	116
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		200	250		
Base Capacity (vph)	1277	1155	683	1810	1582
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.21	0.14	0.23	0.12

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	104	222	86	379	0	0	0	0	172	1	0
Future Volume (vph)	0	104	222	86	379	0	0	0	0	172	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1775	
Flt Permitted		1.00	1.00	0.43	1.00						0.95	
Satd. Flow (perm)		1696	1455	699	1810						1775	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	113	241	93	412	0	0	0	0	187	1	0
RTOR Reduction (vph)	0	0	183	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	113	58	93	412	0	0	0	0	0	188	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		13.4	13.4	28.1	28.1						12.6	
Effective Green, g (s)		13.4	13.4	28.1	28.1						12.6	
Actuated g/C Ratio		0.24	0.24	0.51	0.51						0.23	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		409	351	457	916						402	
v/s Ratio Prot		0.07		0.02	c0.23							
v/s Ratio Perm			0.04	0.08							0.11	
v/c Ratio		0.28	0.17	0.20	0.45						0.47	
Uniform Delay, d1		17.1	16.6	7.8	8.8						18.5	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		0.5	0.3	0.2	0.5						1.2	
Delay (s)		17.6	16.9	8.0	9.2						19.7	
Level of Service		B	B	A	A						B	
Approach Delay (s)		17.2			9.0			0.0			19.7	
Approach LOS		B			A			A			B	

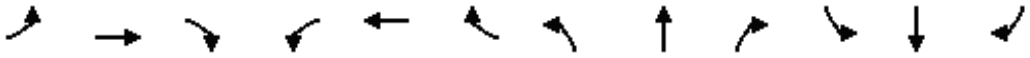
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	22.7
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	104	222	86	379	0	0	0	0	172	1	0
Future Volume (veh/h)	0	104	222	86	379	0	0	0	0	172	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	113	241	93	412	0				187	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	460	393	476	949	0				271	1	0
Arrive On Green	0.00	0.27	0.27	0.08	0.52	0.00				0.15	0.15	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1800	10	0
Grp Volume(v), veh/h	0	113	241	93	412	0				188	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	2.3	6.4	1.7	6.3	0.0				4.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.3	6.4	1.7	6.3	0.0				4.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.99		0.00
Lane Grp Cap(c), veh/h	0	460	393	476	949	0				273	0	0
V/C Ratio(X)	0.00	0.25	0.61	0.20	0.43	0.00				0.69	0.00	0.00
Avail Cap(c_a), veh/h	0	1534	1312	1055	2762	0				2016	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.9	14.4	9.2	6.7	0.0				18.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	2.2	0.2	0.4	0.0				4.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	1.8	0.4	1.4	0.0				1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.3	16.6	9.4	7.1	0.0				22.5	0.0	0.0
LnGrp LOS	A	B	B	A	A	A				C	A	A
Approach Vol, veh/h		354			505						188	
Approach Delay, s/veh		15.5			7.5						22.5	
Approach LOS		B			A						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		31.2		13.7	11.3	19.9						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		8.3		6.4	3.7	8.4						
Green Ext Time (p_c), s		4.0		1.1	0.2	2.2						

Intersection Summary												
HCM 6th Ctrl Delay			12.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	47	61	2	21	1	257	1	6	1	1	5
Future Volume (Veh/h)	10	47	61	2	21	1	257	1	6	1	1	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	11	53	69	2	24	1	292	1	7	1	1	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked												
vC, conflicting volume	25			122			144	138	88	146	172	24
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	25			122			144	138	88	146	172	24
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	99			100			64	100	99	100	100	99
cM capacity (veh/h)	1480			1215			806	749	931	815	718	907

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	133	27	300	8
Volume Left	11	2	292	1
Volume Right	69	1	7	6
cSH	1480	1215	808	866
Volume to Capacity	0.01	0.00	0.37	0.01
Queue Length 95th (ft)	1	0	43	1
Control Delay (s)	0.7	0.6	12.1	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	0.7	0.6	12.1	9.2
Approach LOS			B	A

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

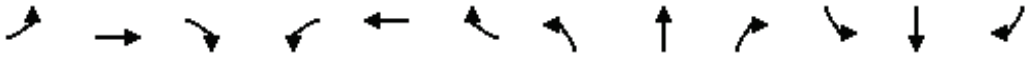
Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	47	61	2	21	1	257	1	6	1	1	5
Future Vol, veh/h	10	47	61	2	21	1	257	1	6	1	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	11	53	69	2	24	1	292	1	7	1	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	25	0	0	122	0	0	142	139	88	143	173	25
Stage 1	-	-	-	-	-	-	110	110	-	29	29	-
Stage 2	-	-	-	-	-	-	32	29	-	114	144	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1480	-	-	1215	-	-	821	756	930	831	724	906
Stage 1	-	-	-	-	-	-	888	808	-	993	875	-
Stage 2	-	-	-	-	-	-	977	875	-	896	782	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1480	-	-	1215	-	-	809	748	930	818	717	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	809	748	-	818	717	-
Stage 1	-	-	-	-	-	-	881	802	-	985	873	-
Stage 2	-	-	-	-	-	-	968	873	-	881	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.7	12	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	811	1480	-	-	1215	-	-	860
HCM Lane V/C Ratio	0.37	0.008	-	-	0.002	-	-	0.009
HCM Control Delay (s)	12	7.5	0	-	8	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	1.7	0	-	-	0	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	9	1	256	1	8	18	59	3	2
Future Volume (Veh/h)	1	1	1	9	1	256	1	8	18	59	3	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	1	1	11	1	301	1	9	21	69	4	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	466	175	5	166	166	20	6			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	466	175	5	166	166	20	6			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.4		
p0 queue free %	100	100	100	99	100	71	100			95		
cM capacity (veh/h)	350	688	1084	772	696	1050	1628			1480		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	313	31	75
Volume Left	1	11	1	69
Volume Right	1	301	21	2
cSH	574	1035	1628	1480
Volume to Capacity	0.01	0.30	0.00	0.05
Queue Length 95th (ft)	0	32	0	4
Control Delay (s)	11.3	10.0	0.2	7.0
Lane LOS	B	A	A	A
Approach Delay (s)	11.3	10.0	0.2	7.0
Approach LOS	B	A		

Intersection Summary				
Average Delay	8.7			
Intersection Capacity Utilization	33.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	1	9	1	256	1	8	18	59	3	2
Future Vol, veh/h	1	1	1	9	1	256	1	8	18	59	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	5	0	25	17	19	0	0
Mvmt Flow	1	1	1	11	1	301	1	9	21	69	4	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	316	175	5	166	166	20	6	0	0	30	0	0
Stage 1	143	143	-	22	22	-	-	-	-	-	-	-
Stage 2	173	32	-	144	144	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.25	4.1	-	-	4.29	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.345	2.2	-	-	2.371	-	-
Pot Cap-1 Maneuver	641	722	1084	803	730	1049	1628	-	-	1480	-	-
Stage 1	865	782	-	1002	881	-	-	-	-	-	-	-
Stage 2	834	872	-	864	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	440	687	1084	772	695	1049	1628	-	-	1480	-	-
Mov Cap-2 Maneuver	440	687	-	772	695	-	-	-	-	-	-	-
Stage 1	864	745	-	1001	880	-	-	-	-	-	-	-
Stage 2	593	871	-	821	745	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	10	0.3	7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1628	-	-	645	1034	1480	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.303	0.047	-	-
HCM Control Delay (s)	7.2	0	-	10.6	10	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.3	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	113	305	654	130	230	290	351	69	27	1190	63
v/c Ratio	0.55	1.05	1.82	1.04	0.74	1.25	0.15	0.06	0.32	0.54	0.05
Control Delay	89.6	140.7	409.5	165.9	90.4	204.1	11.5	1.3	89.9	19.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.6	140.7	409.5	165.9	90.4	204.1	11.5	1.3	89.9	19.6	1.2
Queue Length 50th (ft)	65	~200	~1046	~160	135	~212	77	0	31	391	0
Queue Length 95th (ft)	102	#308	#1304	#312	#206	#317	106	14	67	448	12
Internal Link Dist (ft)		1209			953		8667			1803	
Turn Bay Length (ft)	500			150		400		700	550		500
Base Capacity (vph)	235	290	360	125	311	232	2386	1221	126	2212	1167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	1.05	1.82	1.04	0.74	1.25	0.15	0.06	0.21	0.54	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	293	628	125	198	23	278	337	66	26	1142	60
Future Volume (vph)	108	293	628	125	198	23	278	337	66	26	1142	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3574	1568	1770	3522		3335	3574	1568	1736	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3574	1568	1770	3522		3335	3574	1568	1736	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	112	305	654	130	206	24	290	351	69	27	1190	62
RTOR Reduction (vph)	0	0	75	0	5	0	0	0	19	0	0	20
Lane Group Flow (vph)	113	305	579	130	225	0	290	351	50	27	1190	43
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	10.6	14.2	26.4	12.4	15.2		12.2	115.4	127.8	7.1	109.4	120.0
Effective Green, g (s)	10.6	14.2	26.4	12.4	15.2		12.2	115.4	127.8	7.1	109.4	120.0
Actuated g/C Ratio	0.06	0.08	0.15	0.07	0.09		0.07	0.66	0.73	0.04	0.63	0.69
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	207	290	236	125	305		232	2356	1145	70	2212	1085
v/s Ratio Prot	0.03	0.09	c0.17	c0.07	0.06		0.09	c0.10	0.00	0.02	c0.34	0.00
v/s Ratio Perm			0.20						0.03			0.02
v/c Ratio	0.55	1.05	2.45	1.04	0.74		1.25	0.15	0.04	0.39	0.54	0.04
Uniform Delay, d1	79.9	80.4	74.3	81.3	77.9		81.4	11.3	6.6	81.8	18.5	8.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	67.1	667.2	91.6	8.9		143.0	0.1	0.0	3.5	0.9	0.0
Delay (s)	82.8	147.5	741.5	172.9	86.9		224.4	11.4	6.6	85.3	19.5	8.9
Level of Service	F	F	F	F	F		F	B	A	F	B	A
Approach Delay (s)		503.0			117.9			97.9			20.3	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	197.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	293	628	125	198	23	278	337	66	26	1142	60
Future Volume (veh/h)	108	293	628	125	198	23	278	337	66	26	1142	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1870	1885	1900	1826	1885	1856	1841	1870	1870
Adj Flow Rate, veh/h	112	305	654	130	206	24	290	351	69	27	1190	62
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	153	291	237	126	342	39	235	2388	1160	51	2213	1057
Arrive On Green	0.04	0.08	0.08	0.07	0.11	0.11	0.07	0.67	0.67	0.03	0.62	0.62
Sat Flow, veh/h	3456	3582	1572	1781	3236	373	3374	3582	1572	1753	3554	1585
Grp Volume(v), veh/h	112	305	654	130	113	117	290	351	69	27	1190	62
Grp Sat Flow(s),veh/h/ln	1728	1791	1572	1781	1791	1818	1687	1791	1572	1753	1777	1585
Q Serve(g_s), s	5.6	14.2	14.2	12.4	10.5	10.8	12.2	6.3	2.1	2.7	33.2	2.4
Cycle Q Clear(g_c), s	5.6	14.2	14.2	12.4	10.5	10.8	12.2	6.3	2.1	2.7	33.2	2.4
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	291	237	126	189	192	235	2388	1160	51	2213	1057
V/C Ratio(X)	0.73	1.05	2.76	1.03	0.60	0.61	1.23	0.15	0.06	0.53	0.54	0.06
Avail Cap(c_a), veh/h	237	291	237	126	189	192	235	2388	1160	128	2222	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.6	80.4	74.3	81.3	74.7	74.8	81.4	10.8	6.3	83.7	18.7	10.1
Incr Delay (d2), s/veh	6.7	66.3	802.3	88.3	5.1	5.5	135.1	0.1	0.1	8.1	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	9.2	63.5	8.8	5.1	5.3	9.7	2.6	0.7	1.3	13.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.3	146.7	876.6	169.6	79.8	80.4	216.5	10.9	6.4	91.9	19.7	10.2
LnGrp LOS	F	F	F	F	E	F	F	B	A	F	B	B
Approach Vol, veh/h		1071			360			710			1279	
Approach Delay, s/veh		586.4			112.4			94.4			20.7	
Approach LOS		F			F			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	122.3	15.7	24.7	20.0	114.6	20.0	20.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	12.8	* 1.1E2	* 12	* 14	12.2	* 1.1E2	12.4	* 14
Max Q Clear Time (g_c+I1), s	4.7	8.3	7.6	12.8	14.2	35.2	14.4	16.2
Green Ext Time (p_c), s	0.0	17.9	0.1	0.1	0.0	64.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	222.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	239	182	56	589	208	1786
v/c Ratio	0.80	0.71	0.33	0.31	0.37	0.85
Control Delay	59.4	49.4	15.4	16.2	8.9	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	49.4	15.4	16.2	8.9	26.4
Queue Length 50th (ft)	153	101	12	125	51	590
Queue Length 95th (ft)	253	187	35	188	91	#844
Internal Link Dist (ft)	1275	420		3738		8667
Turn Bay Length (ft)			300		200	
Base Capacity (vph)	378	323	416	2080	688	2100
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.56	0.13	0.28	0.30	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	75	114	38	37	98	53	545	14	198	1653	44
Future Volume (vph)	38	75	114	38	37	98	53	545	14	198	1653	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.4			7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.93			0.92		1.00	1.00		1.00	1.00	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1702			1629		1770	3487		1752	3521	
Flt Permitted		0.86			0.73		0.06	1.00		0.37	1.00	
Satd. Flow (perm)		1468			1208		117	3487		685	3521	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	79	120	40	39	103	56	574	15	208	1740	46
RTOR Reduction (vph)	0	26	0	0	34	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	213	0	0	148	0	56	588	0	208	1785	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		21.5			21.5		69.4	63.8		79.6	68.9	
Effective Green, g (s)		21.5			21.5		69.4	63.8		79.6	68.9	
Actuated g/C Ratio		0.18			0.18		0.59	0.55		0.68	0.59	
Clearance Time (s)		7.4			7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)		3.0			3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)		269			221		148	1901		563	2073	
v/s Ratio Prot							0.02	0.17		c0.03	c0.51	
v/s Ratio Perm		c0.14			0.12		0.21			0.22		
v/c Ratio		0.79			0.67		0.38	0.31		0.37	0.86	
Uniform Delay, d1		45.6			44.4		18.6	14.5		7.3	20.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		14.6			7.4		1.6	0.2		0.4	4.3	
Delay (s)		60.2			51.9		20.2	14.7		7.7	24.3	
Level of Service		E			D		C	B		A	C	
Approach Delay (s)		60.2			51.9			15.2			22.6	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	117.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



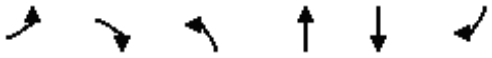
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	75	114	38	37	98	53	545	14	198	1653	44
Future Volume (veh/h)	38	75	114	38	37	98	53	545	14	198	1653	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	40	79	120	40	39	103	56	574	15	208	1740	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	72	103	136	79	69	139	192	1997	52	591	2131	56
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.57	0.57	0.07	0.60	0.60
Sat Flow, veh/h	200	626	833	230	421	848	1781	3510	92	1767	3537	93
Grp Volume(v), veh/h	239	0	0	182	0	0	56	288	301	208	871	915
Grp Sat Flow(s),veh/h/ln	1659	0	0	1499	0	0	1781	1763	1839	1767	1777	1854
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.0	1.4	9.0	9.0	5.1	41.0	41.5
Cycle Q Clear(g_c), s	15.0	0.0	0.0	12.2	0.0	0.0	1.4	9.0	9.0	5.1	41.0	41.5
Prop In Lane	0.17		0.50	0.22		0.57	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	311	0	0	287	0	0	192	1003	1046	591	1071	1117
V/C Ratio(X)	0.77	0.00	0.00	0.64	0.00	0.00	0.29	0.29	0.29	0.35	0.81	0.82
Avail Cap(c_a), veh/h	461	0	0	428	0	0	510	1121	1170	847	1130	1179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	0.0	42.3	0.0	0.0	17.1	11.9	11.9	8.4	16.6	16.7
Incr Delay (d2), s/veh	4.5	0.0	0.0	2.3	0.0	0.0	0.8	0.3	0.3	0.4	5.2	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	0.0	4.8	0.0	0.0	0.5	3.1	3.3	1.7	15.3	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	0.0	44.7	0.0	0.0	17.9	12.2	12.2	8.7	21.8	21.9
LnGrp LOS	D	A	A	D	A	A	B	B	B	A	C	C
Approach Vol, veh/h		239			182			645			1994	
Approach Delay, s/veh		48.1			44.7			12.7			20.5	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	71.4		25.0	14.5	67.8		25.0				
Change Period (Y+Rc), s	* 6.8	* 6.8		7.4	* 6.8	* 6.8		7.4				
Max Green Setting (Gmax), s	* 23	* 68		27.6	* 23	* 68		27.6				
Max Q Clear Time (g_c+I1), s	3.4	43.5		17.0	7.1	11.0		14.2				
Green Ext Time (p_c), s	0.1	21.1		0.6	0.5	7.5		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		22.5	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	36	23	597	1784	21
Future Volume (Veh/h)	15	36	23	597	1784	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	16	38	24	635	1898	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2264	949	1920			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2264	949	1920			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	50	85	92			
cM capacity (veh/h)	32	261	304			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	54	24	318	318	949	949	22
Volume Left	16	24	0	0	0	0	0
Volume Right	38	0	0	0	0	0	22
cSH	83	304	1700	1700	1700	1700	1700
Volume to Capacity	0.65	0.08	0.19	0.19	0.56	0.56	0.01
Queue Length 95th (ft)	76	6	0	0	0	0	0
Control Delay (s)	106.8	17.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C					
Approach Delay (s)	106.8	0.7			0.0		
Approach LOS	F						

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

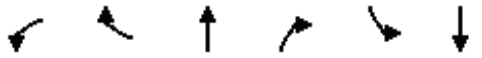
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	36	23	597	1784	21
Future Vol, veh/h	15	36	23	597	1784	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	415	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	38	24	635	1898	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2264	949	1920	0	-	0
Stage 1	1898	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	34	261	304	-	-	-
Stage 1	103	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	31	261	304	-	-	-
Mov Cap-2 Maneuver	31	-	-	-	-	-
Stage 1	95	-	-	-	-	-
Stage 2	672	-	-	-	-	-

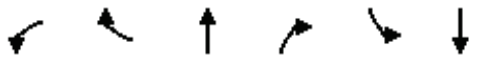
Approach	EB	NB	SB
HCM Control Delay, s	110.1	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	304	-	82	-	-
HCM Lane V/C Ratio	0.08	-	0.662	-	-
HCM Control Delay (s)	17.9	-	110.1	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	3.1	-	-



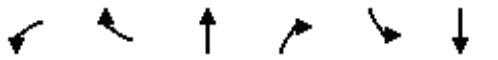
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	485	63	583	545	156	1740
v/c Ratio	0.79	0.12	0.29	0.39	0.35	0.65
Control Delay	55.6	11.0	49.7	4.0	23.2	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	11.0	49.7	4.0	23.2	28.9
Queue Length 50th (ft)	442	9	176	38	85	482
Queue Length 95th (ft)	565	42	282	217	136	564
Internal Link Dist (ft)	436		1047			2892
Turn Bay Length (ft)		225		180	345	
Base Capacity (vph)	685	604	1982	1439	557	2690
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	46
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.10	0.29	0.38	0.28	0.66

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	466	60	560	523	150	1670
Future Volume (vph)	466	60	560	523	150	1670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	1805	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.40	1.00
Satd. Flow (perm)	1719	1442	5085	1599	763	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	485	62	583	545	156	1740
RTOR Reduction (vph)	0	32	0	130	0	0
Lane Group Flow (vph)	485	31	583	415	156	1740
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	57.1	57.1	62.4	119.5	75.3	85.5
Effective Green, g (s)	57.1	57.1	62.4	119.5	75.3	85.5
Actuated g/C Ratio	0.36	0.36	0.39	0.75	0.47	0.53
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	613	514	1983	1194	443	2691
v/s Ratio Prot	c0.28		0.11	0.12	0.03	c0.35
v/s Ratio Perm		0.02		0.14	0.14	
v/c Ratio	0.79	0.06	0.29	0.35	0.35	0.65
Uniform Delay, d1	46.1	33.8	33.6	6.9	24.6	26.5
Progression Factor	1.00	1.00	1.39	7.46	1.00	1.00
Incremental Delay, d2	8.4	0.1	0.4	0.5	0.5	1.2
Delay (s)	54.5	34.0	47.1	52.1	25.1	27.7
Level of Service	D	C	D	D	C	C
Approach Delay (s)	52.1		49.5			27.5
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	466	60	560	523	150	1670
Future Volume (veh/h)	466	60	560	523	150	1670
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	485	62	583	545	156	1740
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	545	457	2317	1225	333	2928
Arrive On Green	0.31	0.31	0.15	0.15	0.06	0.58
Sat Flow, veh/h	1739	1459	5274	1598	1810	5233
Grp Volume(v), veh/h	485	62	583	545	156	1740
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1810	1689
Q Serve(g_s), s	42.5	4.9	16.1	22.3	7.3	35.3
Cycle Q Clear(g_c), s	42.5	4.9	16.1	22.3	7.3	35.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	545	457	2317	1225	333	2928
V/C Ratio(X)	0.89	0.14	0.25	0.44	0.47	0.59
Avail Cap(c_a), veh/h	693	582	2317	1225	493	2928
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	52.3	39.4	44.0	10.8	21.8	21.7
Incr Delay (d2), s/veh	17.3	0.5	0.2	1.1	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.4	1.8	7.4	9.5	3.2	13.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.7	39.9	44.3	11.9	22.8	22.6
LnGrp LOS	E	D	D	B	C	C
Approach Vol, veh/h	547		1128			1896
Approach Delay, s/veh	66.3		28.6			22.6
Approach LOS	E		C			C

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		102.7			19.9	82.8	57.3
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		78.8			23.8	44.8	63.8
Max Q Clear Time (g_c+I1), s		37.3			9.3	24.3	44.5
Green Ext Time (p_c), s		25.1			0.4	8.8	5.6

Intersection Summary	
HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	17	469	325	247
v/c Ratio	0.04	0.62	0.48	0.56
Control Delay	9.7	16.2	17.2	21.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.7	16.2	17.2	21.6
Queue Length 50th (ft)	3	95	60	51
Queue Length 95th (ft)	13	222	211	162
Internal Link Dist (ft)		2439	275	181
Turn Bay Length (ft)	275			
Base Capacity (vph)	853	1815	1558	1121
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.26	0.21	0.22

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	436	0	0	302	0	139	1	90	0	0	0
Future Volume (vph)	16	436	0	0	302	0	139	1	90	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1810			1538				
Flt Permitted	0.39	1.00			1.00			0.97				
Satd. Flow (perm)	657	1827			1810			1538				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	469	0	0	325	0	149	1	97	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	19	0	0	0	0
Lane Group Flow (vph)	17	469	0	0	325	0	0	228	0	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	28.1	28.1			19.7			14.4				
Effective Green, g (s)	28.1	28.1			19.7			14.4				
Actuated g/C Ratio	0.49	0.49			0.34			0.25				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	337	892			620			385				
v/s Ratio Prot	0.00	c0.26			0.18							
v/s Ratio Perm	0.02							0.15				
v/c Ratio	0.05	0.53			0.52			0.59				
Uniform Delay, d1	8.2	10.1			15.1			19.0				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.1	0.6			0.8			2.4				
Delay (s)	8.3	10.7			15.9			21.4				
Level of Service	A	B			B			C				
Approach Delay (s)		10.6			15.9			21.4			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	22.4
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	436	0	0	302	0	139	1	90	0	0	0
Future Volume (veh/h)	16	436	0	0	302	0	139	1	90	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	17	469	0	0	325	0	149	1	97			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	313	857	0	0	502	0	199	1	129			
Arrive On Green	0.02	0.47	0.00	0.00	0.27	0.00	0.19	0.19	0.19			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1041	7	678			
Grp Volume(v), veh/h	17	469	0	0	325	0	247	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1726	0	0			
Q Serve(g_s), s	0.3	8.0	0.0	0.0	6.9	0.0	5.9	0.0	0.0			
Cycle Q Clear(g_c), s	0.3	8.0	0.0	0.0	6.9	0.0	5.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.60		0.39			
Lane Grp Cap(c), veh/h	313	857	0	0	502	0	329	0	0			
V/C Ratio(X)	0.05	0.55	0.00	0.00	0.65	0.00	0.75	0.00	0.00			
Avail Cap(c_a), veh/h	1209	3263	0	0	1882	0	1384	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	10.5	8.4	0.0	0.0	14.0	0.0	16.7	0.0	0.0			
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.0	1.4	0.0	3.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.1	2.0	0.0	0.0	2.3	0.0	2.2	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.5	8.9	0.0	0.0	15.4	0.0	20.1	0.0	0.0			
LnGrp LOS	B	A	A	A	B	A	C	A	A			
Approach Vol, veh/h		486			325			247				
Approach Delay, s/veh		9.0			15.4			20.1				
Approach LOS		A			B			C				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		27.7		15.9	8.3	19.4						
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4						
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45						
Max Q Clear Time (g_c+I1), s		10.0		7.9	2.3	8.9						
Green Ext Time (p_c), s		3.1		0.9	0.0	1.9						

Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	229	430	201	312	306
v/c Ratio	0.53	0.61	0.34	0.34	0.67
Control Delay	32.0	7.1	11.7	11.9	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	7.1	11.7	11.9	34.4
Queue Length 50th (ft)	93	0	45	76	126
Queue Length 95th (ft)	186	58	97	152	241
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		200	250		
Base Capacity (vph)	974	1057	669	1480	1188
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.41	0.30	0.21	0.26

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	197	370	173	268	0	0	0	0	255	8	0
Future Volume (vph)	0	197	370	173	268	0	0	0	0	255	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.42	1.00						0.95	
Satd. Flow (perm)		1792	1583	766	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	229	430	201	312	0	0	0	0	297	9	0
RTOR Reduction (vph)	0	0	324	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	229	106	201	312	0	0	0	0	0	306	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		18.8	18.8	41.1	41.1						20.2	
Effective Green, g (s)		18.8	18.8	41.1	41.1						20.2	
Actuated g/C Ratio		0.25	0.25	0.54	0.54						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		442	391	594	915						463	
v/s Ratio Prot		c0.13		0.06	c0.18							
v/s Ratio Perm			0.07	0.12							0.18	
v/c Ratio		0.52	0.27	0.34	0.34						0.66	
Uniform Delay, d1		24.7	23.1	9.7	9.9						24.9	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		1.4	0.5	0.3	0.3						3.9	
Delay (s)		26.1	23.6	10.0	10.2						28.8	
Level of Service		C	C	B	B						C	
Approach Delay (s)		24.5			10.1			0.0			28.8	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	22.7
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	197	370	173	268	0	0	0	0	255	8	0
Future Volume (veh/h)	0	197	370	173	268	0	0	0	0	255	8	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	229	430	201	312	0				297	9	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	603	528	457	938	0				356	11	0
Arrive On Green	0.00	0.33	0.33	0.10	0.54	0.00				0.25	0.25	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1416	43	0
Grp Volume(v), veh/h	0	229	430	201	312	0				306	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	7.0	18.0	5.1	7.3	0.0				14.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.0	18.0	5.1	7.3	0.0				14.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	603	528	457	938	0				367	0	0
V/C Ratio(X)	0.00	0.38	0.81	0.44	0.33	0.00				0.83	0.00	0.00
Avail Cap(c_a), veh/h	0	999	874	758	1613	0				1006	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.5	22.1	12.6	9.2	0.0				25.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	4.4	0.7	0.3	0.0				7.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	6.5	1.7	2.2	0.0				5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.0	26.5	13.2	9.5	0.0				32.7	0.0	0.0
LnGrp LOS	A	B	C	B	A	A				C	A	A
Approach Vol, veh/h		659			513						306	
Approach Delay, s/veh		23.9			11.0						32.7	
Approach LOS		C			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		47.4		25.1	15.3	32.1						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		9.3		16.4	7.1	20.0						
Green Ext Time (p_c), s		2.9		1.9	0.5	4.1						

Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	26	260	1	58	1	109	1	1	1	1	6
Future Volume (Veh/h)	1	26	260	1	58	1	109	1	1	1	1	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	31	306	1	68	1	128	1	1	1	1	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.96			0.96	0.96	0.96	0.96	0.96	
vC, conflicting volume	69			337			264	257	184	258	410	68
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	69			292			216	208	133	209	367	68
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	100			100			82	100	100	100	100	99
cM capacity (veh/h)	1085			836			699	665	887	555	543	840

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	338	70	130	9
Volume Left	1	1	128	1
Volume Right	306	1	1	7
cSH	1085	836	700	751
Volume to Capacity	0.00	0.00	0.19	0.01
Queue Length 95th (ft)	0	0	17	1
Control Delay (s)	0.0	0.1	11.3	9.9
Lane LOS	A	A	B	A
Approach Delay (s)	0.0	0.1	11.3	9.9
Approach LOS			B	A

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	37.5%	ICU Level of Service	A	
Analysis Period (min)	15			

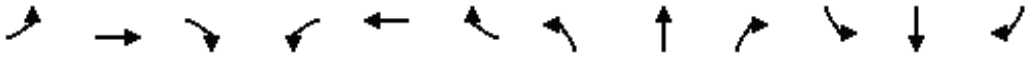
Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	26	260	1	58	1	109	1	1	1	1	6
Future Vol, veh/h	1	26	260	1	58	1	109	1	1	1	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	1	31	306	1	68	1	128	1	1	1	1	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	69	0	0	337	0	0	261	257	184	258	410	69
Stage 1	-	-	-	-	-	-	186	186	-	71	71	-
Stage 2	-	-	-	-	-	-	75	71	-	187	339	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1085	-	-	830	-	-	686	651	864	534	534	839
Stage 1	-	-	-	-	-	-	809	750	-	743	840	-
Stage 2	-	-	-	-	-	-	927	840	-	633	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1085	-	-	830	-	-	678	650	864	532	533	839
Mov Cap-2 Maneuver	-	-	-	-	-	-	678	650	-	532	533	-
Stage 1	-	-	-	-	-	-	808	749	-	742	839	-
Stage 2	-	-	-	-	-	-	917	839	-	631	642	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	11.6	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	679	1085	-	-	830	-	-	733
HCM Lane V/C Ratio	0.192	0.001	-	-	0.001	-	-	0.013
HCM Control Delay (s)	11.6	8.3	0	-	9.3	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	9	1	106	1	3	24	258	3	1
Future Volume (Veh/h)	1	1	1	9	1	106	1	3	24	258	3	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	1	1	1	10	1	119	1	3	27	290	3	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	722	616	4	604	602	16	4			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	722	616	4	604	602	16	4			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	89	100			82		
cM capacity (veh/h)	262	334	1086	354	340	1054	1631			1583		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	130	31	294
Volume Left	1	10	1	290
Volume Right	1	119	27	1
cSH	388	902	1631	1583
Volume to Capacity	0.01	0.14	0.00	0.18
Queue Length 95th (ft)	1	13	0	17
Control Delay (s)	14.3	9.7	0.2	7.7
Lane LOS	B	A	A	A
Approach Delay (s)	14.3	9.7	0.2	7.7
Approach LOS	B	A		

Intersection Summary				
Average Delay	7.8			
Intersection Capacity Utilization	35.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	1	9	1	106	1	3	24	258	3	1
Future Vol, veh/h	1	1	1	9	1	106	1	3	24	258	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	5	0	0	8	2	33	0
Mvmt Flow	1	1	1	10	1	119	1	3	27	290	3	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	663	616	4	604	603	17	4	0	0	30	0	0
Stage 1	584	584	-	19	19	-	-	-	-	-	-	-
Stage 2	79	32	-	585	584	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.25	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.345	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	377	409	1085	413	416	1053	1631	-	-	1583	-	-
Stage 1	501	501	-	1005	884	-	-	-	-	-	-	-
Stage 2	935	872	-	501	501	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	286	333	1085	353	339	1053	1631	-	-	1583	-	-
Mov Cap-2 Maneuver	286	333	-	353	339	-	-	-	-	-	-	-
Stage 1	500	409	-	1004	883	-	-	-	-	-	-	-
Stage 2	827	871	-	407	409	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14	9.7	0.3	7.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1631	-	-	404	898	1583	-	-
HCM Lane V/C Ratio	0.001	-	-	0.008	0.145	0.183	-	-
HCM Control Delay (s)	7.2	0	-	14	9.7	7.8	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.7	-	-

E. 2023 Existing Conditions – Simulation Analysis Worksheets

1: U.S. 1 & Hospital Center Boulevard Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.5	2.5	0.3	1.0	2.4	0.1	5.5	3.7	0.4	0.2	1.5	0.1
Vehicles Entered	99	203	229	61	181	23	354	626	93	11	211	63
Vehicles Exited	99	202	228	62	180	23	339	599	89	11	208	63
Hourly Exit Rate	99	202	228	62	180	23	339	599	89	11	208	63
Input Volume	96	206	227	60	185	23	358	633	98	11	205	64
% of Volume	103	98	100	103	97	100	95	95	91	98	101	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

1: U.S. 1 & Hospital Center Boulevard Performance by movement

Movement	All
Denied Delay (hr)	0.2
Total Delay (hr)	19.2
Vehicles Entered	2154
Vehicles Exited	2103
Hourly Exit Rate	2103
Input Volume	2166
% of Volume	97
Denied Entry Before	0
Denied Entry After	0

2: US-1 & American Legion Rd/Eskimo Hill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.2	0.2	0.4	0.3	0.7	0.3	4.8	0.1	0.4	2.0	0.1
Vehicles Entered	45	28	59	65	53	158	66	789	28	66	417	35
Vehicles Exited	46	28	59	65	53	159	66	791	28	67	417	36
Hourly Exit Rate	46	28	59	65	53	159	66	791	28	67	417	36
Input Volume	47	28	60	70	54	166	69	806	26	64	417	34
% of Volume	98	99	99	93	98	96	96	98	107	105	100	107
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

2: US-1 & American Legion Rd/Eskimo Hill Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	9.8
Vehicles Entered	1809
Vehicles Exited	1815
Hourly Exit Rate	1815
Input Volume	1842
% of Volume	99
Denied Entry Before	0
Denied Entry After	0

3: US-1 & Sage Ln Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.2	0.7	0.0	1.0
Vehicles Entered	17	19	20	863	520	25	1464
Vehicles Exited	17	19	20	862	522	25	1465
Hourly Exit Rate	17	19	20	862	522	25	1465
Input Volume	15	17	24	882	526	24	1488
% of Volume	111	110	84	98	99	105	98
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

4: US-1 & Centreport Pkwy Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.8	0.0	0.6	3.9	3.0	0.4	1.2	14.9
Vehicles Entered	296	4	123	750	789	44	490	2496
Vehicles Exited	292	4	122	743	785	44	486	2476
Hourly Exit Rate	292	4	122	743	785	44	486	2476
Input Volume	287	4	122	768	792	44	497	2515
% of Volume	102	89	100	97	99	99	98	98
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

5: 95 NB Off Ramp/95 NB & Centreport Pkwy Performance by movement

Movement	EBL	EBT	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	1.1	0.8	0.8	0.4	3.1
Vehicles Entered	16	272	234	231	150	903
Vehicles Exited	16	273	234	231	150	904
Hourly Exit Rate	16	273	234	231	150	904
Input Volume	17	263	231	234	150	895
% of Volume	93	104	101	99	100	101
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.2	0.3	1.2	0.8	0.0	2.9
Vehicles Entered	110	226	89	380	175	7	987
Vehicles Exited	110	227	88	381	175	7	988
Hourly Exit Rate	110	227	88	381	175	7	988
Input Volume	105	222	86	383	172	6	975
% of Volume	105	102	102	99	102	117	101
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Vehicles Entered	12	56	62	2	19	1	244	5	6	1	1	5
Vehicles Exited	12	56	62	2	19	2	244	5	6	1	1	5
Hourly Exit Rate	12	56	62	2	19	2	244	5	6	1	1	5
Input Volume	10	55	61	2	21	1	257	4	6	1	1	5
% of Volume	117	102	102	100	90	200	95	111	96	100	100	95
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	0.5
Vehicles Entered	414
Vehicles Exited	415
Hourly Exit Rate	415
Input Volume	424
% of Volume	98
Denied Entry Before	0
Denied Entry After	0

8: State Shop Rd & Driveway & Eskimo Hill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Vehicles Entered	0	1	2	8	1	245	0	7	18	59	5	2
Vehicles Exited	0	1	2	8	1	245	0	7	18	59	5	2
Hourly Exit Rate	0	1	2	8	1	245	0	7	18	59	5	2
Input Volume	1	1	1	9	1	256	1	8	18	59	4	2
% of Volume	0	100	200	91	100	96	0	85	100	100	125	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

8: State Shop Rd & Driveway & Eskimo Hill Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	0.6
Vehicles Entered	348
Vehicles Exited	348
Hourly Exit Rate	348
Input Volume	361
% of Volume	96
Denied Entry Before	0
Denied Entry After	0

Total Zone Performance

Denied Delay (hr)	0.3
Total Delay (hr)	52.0
Vehicles Entered	1954
Vehicles Exited	260
Hourly Exit Rate	260
Input Volume	10668
% of Volume	2
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	104	141	164	141	114	139	174	154	288	300	175	185
Average Queue (ft)	19	64	89	52	53	57	99	61	138	164	62	67
95th Queue (ft)	61	116	143	113	96	118	161	128	247	269	138	149
Link Distance (ft)			1229	1229	1229		971	971			8614	8614
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500				150			400	400		
Storage Blk Time (%)						0	1		0	0		
Queuing Penalty (veh)						0	1		0	0		

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	39	38	144	127	74
Average Queue (ft)	5	10	69	43	19
95th Queue (ft)	22	32	123	100	51
Link Distance (ft)			1821	1821	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			500
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	159	219	65	282	291	81	119	142
Average Queue (ft)	63	108	17	107	112	17	27	40
95th Queue (ft)	124	192	46	220	235	53	82	101
Link Distance (ft)	1287	392		3734	3734		8614	8614
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			300			200		
Storage Blk Time (%)				0		0	0	
Queuing Penalty (veh)				0		0	0	

Intersection: 3: US-1 & Sage Ln

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	51	38
Average Queue (ft)	23	6
95th Queue (ft)	48	26
Link Distance (ft)	590	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		415
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B15	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	451	225	163	236	256	321	180	88	115	113	112
Average Queue (ft)	281	112	19	129	136	126	98	34	41	51	33
95th Queue (ft)	458	273	129	214	226	265	205	76	95	98	83
Link Distance (ft)	381		1100	1008	1008	1008			2884	2884	2884
Upstream Blk Time (%)	7										
Queuing Penalty (veh)	30										
Storage Bay Dist (ft)		225					180	345			
Storage Blk Time (%)	22	1				1	1				
Queuing Penalty (veh)	27	2				8	3				

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	49	173	179	228
Average Queue (ft)	10	68	70	115
95th Queue (ft)	35	134	138	194
Link Distance (ft)		2476	258	219
Upstream Blk Time (%)				1
Queuing Penalty (veh)				0
Storage Bay Dist (ft)	275			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	128	103	120	186	149
Average Queue (ft)	43	46	39	73	76
95th Queue (ft)	93	80	85	144	125
Link Distance (ft)	441			2476	221
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		200	250		
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	10	13	106	56
Average Queue (ft)	0	0	52	8
95th Queue (ft)	7	9	86	34
Link Distance (ft)	392	610	218	443
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	29	118	2	41
Average Queue (ft)	3	69	0	2
95th Queue (ft)	16	103	2	19
Link Distance (ft)	150	2160	996	218
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 70

1: U.S. 1 & Hospital Center Boulevard Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	4.5	12.7	26.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	2.3	8.6	42.1	4.4	4.9	0.4	12.2	1.9	0.2	0.5	7.6	0.1
Vehicles Entered	93	265	557	123	204	27	268	337	65	22	1140	60
Vehicles Exited	96	260	520	124	202	27	243	325	63	22	1135	59
Hourly Exit Rate	96	260	520	124	202	27	243	325	63	22	1135	59
Input Volume	108	293	628	125	198	23	278	342	66	26	1142	60
% of Volume	89	89	83	99	102	116	87	95	95	84	99	98
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	12	34	70	0	0	0	0	0	0	0	0	0

1: U.S. 1 & Hospital Center Boulevard Performance by movement

Movement	All
Denied Delay (hr)	44.0
Total Delay (hr)	85.2
Vehicles Entered	3161
Vehicles Exited	3076
Hourly Exit Rate	3076
Input Volume	3289
% of Volume	94
Denied Entry Before	0
Denied Entry After	116

2: US-1 & American Legion Rd/Eskimo Hill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.5	1.0	1.2	0.4	0.5	0.7	0.4	3.1	0.1	1.7	15.5	0.4
Vehicles Entered	35	77	117	33	46	94	54	548	16	184	1555	45
Vehicles Exited	35	76	116	33	46	93	53	541	16	182	1551	44
Hourly Exit Rate	35	76	116	33	46	93	53	541	16	182	1551	44
Input Volume	38	75	114	38	42	98	53	551	14	198	1658	44
% of Volume	93	101	102	87	109	95	100	98	112	92	94	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

2: US-1 & American Legion Rd/Eskimo Hill Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	25.6
Vehicles Entered	2804
Vehicles Exited	2786
Hourly Exit Rate	2786
Input Volume	2923
% of Volume	95
Denied Entry Before	0
Denied Entry After	0

3: US-1 & Sage Ln Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.1	0.1	0.1	5.0	0.1	5.5
Vehicles Entered	15	38	20	606	1684	19	2382
Vehicles Exited	15	38	20	603	1679	19	2374
Hourly Exit Rate	15	38	20	603	1679	19	2374
Input Volume	15	36	23	603	1790	21	2489
% of Volume	98	106	86	100	94	89	95
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

4: US-1 & Centreport Pkwy Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	5.6	0.1	0.2	7.0	2.0	1.8	13.0	29.7
Vehicles Entered	462	24	58	571	524	142	1564	3345
Vehicles Exited	468	24	59	560	523	139	1529	3302
Hourly Exit Rate	468	24	59	560	523	139	1529	3302
Input Volume	466	22	60	570	523	150	1684	3475
% of Volume	100	108	98	98	100	93	91	95
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

5: 95 NB Off Ramp/95 NB & Centreport Pkwy Performance by movement

Movement	EBL	EBT	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	1.5	0.7	0.5	0.0	0.2	3.0
Vehicles Entered	15	436	300	132	1	92	976
Vehicles Exited	15	434	300	132	1	92	974
Hourly Exit Rate	15	434	300	132	1	92	974
Input Volume	16	446	307	139	1	90	1000
% of Volume	92	97	98	95	100	102	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.0	0.7	0.8	0.9	1.5	0.1	5.0
Vehicles Entered	210	378	168	268	254	27	1305
Vehicles Exited	210	378	168	267	254	27	1304
Hourly Exit Rate	210	378	168	267	254	27	1304
Input Volume	223	370	173	278	255	28	1327
% of Volume	94	102	97	96	100	98	98
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Vehicles Entered	0	34	249	1	55	2	110	2	1	0	1	6
Vehicles Exited	0	34	249	1	55	2	110	2	1	0	1	6
Hourly Exit Rate	0	34	249	1	55	2	110	2	1	0	1	6
Input Volume	1	36	260	1	58	1	109	2	1	1	1	6
% of Volume	0	94	96	100	94	200	101	114	100	0	100	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	0.3
Vehicles Entered	461
Vehicles Exited	461
Hourly Exit Rate	461
Input Volume	478
% of Volume	96
Denied Entry Before	0
Denied Entry After	0

8: State Shop Rd & Driveway & Eskimo Hill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0
Vehicles Entered	1	0	1	9	1	107	1	3	24	244	8	2
Vehicles Exited	1	0	1	9	1	108	1	3	24	245	8	2
Hourly Exit Rate	1	0	1	9	1	108	1	3	24	245	8	2
Input Volume	1	1	1	9	1	106	1	3	24	258	6	1
% of Volume	100	0	100	97	100	102	100	100	100	95	123	200
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

8: State Shop Rd & Driveway & Eskimo Hill Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	0.3
Vehicles Entered	401
Vehicles Exited	403
Hourly Exit Rate	403
Input Volume	413
% of Volume	98
Denied Entry Before	0
Denied Entry After	0

Total Zone Performance

Denied Delay (hr)	44.2
Total Delay (hr)	154.7
Vehicles Entered	3257
Vehicles Exited	166
Hourly Exit Rate	166
Input Volume	15393
% of Volume	1
Denied Entry Before	0
Denied Entry After	116

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	133	156	1242	1269	1273	150	356	306	329	340	300	136
Average Queue (ft)	34	76	496	886	1087	131	191	143	179	196	61	42
95th Queue (ft)	95	136	1264	1728	1537	180	337	281	344	357	262	110
Link Distance (ft)			1229	1229	1229		971	971			8614	8614
Upstream Blk Time (%)			2	46	64							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	500	500				150			400	400		
Storage Blk Time (%)						25	11		0	2	1	
Queuing Penalty (veh)						24	14		0	4	2	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	45	130	517	503	230
Average Queue (ft)	4	27	254	246	15
95th Queue (ft)	21	92	415	410	101
Link Distance (ft)			1821	1821	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			500
Storage Blk Time (%)		0	0	0	0
Queuing Penalty (veh)		0	0	0	0

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	296	230	89	244	258	200	444	453
Average Queue (ft)	136	99	24	72	79	75	201	213
95th Queue (ft)	239	190	64	185	201	191	373	381
Link Distance (ft)	1287	392		3734	3734		8614	8614
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			300			200		
Storage Blk Time (%)				0		0	7	
Queuing Penalty (veh)				0		1	13	

Intersection: 3: US-1 & Sage Ln

Movement	EB	NB	SB
Directions Served	LR	L	R
Maximum Queue (ft)	89	69	2
Average Queue (ft)	34	13	0
95th Queue (ft)	68	45	3
Link Distance (ft)	590		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		415	290
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B15	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	460	225	174	315	391	528	180	299	445	448	435
Average Queue (ft)	331	62	21	134	146	148	88	111	255	271	226
95th Queue (ft)	485	208	107	252	282	358	190	248	404	419	386
Link Distance (ft)	381		1100	1008	1008	1008			2884	2884	2884
Upstream Blk Time (%)	8										
Queuing Penalty (veh)	40										
Storage Bay Dist (ft)		225					180	345			
Storage Blk Time (%)	25	0				3	1	0	2		
Queuing Penalty (veh)	15	1				16	3	0	3		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	65	203	163	203
Average Queue (ft)	9	89	63	90
95th Queue (ft)	43	173	126	163
Link Distance (ft)		2476	258	219
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)	275			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	188	164	178	196	221
Average Queue (ft)	75	72	66	69	121
95th Queue (ft)	145	131	126	145	197
Link Distance (ft)	441			2476	221
Upstream Blk Time (%)					0
Queuing Penalty (veh)					1
Storage Bay Dist (ft)		200	250		
Storage Blk Time (%)	0	0	0	0	
Queuing Penalty (veh)	1	0	0	0	

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	24	74	60
Average Queue (ft)	1	38	10
95th Queue (ft)	14	62	40
Link Distance (ft)	610	218	443
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	25	98	2	55
Average Queue (ft)	2	48	0	9
95th Queue (ft)	14	79	2	36
Link Distance (ft)	150	2160	996	218
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

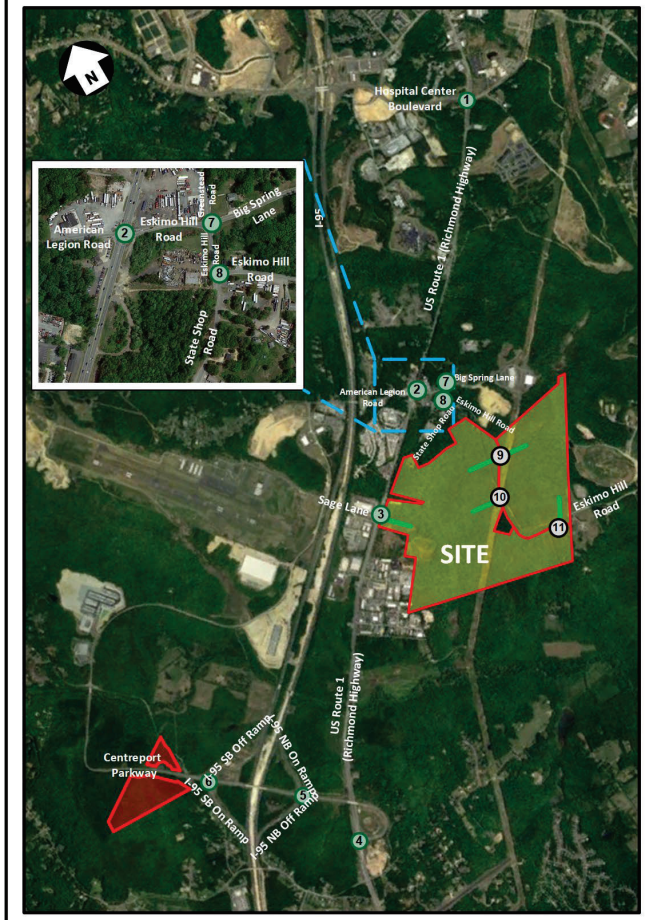
Zone Summary

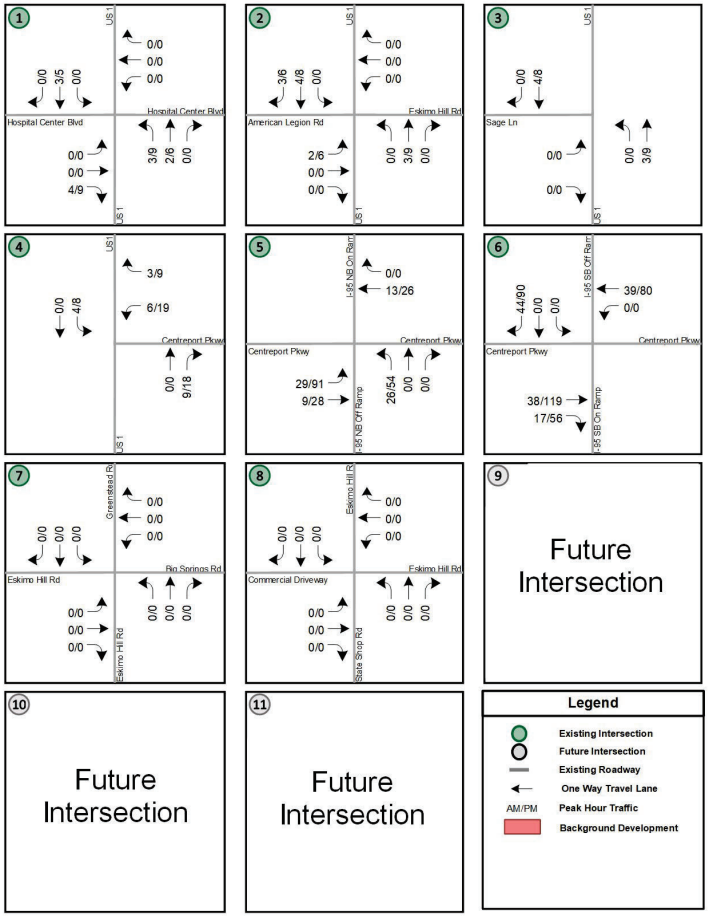
Zone wide Queuing Penalty: 139

No.	Intersection (Movement)	AM Peak Hour						
		Input Traffic Volumes (vehicles/ hour)	Simulated Traffic Volumes (vehicles/ hour)	Percent of Demand Served [3]	Absolute Difference Traffic Volumes (vehicles/ hour)	Percentage Difference in Traffic Volumes Traffic Volumes (vehicles/ hour)	VDOT Calibration Threshold for Traffic Volumes	Met VDOT Threshold?
		SimTraffic [2]						
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**	**2166**	**2104.0**	**97%**	**62**	**2.9%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left	96	98.0	102%	-2	-2.1%	20%	Yes
	Eastbound Thru	206	192.0	93%	14	6.8%	15%	Yes
	Eastbound Right	227	230.0	101%	-3	-1.3%	15%	Yes
	Westbound Approach							
	Westbound Left	60	58.0	96%	2	3.3%	20%	Yes
	Westbound Thru / Right	208	211.0	101%	-3	-1.4%	15%	Yes
	Northbound Approach							
	Northbound Left	358	338.0	94%	20	5.6%	15%	Yes
	Northbound Thru	633	611.0	97%	22	3.5%	15%	Yes
	Northbound Right	98	90.0	92%	8	8.2%	20%	Yes
	Southbound Approach							
	Southbound Left	11	9.0	80%	2	18.2%	20%	Yes
	Southbound Thru	205	205.0	100%	0	0.0%	15%	Yes
	Southbound Right	64	62.0	97%	2	3.1%	20%	Yes
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)	**1842**	**1831.0**	**99%**	**11**	**0.6%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Thru / Right	135	128.0	95%	7	5.2%	15%	Yes
	Westbound Approach							
	Westbound Left / Thru / Right	290	289.0	100%	1	0.3%	15%	Yes
	Northbound Approach							
	Northbound Left	69	70.0	101%	-1	-1.4%	20%	Yes
	Northbound Thru / Right	832	827.0	99%	5	0.6%	15%	Yes
	Southbound Approach							
	Southbound Left	64	63.0	98%	1	1.6%	20%	Yes
	Southbound Thru / Right	451	454.0	101%	-3	-0.7%	15%	Yes
3	**US Route 1 (N/S) & Sage Lane / Future Access #1 (E/W)**							
	Overall Intersection: (TWSC)	**1488**	**1481.0**	**99%**	**7**	**0.5%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Right	32	36.0	113%	-4	-12.5%	20%	Yes
	Northbound Approach							
	Northbound Left	24	21.0	88%	3	12.5%	20%	Yes
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**2515**	**2482.0**	**99%**	**33**	**1.3%**	**10%**	**Yes**
	Westbound Approach							
	Westbound Left	287	285.0	99%	2	0.7%	15%	Yes
	Westbound Right	122	119.0	98%	3	2.5%	15%	Yes
	Northbound Approach							
	Northbound Thru	768	768.0	100%	0	0.0%	15%	Yes
	Northbound Right	792	776.0	98%	16	2.0%	15%	Yes
	Southbound Approach							
	Southbound Left	44	46.0	104%	-2	-4.5%	20%	Yes
	Southbound Thru	497	484.0	97%	13	2.6%	15%	Yes
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**895**	**893.0**	**100%**	**2**	**0.2%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left	17	15.0	87%	2	11.8%	20%	Yes
	Eastbound Thru	263	260.0	99%	3	1.1%	15%	Yes
	Westbound Approach							
	Westbound Thru	231	232	100%	-1	-0.4%	15%	Yes
	Westbound Right							
	Northbound Approach							
	Northbound Left / Thru / Right	384	386.0	101%	-2	-0.5%	15%	Yes
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**975**	**975.0**	**100%**	**0**	**0.0%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Thru	105	101.0	96%	4	3.8%	15%	Yes
	Eastbound Right	222	222.0	100%	0	0.0%	15%	Yes
	Westbound Approach							
	Westbound Left	86	84.0	97%	2	2.3%	20%	Yes
	Westbound Thru	383	390.0	102%	-7	-1.8%	15%	Yes
	Southbound Approach							
	Southbound Left / Thru	178	178	100%	0	0.0%	15%	Yes
	Southbound Right							
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S)**							
	Overall Intersection: (TWSC)	**424**	**423.0**	**100%**	**1**	**0.2%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left	10	9.0	88%	1	10.0%	20%	Yes
	Westbound Approach							
	Westbound Left	2	1.0	50%	1	50.0%	20%	No
	Northbound Approach							
	Northbound Left / Thru / Right	267	269.0	101%	-2	-0.7%	15%	Yes
	Southbound Approach							
	Southbound Left / Thru / Right	7.0	7.0	100%	0	0.0%	20%	Yes
8	**Eskimo Hill Road (N/E) & State Shop Road (S)**							
	Overall Intersection: (TWSC)	**361**	**362.0**	**100%**	**-1**	**-0.3%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Thru / Right	3	3.0	100%	0	0.0%	20%	Yes
	Westbound Approach							
	Westbound Left / Thru / Right	266	268.0	101%	-2	-0.8%	15%	Yes
	Northbound Approach							
	Northbound Left	1	0.0	0%	1	100.0%	20%	No
	Southbound Approach							
	Southbound Left	59	58.0	98%	1	1.7%	20%	Yes

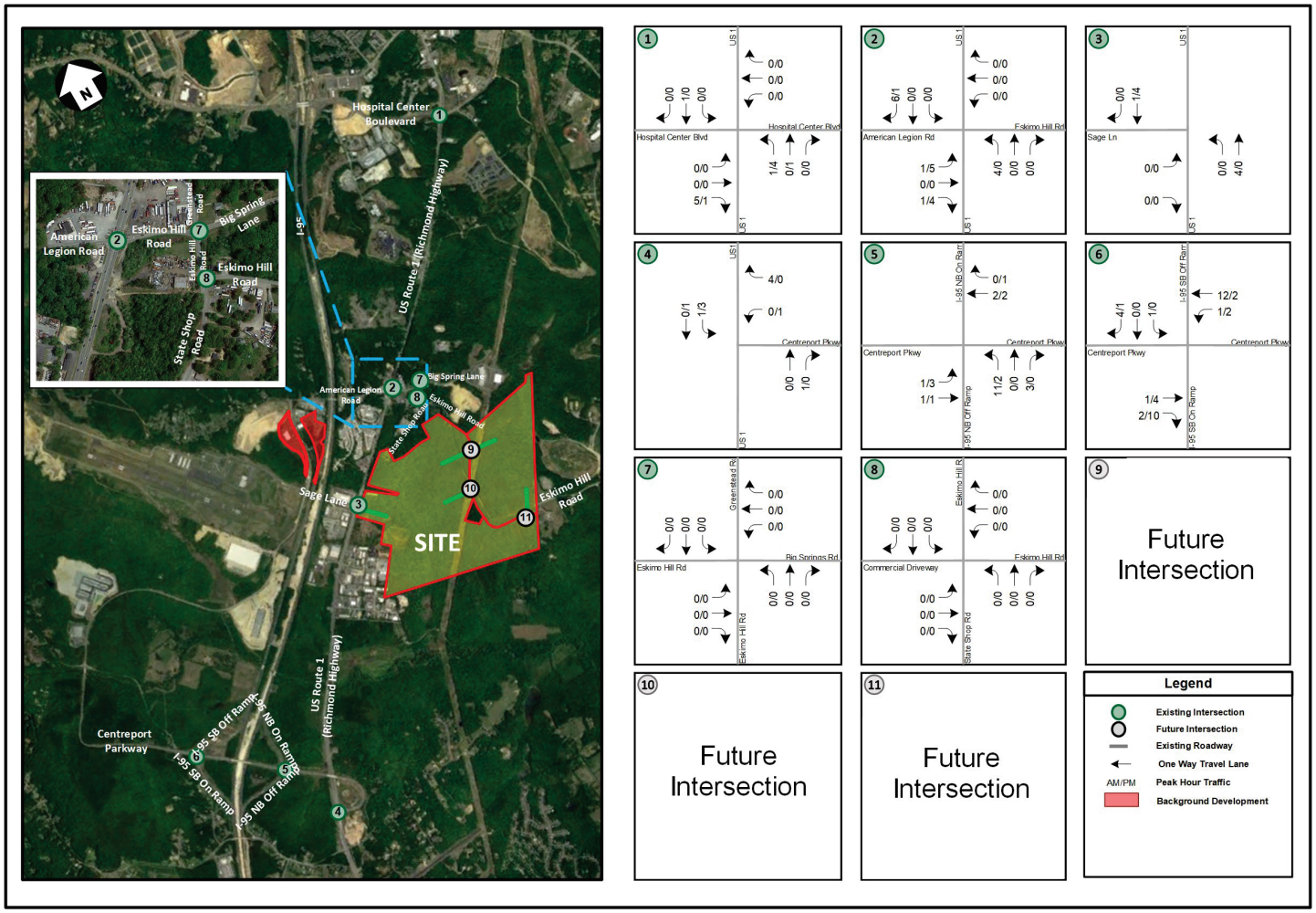
No.	Intersection (Movement)	PM Peak Hour						
		Input Traffic Volumes (vehicles/ hour)	Simulated Traffic Volumes (vehicles/ hour)	Percent of Demand Served [4]	Absolute Difference Traffic Volumes (vehicles/ hour)	Percentage Difference in Traffic Volumes Traffic Volumes (vehicles/ hour)	VDOT Calibration Threshold for Traffic Volumes	Met VDOT Threshold?
		SimTraffic [2]						
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**	**3289**	**3052.0**		**93**	**2.8%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left	108	102.0	95%	6	5.6%	15%	Yes
	Eastbound Thru	293	254.0	87%	39	13.3%	15%	Yes
	Eastbound Right	628	514.0	82%	114	18.2%	15%	No
	Westbound Approach							
	Westbound Left	125	126.0	101%	-1	-0.8%	15%	Yes
	Westbound Thru / Right	221	219.0	99%	2	0.9%	15%	Yes
	Northbound Approach							
	Northbound Left	278	241.0	87%	37	13.3%	15%	Yes
	Northbound Thru	342	320.0	93%	22	6.4%	15%	Yes
	Northbound Right	66	58.0	88%	8	12.1%	20%	Yes
	Southbound Approach							
	Southbound Left	26	25.0	95%	1	3.8%	20%	Yes
	Southbound Thru	1142	1129.0	99%	13	1.1%	10%	Yes
	Southbound Right	60	64.0	107%	-4	-6.7%	20%	Yes
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)	**2923**	**2770.0**	**95%**	**153**	**5.2%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Thru / Right	227	233.0	103%	-6	-2.6%	15%	Yes
	Westbound Approach							
	Westbound Left / Thru / Right	178	177.0	99%	1	0.6%	15%	Yes
	Northbound Approach							
	Northbound Left	53	52.0	98%	1	1.9%	20%	Yes
	Northbound Thru / Right	565	542.0	96%	23	4.1%	15%	Yes
	Southbound Approach							
	Southbound Left	198	183.0	92%	15	7.6%	15%	Yes
	Southbound Thru / Right	1702	1583.0	93%	119	7.0%	10%	Yes
3	**US Route 1 (N/S) & Sage Lane / Future Access #1 (E/W)**							
	Overall Intersection: (TWSC)	**2489**	**2356.0**	**95%**	**133**	**5.3%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Right	51	49.0	96%	2	3.9%	20%	Yes
	Northbound Approach							
	Northbound Left	23	23.0	99%	0	0.0%	20%	Yes
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**3475**	**3277.0**	**94%**	**198**	**5.7%**	**10%**	**Yes**
	Westbound Approach							
	Westbound Left	466	464.0	100%	2	0.4%	15%	Yes
	Westbound Right	22	21.0	94%	1	4.5%	20%	Yes
	Northbound Approach							
	Northbound Thru	570	555.0	97%	15	2.6%	15%	Yes
	Northbound Right	523	511.0	98%	12	2.3%	15%	Yes
	Southbound Approach							
	Southbound Left	150	141.0	94%	9	6.0%	15%	Yes
	Southbound Thru	1684	1528.0	91%	156	9.3%	10%	Yes
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**1000**	**966.0**	**97%**	**34**	**3.4%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left	16	14.0	86%	2	12.5%	20%	Yes
	Eastbound Thru	446	433.0	97%	13	2.9%	15%	Yes
	Westbound Approach							
	Westbound Thru	307	297	97%	10	3.3%	15%	Yes
	Westbound Right							
	Northbound Approach							
	Northbound Left / Thru / Right	230	222.0	97%	8	3.5%	15%	Yes
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**1327**	**1301.0**	**98%**	**26**	**2.0%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Thru	223	214.0	96%	9	4.0%	15%	Yes
	Eastbound Right	370	371.0	100%	-1	-0.3%	15%	Yes
	Westbound Approach							
	Westbound Left	173	168.0	97%	5	2.9%	15%	Yes
	Westbound Thru	278	268.0	96%	10	3.6%	15%	Yes
	Southbound Approach							
	Southbound Left / Thru	283	280	99%	3	1.1%	15%	Yes
	Southbound Right							
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S)**							
	Overall Intersection: (TWSC)	**478**	**462.0**	**97%**	**16**	**3.3%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left	1	0.0	0%	1	100.0%	20%	No
	Westbound Approach							
	Westbound Left	1	1.0	100%	0	0.0%	20%	Yes
	Northbound Approach							
	Northbound Left / Thru / Right	112	112.0	100%	0	0.0%	15%	Yes
	Southbound Approach							
	Southbound Left / Thru / Right	8.0	8.0	100%	0	0.0%	20%	Yes
8	**Eskimo Hill Road (N/E) & State Shop Road (S)**							
	Overall Intersection: (TWSC)	**413**	**399.0**	**97%**	**14**	**3.4%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Thru / Right	3	2.0	67%	1	33.3%	20%	No
	Westbound Approach							
	Westbound Left / Thru / Right	116	114.0	98%	2	1.7%	15%	Yes
	Northbound Approach							
	Northbound Left	1	1.0	100%	0	0.0%	20%	Yes
	Southbound Approach							
	Southbound Left	258	247.0	96%	11	4.3%	15%	Yes

F. Background Development Information and Assignments





Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Centreport Gateway (Phase I)									
Shopping Center (40 kSF<X<150 kSF) (without Superr	821	60.0 kSF of GFA	64	40	104	152	159	311	4,051
Hotel	310	90 Rooms	21	17	38	20	19	39	552
Subtotal			85	57	142	172	178	350	4,603



Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Centreport Industrial (Partially Constructed)									
General Light Industrial	110	40.0 kSF of GFA	27	4	31	3	18	21	195

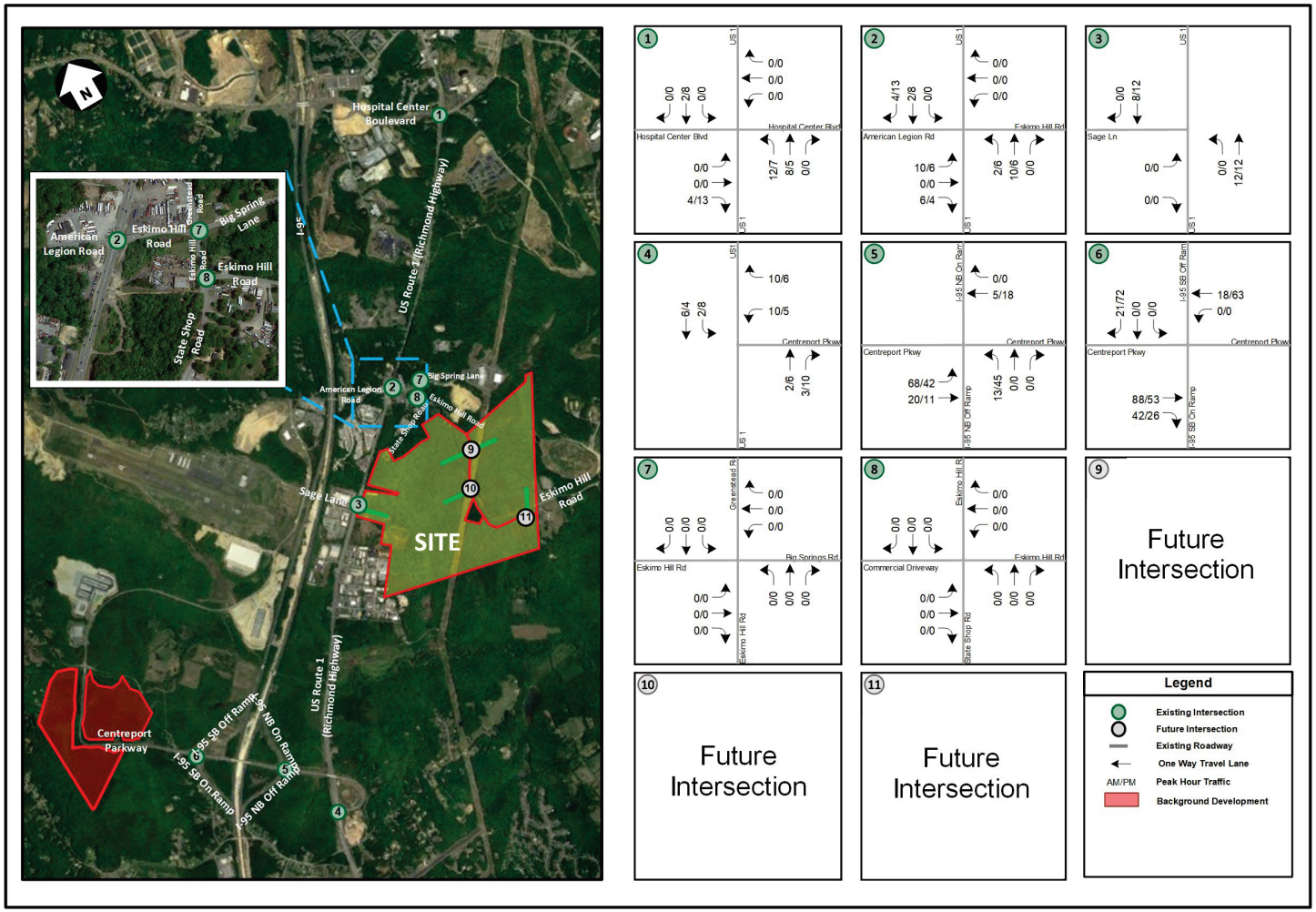


Planning and Zoning

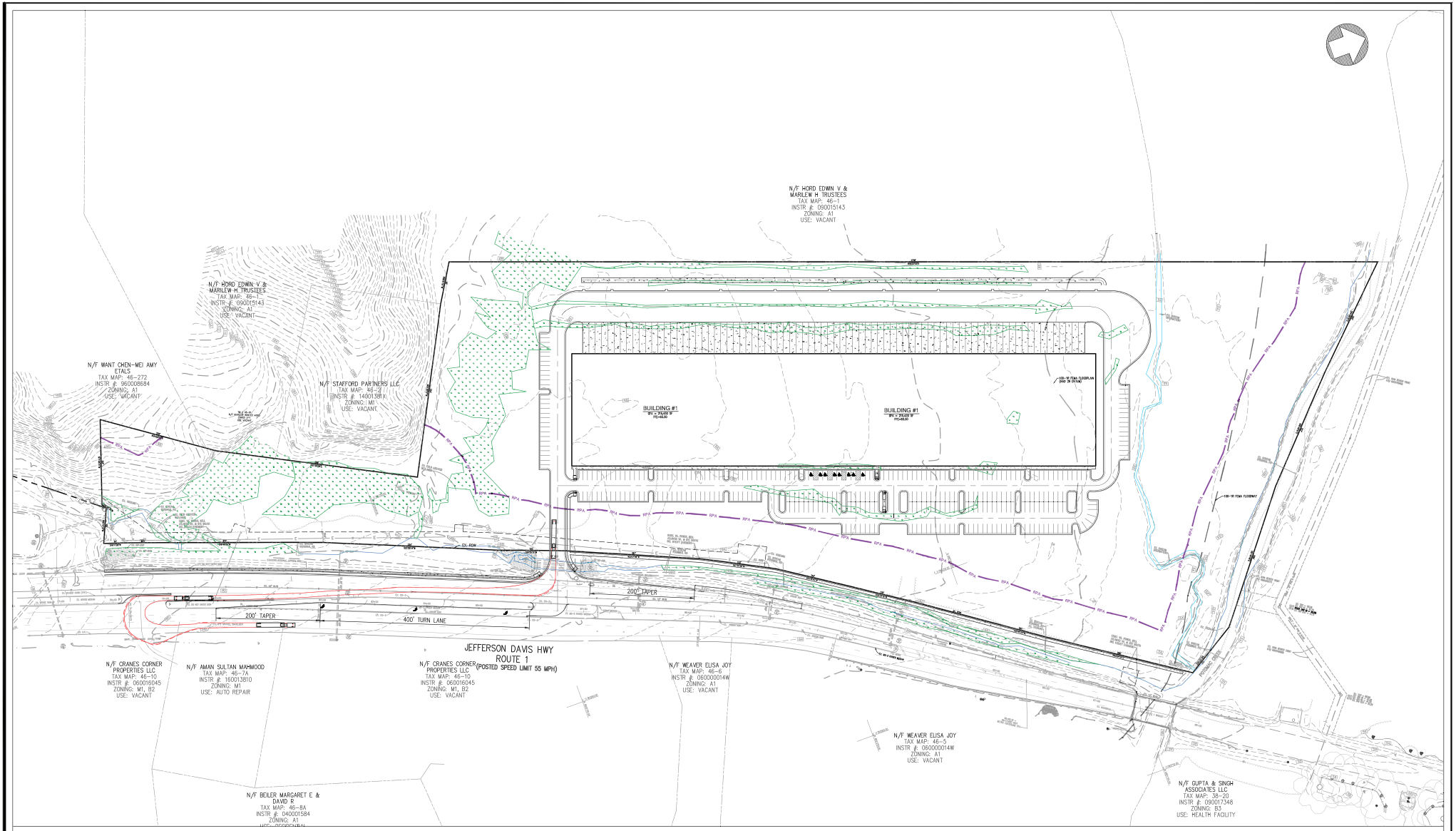
Summary For Application Number: 21154082
AP Type: SUBPRELIM
Project Name: CENTREPORT VILLAGE
Process Date: 8/30/2021 10:33:33 AM
Permit Status: Final

Details:

A PRELIMINARY SUBDIVISION PLAN FOR 494 TOWNHOME UNITS ALONG CENTREPORT PKWY AND MOUNTAINVIEW RD, THE UNITS MIX INCLUDES 20' AND 22' WIDE UNITS, LOCATED WEST OF I95, SOUTH OF MOUNTAIN VIEW AND TO THE NORTHWEST SIDE OF CENTREPORT PKWY ON TM 37-30A ZONED R2CONSISTING OF 108.72 ACRES WITHIN THE HARTWOOD ELECTION DISTRICT.



Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Centreport Village									
Multifamily Housing (Low-Rise)	220	494 DU	42	134	176	147	86	233	3,242



Bowman

ENTRANCE CONCEPT W/ VEHICLE TRACKING

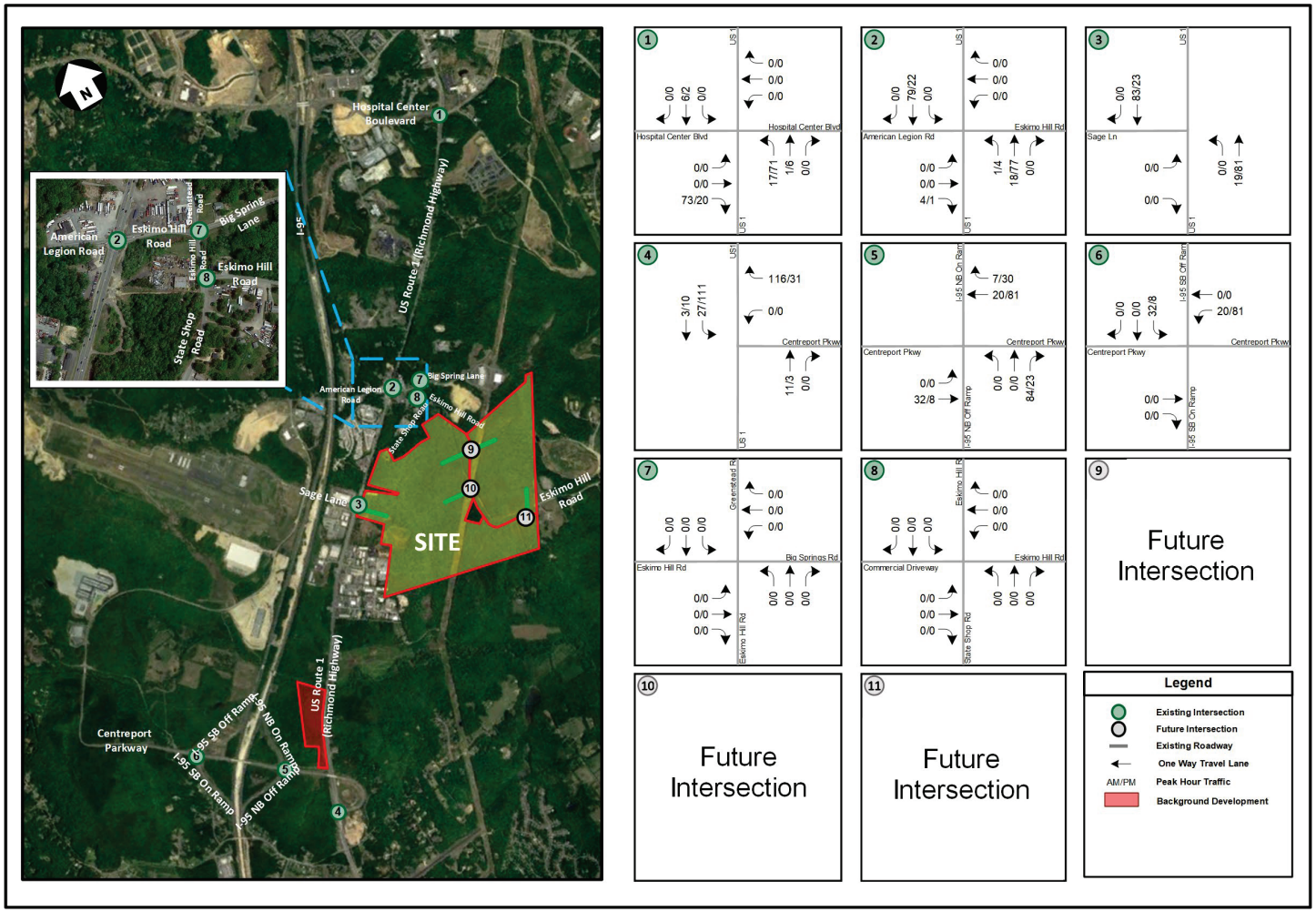
CROSSROADS INDUSTRIAL

STAFFORD COUNTY, VIRGINIA

80 40 0 80 160
GRAPHIC SCALE
1" = 80'

JUNE 17, 2021

P:\100329 – Crossroads Industrial Park\100329-01-001 (ENG)\Engineering\Engineering Plans\100329-D-MP-001 (Preliminary Engineering)\++100329-D-MP-001-PBASE (one entrance rev).dwg



Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Crossroads Industrial									
Industrial Park	130	762.0 kSF of GFA	210	49	259	57	202	259	2,699

VETTRA Co. *Transportation Planning & Engineering Services*

11535 Gunner Court
Woodbridge, Virginia 22192 Tel: 703-590-4932 Email: vettraco@gmail.com

September 13, 2021 ***via Email***

IVI Strategies, LLC *email BFlynn@enggroupe.com*
13580 Groupe Drive
Suite 200
Woodbridge, Virginia 22192

RE: **Project Ivy (previously Sycamore Grove/Oakenwold)**
Stafford County, Virginia

SUBJ: **Trip Generation Comparison**

Dear Sir/Madam:

I am pleased to provide this memo providing a *ITE Trip Generation (10th Edition)* comparison of the newly proposed use versus the previously approved TIA for the referenced property in central Stafford County, Virginia. Also included in the proposed project are trips to/from the proposed off-site 633-space storage lot located on Mountain View Road. These storage space trips are based on a traffic study by VETTRA Company for the Potomac Creek Storage Lot project located nearby along Centreport Parkway.

In place of the previously proposed mix-use (residential/office/retail) the current proposal consists of a 933,120 gsf (gross square feet) Non-Sort "High-Cube Fulfillment Center" (ITE # 155). Following is a brief comparison of these two (2) proposals:

	AM Pk.Hr.	PM Pk.Hr.	SAT Pk.Hr.	Daily (VPD)
Previously Approved:	**341**	**955**	**1,180**	**9,796**
Currently Proposed:				
Warehouse (trips/Kgsf)	140 (0.15)	149 (0.16)	187 (0.20)	1,693 (1.81)
Storage Lot (trips/space)	74 (0.12)	36 (0.06)	73 (0.12)	660 (1.04)
Total =	**214**	**185**	**260**	**2,353**

Results show significantly less trips with the currently proposed use.

I trust that this provides pertinent information as requested. Please feel free to call me if you have any questions.

Sincerely,
VETTRA Company
Vernon E. Torney
Vernon E. Torney, M.ASCE
President/Owner

cc:

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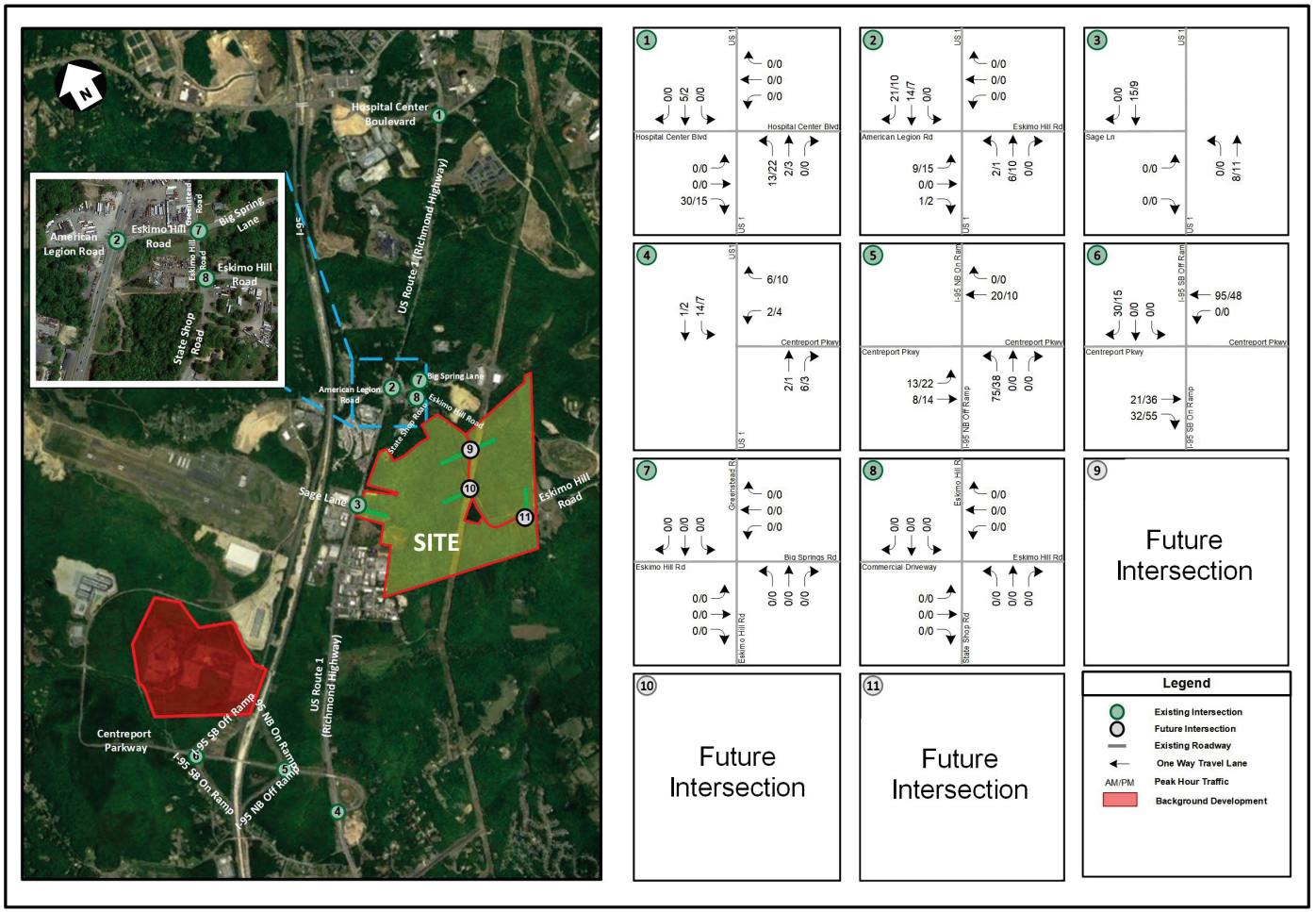
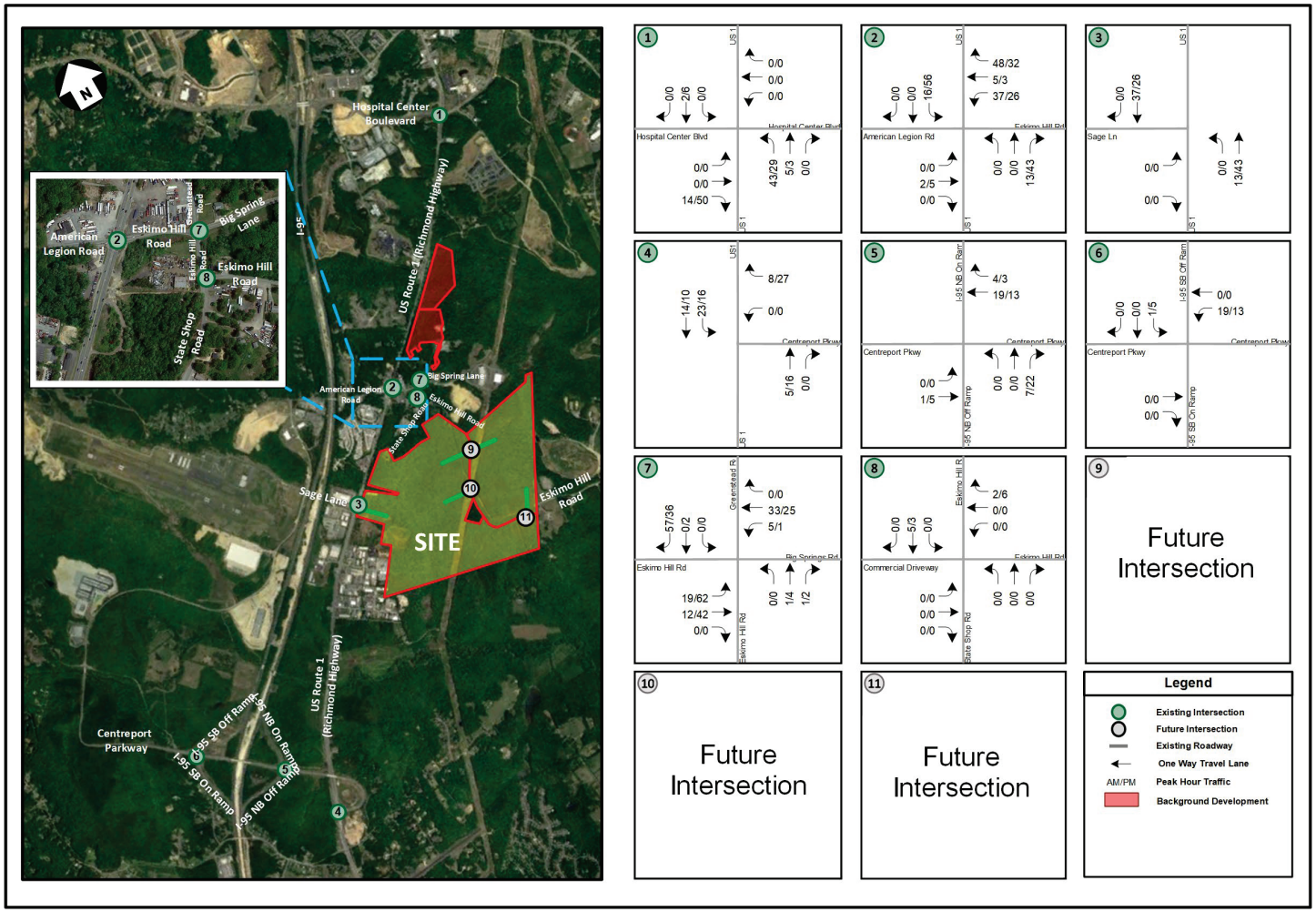


Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Project Ivy									
High-Cube Fulfillment Center Warehouse (Non-Sort)	155	934.0 kSF of GFA	113	27	140	58	91	149	1,694
Storage Lot		633.0 Spaces	37	37	74	18	18	36	660
Subtotal			150	64	214	76	109	185	2,354

RESIDENTIAL LISTING AS OF 2/1/2022

Name URL	Project Name	Map #	Approved Units	Recorded Units	Permits Issued	Built Units	Units To Be Built	Urban Service Area (USA)	Targeted Development Area (TDA)	Housing Type
Abigail Estates	Abigail Estates	1	6	6	5	0	6	N	N	SFD
Amber Oaks	Amber Oaks	2	50	50	48	44	6	N	N	SFD
Aquia Crest Estates	Aquia Crest Estates	3	8	0	0	0	8	N	N	SFD
Aquia Hollow	Aquia Hollow	4	106	0	0	0	106	Y	N	THA
Aquia Overlook	Aquia Overlook	5	86	86	71	68	18	N	N	SFD
Big Spring Estates	Big Spring Estates	6	67	47	0	0	67	Y	Y	SFD
Big Spring Estates, The Hills	Big Spring Estates, The Hills	7	56	0	0	0	56	Y	Y	SFD
Bridle Lake Estates	Bridle Lake Estates	8	85	40	30	30	55	N	N	SFD
Caisson Crossing	Caisson Crossing	9	21	21	12	12	9	N	N	SFD
Cardinal Meadows	Cardinal Meadows	10	15	0	0	0	15	Y	N	SFD
Carrington Heights	Carrington Heights	11	8	0	0	0	8	N	N	SFD
Cavin Property	Cavin Property	12	71	0	0	0	71	N	N	SFD
Celebrate NOW	Celebrate NOW	13	44	0	0	0	44	Y	Y	THA
Celebrate Virginia	Celebrate Virginia	14	1154	1154	1097	1086	68	Y	N	SFD/Duplex
Cherryview Landing	Cherryview Landing	15	71	71	4	0	71	Y	Y	THA
Chesapeake Ridge	Chesapeake Ridge	16	15	0	0	0	15	N	N	SFD
Colebrook Estates	Colebrook Estates	17	12	0	0	0	12	N	N	SFD
Courtyards at Colonial Forge	Courtyards at Colonial Forge	18	49	49	37	33	16	Y	N	CONDO
Dolittle Farm	Dolittle Farm	19	22	0	0	0	22	N	N	SFD
Eagle Terrace	Eagle Terrace	20	13	0	0	0	13	N	N	SFD
Ellison Estates	Ellison Estates	21	23	14	12	12	11	Y	Y	SFD
Embrey Mill	Embrey Mill	22	2079	1602	1473	1403	676	Y	N	SFD/THA/MF
Emmas Estates	Emmas Estates	23	26	0	0		26	N	N	SFD
Estates at Clearview	Estates at Clearview	24	36	36	0		36	Y	N	SFD
Estates at Monroe Place	Estates at Monroe Place	25	28	28	27	19	9	N	N	SFD
Estates of Potomac Run	Estates of Potomac Run	26	9	0	0	0	9	N	N	SFD
Estates At Rocky Pen Sec. 2	Estates At Rocky Pen Sec. 2	27	15	0	0	0	15	N	N	SFD
Fair Havens	Fair Havens	28	20	0	0	0	20	N	N	SFD
Forest Hill Estates	Forest Hill Estates	29	13	13	11	7	6	N	N	SFD
Foxchase Commons	Foxchase Commons	30	99	0	0	0	99	Y	N	THA
Garrison at Stafford	Garrison at Stafford	31	453	0	0	0	453	Y	N	MFU
Grand Garden Estates	Grand Garden Estates	32	7	7	1	1	6	N	N	SFD
Graystone at Abel Lake	Graystone at Abel Lake	33	45	45	0	0	45	N	Y	SFD
Greenbank Forest	Greenbank Forest	34	22	0	0	0	22	N	N	SFD
Hamlets at Widewater	Hamlets at Widewater	35	194	0	0	0	194	N	N	SFD
Hampton Run	Hampton Run	36	40	40	19	0	40	Y	N	SFD
Hills at Big Springs	Hills at Big Springs	37	58	0	0	0	58	Y	Y	SFD
Holly Refuge	Holly Refuge	38	7	7	0	0	7	N	N	SFD
Joshua Landing	Joshua Landing	39	10	0	0	0	10	N	N	SFD
Leeland Station	Leeland Station	40	740	733	707	686	54	Y	N	SFD
Leighs Hill	Leighs Hill	41	16	0	0	0	16	N	N	SFD



Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
The Hills at Big Springs									
Single-Family Detached Housing	210	181 DU	33	95	128	110	64	174	1,742

G. Roadway Improvement Excerpts





PROJECT PIPELINE

FR05: STAFFORD COUNTY
ROUTE 1 (ROUTE 753/676 TO ROUTE 628) AND CENTREPORT PARKWAY (ROUTE 1 TO ROUTE 628)

DRPT Virginia Department of Rail and Public Transportation

Office of INTERMODAL Planning and Investment

VDOT Virginia Department of Transportation

FR05 | Centreport Parkway Phase II – Preferred Alternative

Route 1 at American Legion Road / Eskimo Hill Road

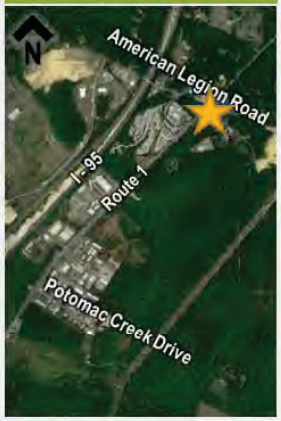
Project Description

- Install dedicated left-turn lanes on American Legion Road and Eskimo Hill Road at the intersection of Route 1. The existing approaches are single-lane approaches.
- This project aims to address the following VTRANS needs at this intersection:
  - Safety Improvement (Intersection)
  - Capacity Preservation
- Benefits
  - Provides additional side-street capacity and optimizes the signal timings, providing additional green time for Route 1 approaches.
  - Increases sight-distance for left-turning vehicles and reduces confusion of intended vehicle movements.

Conceptual Design Layout



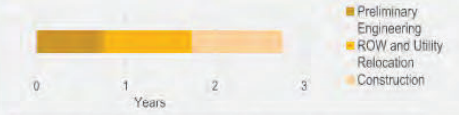
Project Location



Planning Level Cost Estimate

Phase	FY 2022 Estimate
Preliminary Engineering	$ 50,000 - $ 100,000
ROW and Utility Relocation	$ 200,000 - $ 300,000
Construction	$ 400,000 - $ 600,000
Total Cost	**$ 650,000 - $ 1.0 m**

Project Schedule



Note: Project schedules and cost estimates were developed based on information available at the time of study and should be reassessed prior to submitting funding applications.

MetroQuest Summary

- MetroQuest survey live from February 28 – March 14
- 171 survey responses; 47 comments
- Survey Respondents rated this alternative an average of **4.1 out of 5**

How do you normally travel in this area?



What other modes of travel would you prefer?

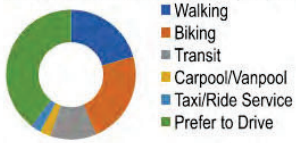


Figure 26: Centreport Preferred Alternative

SMART SCALE Application

1. Stafford - Route 1/Enon Road Intersection and Roadway IMP

Project Status: Scored

Organization: Stafford County
Project ID: 1180

General

Point of Contact Information

Project Point of Contact Name
Alex Owsiak

Point of Contact Phone
(540) 658-4593

Point of Contact Email
aowsiak@staffordcountyva.gov

Project Information

Short Project Description
The project will provide a two-way left turn lane, an additional left turn lane from northbound Jefferson Davis Hwy onto Enon Rd, dedicated turn lanes at the intersection of Stafford Indians Ln (SR-9399), and 5' sidewalks along both sides of Enon Rd.

Notice of Intent
Yes

Project Title
1. Stafford - Route 1/Enon Road Intersection and Roadway IMP

Principal Improvement
Highway

Does this project include any improvements to non-VDOT maintained roadways?
Yes

Detailed Project Description
Project will widen approximately 0.63 miles on Enon Road (SR-753) from 0.02 miles west of the intersection with Beauregard Drive (SR-747) to the intersection with Jefferson Davis Highway (US-1). Project will provide a continuous two-way left turn lane from the intersection with Beauregard Drive to Stafford Indians Lane (SR-9399). An additional left turn lane will be added to Jefferson Davis Highway and additional receiving and departure lanes will be added to Enon Road between Jefferson Davis Highway and Stafford Indians Lane. The intersection with Porter Lane (SR-640) will also be improved to provide sight distance to current standards. A 5' concrete sidewalk will also be provided on both sides of Enon Road. Roadway improvement will consist of horizontal and vertical curve re-alignment, transition from a shoulder & ditch typical section to one with curb & gutter and associated storm water system, and sight distance improvements. Retaining walls will be utilized in some areas to minimize right of way impacts.

SMART SCALE Need Categories
Corridor of Statewide Significance
Regional Network
Safety (non-CoSS)
Urban Development Area

Application Program
District Grant
Statewide High Priority

How does this project address VTrans 2040 need?
This project would address several needs identified in the VTRANs 2040 Draft Multimodal Needs Assessment. Pertaining to COSS segment K3, this project would support addressing needs E, N, R, X, AB and AD by improving the left turn storage capacity on Jefferson Davis Highway as well as widening Enon Road to provide additional refuge storage to help maintain a steady free flow of traffic preventing congestion and delays on US Route 1. These proposed improvements will enhance the performance of US Route 1 which is the only viable alternative to I-95 in Stafford County during periods of incidents and congestion on the Interstate. Pertaining to the Fredericksburg MPO Regional Networks Needs Assessment, this project would support addressing Need A by promoting U.S. Route 1 as a parallel alternative to I-95 to improve reliability along the corridor. This project would address internal and external Targeted Growth Areas (TGAs) needs of better intersection design, roadway capacity, and roadway operations to improve circulation and access to and from several TGAs in the county including Centreport and Courthouse TGAs. Pertaining to the Fredericksburg District Safety Needs Assessment, this project would address a segment of U.S. Route 1 by improving traffic flow and capacity on U.S. Route 1 as well as Enon Road particularly with a high school in the vicinity of this intersection. The features of this project should eliminate a current safety issue created by the concentrated arrival of students at Stafford High School in the morning, which frequently places queued traffic in the left NB thru lane of US Route 1 in a location with less-than-desirable vertical sight distance.

Location

PDCs Served	MPOs Served	Jurisdictions Served	Districts Served
George Washington Regional Commission	Fredericksburg Area Metropolitan Planning Organization	Stafford County	Fredericksburg

Features

Project Features

Highway

Improvement	Comments
Add New Through Lanes(s)	Project will provide additional through lanes between the intersections with Stafford Indians Lane and Jefferson Davis Highway.
Widen Existing Lane(s) (No New Lanes)	Project will widen the existing 10-11’ travel lanes to 12’.
Intersection Improvement(s)	Project will improve the intersection with Stafford Indians Lane by providing dedicated left turn and right turn lanes. The project will also re-align the intersection of Porter Lane to provide a 90-degree connection and better sight distance. The intersection of Enon Road and Jefferson Davis Highway will also be improved by adding an additiona left turn lane from northbound Jefferson Davis Highway onto Enon Road. An additional receiving lane will be added to Enon Road to accommodate the dual left turns. In addition, dedicated left, thru, and right turn lanes will be provided for traffic exiting Enon Road onto Jefferson Davis Highway.
Turn Lane Improvement(s)	Project will provide a continuous two-way left turn lane from the intersection with Beauregard Drive to Stafford Indian’s Lane. New, dedicated left and right turn lanes will be provided at the intersection of Stafford Indians Lane. Dedicated left and right turn lanes will be provided on Enon Road at the Jefferson Davis Highway intersection. A second left turn lane will be added to northbound Jefferson Davis Highway.
New Traffic Signal/Signal Optimization	Project will replace existing signals with new LED traffic signals at the Enon Road/Jefferson Davis Highway intersection with emergency pre-emption and will seek to coordinate timing with nearby signals to facilitate the movement of traffic.

Bike/Pedestrian

Improvement	Comments
Construct Sidewalk	Project will provide for an 5-foot wide concrete sidewalk on both sides of Enon Road (SR-753) to facilitate pedestrian movement to and from Stafford High School to nearby residences.

Bus Transit

Improvement	Comments

Rail Transit

Improvement	Comments

Freight Rail

Improvement	Comments

Travel Demand Management (TDM)

Improvement	Comments

Right of Way

Improvement	Comments
Right of Way/Easements acquisition required	Right of Way and Easements will need to be acquired to construct the project. Approximately 39 parcels will be impacted by the project, including one Total Take requiring a residential relocation. A variety of easements for drainage, utilities, entrances, sight distance, and construction will need to be acquired.

Factors

Accessibility

Accessibility	Response	Additional Notes
Project includes transit system improvements or reduces delay on a roadway with scheduled peak service of one transit vehicle per hour.	Yes	An improved signal and an additional turn lane will reduce the delay of regional FRED transit service.
Project includes improvements to an existing or proposed park and ride lot (e.g., new lot, more spaces, entrance/exit, technology (payment, traveler information)).	No	
Project includes construction or replacement of bike facilities. For bicycle projects, off-road or on-road buffered or clearly delineated facilities are required.	No	
Project includes construction or replacement of pedestrian facilities. For pedestrian projects, sidewalks, pedestrian signals, marked crosswalks, refuge islands, and other treatments are required (as appropriate).	Yes	Project will provide 5' wide concrete sidewalks with pedestrian signals and marked crosswalks at intersections.
Project includes improvements to existing or new HOV/HOT lanes or ramps to HOV/HOT.	No	
Project provides real-time traveler information or wayfinding specifically for intermodal connections (access to transit station or park and ride lot).	No	
Provides traveler information or is directly linked to an existing TMC network/ITS architecture.	No	

Land Use

Land Use	Response	Additional Notes
Is the project within 1/4 mile of parcels currently zoned for mixed use development or parcels identified in the future land use plan as mixed use development?	Yes	In the County's Comprehensive Plan, the Centreport TGA calls for the future development of mixed use.
Does the project support in-fill development adjacent to the project?	No	
Is there a locally/regionally adopted corridor/access management plan for the project area that addresses interparcel connectivity and exceeds VDOT’s minimum spacing standards?	No	

Environment

Environment	Response	Additional Notes
Project includes construction or replacement of bike facilities. For bicycle projects, off-road or on-road buffered or clearly delineated facilities are required (i.e. Bike Lane or Shared Use Path).	No	
Project includes construction or replacement of pedestrian facilities. For pedestrian projects, sidewalks, pedestrian signals, marked crosswalks, refuge islands, and other treatments are required (as appropriate).	Yes	Project will provide 5' wide concrete sidewalks with pedestrian signals and marked crosswalks at intersections.
Project includes improvements to rail transit or passenger rail facilities.	No	
Project includes improvements to an existing or proposed park-and-ride lot (e.g., new lot, more spaces, entrance/exit, technology (payment, traveler information)).	No	
Project includes bus facility improvements or reduces delay on a roadway with scheduled peak service of one transit vehicle per hour.*	Yes	An improved signal and an additional turn lane will reduce the delay of regional FRED transit service.
Project includes improvements to freight rail network or intermodal (truck to rail) facilities/ports/terminals.	No	
Project include special accommodations for hybrid or electric vehicles, or space or infrastructure for electric vehicle parking/charging).	No	
Project includes energy efficient infrastructure or fleets, including: hybrid or electric buses, electronic/open road tolling, alternative energy infrastructure (e.g., roadside solar panels).	Yes	Project will reconstruct an existing traffic signal, updating it to a LED signal.

Economic Development Factors

Transportation project (Consistency with Local Comprehensive Plan or Local Economic Development Strategy)

Transportation project (Consistency with Regional Economic Development Strategy)

Referenced in

Referenced in

Site Name	Development project (Consistent with locality Comprehensive Plan/Zoning)	Development project (Site planning status)
Potomac Creek Ind Park M&S Welding	Consistent with comp. plan future land use/zoning	Approved

Development project (Site Utilities status)	Development Project (Proposed / Projected Building Square Footage)	Driving Distance to Development Project From Transportation Project	Does Transportation Project Provide Direct or Indirect Access to the Development Site?
In place	7,500 sq ft	1 miles	Enhances Access Near the Site But is Not Adjacent to the Site

Delivery/Funding

Project Delivery Information

Project Planning Status

Transportation Element of Local Comprehensive Plan

Project Administered By

Locality

Existing Project VDOT UPC(s) or DRPT Project Number(s), if applicable

UPC/DRPT Project #	Description
	Reconstruction of approximately 0.63 miles of Enon Road from 0.02 miles west of the intersection with Beauregard Drive to the intersection with Jefferson Davis Highway.

Project Delivery Method

Design-bid-Build

Please indicate who will be/was responsible for the design of this project

Locality:

100%

Phase Estimate and Schedule

PE (Survey, Environmental, Design)

Phase Type	Status
PE (Survey, Environmental, Design)	Underway

Percent Complete	Cost Estimate	Start Date	End Date
10%	$1,200,000.00	7/1/2017	8/2/2022

RW (Right of Way and Easement Acquisition, Utility Relocation)

Phase Type	Status
RW (Right of Way and Easement Acquisition, Utility Relocation)	Not Started

Percent Complete	Cost Estimate	Start Date	End Date
NA%	$2,200,000.00	8/2/2022	8/2/2023

CN (Construction, Oversight, Contingencies)

Phase Type	Status
CN (Construction, Oversight, Contingencies)	Not Started

Percent Complete	Cost Estimate	Start Date	End Date
NA%	$6,700,000.00	8/2/2023	8/2/2024

Total Cost Estimate
$10,100,000.00

Project Funding Sources

SYIP Allocations	SMART SCALE Amount Requested	Other Committed Funding Amount	Total Proposed Project Funding
$401,468.00	$9,698,532.00	$0.00	$10,100,000.00

Scores

Project Located in Typology														
Category A	**Congestion Mitigation**		**Safety**		**Accessibility**			**Economic Development**			**Environment**		**Land Use**
Measure	Increase in Peak Period Person Throughput	Reduction in Peak Period Delay	Reduction in Fatal and Injury Crashes	Reduction in Fatal and Injury Crash Rate	Increase in Access to Jobs	Increase in Access to Jobs for Disadvantaged Populations	Increase in Access to Multimodal Travel Choices	Sq. Ft. of Commercial and Industrial Dev. Supported	Tons of Goods Impacted	Improvement to Travel Time Reliability	Potential to Improve Air Quality	Other Factor Values Scaled by Potential Acreage Impacted	Support of Transportation-Efficient Land Development
Measure Value	9.1 persons	66.3 person hrs.	2.7 EPDO	95.9 EPDO/ 100M VMT	19.8 jobs per resident	20.2 jobs per resident	45.4 adjusted users	16,875.0 thousand adj. sq. ft.	11,744.7 thousand adj. daily tons	3,128,530.0 adj. buffer time index	31.8 adjusted points	1.2 scaled points	3,825.2 adjusted jobs & pop.
Normalized Measure Value (0-100)	0.1	2.0	0.8	0.5	0.8	0.8	0.3	0.1	0.7	0.2	0.2	2.4	3.4
Measure Weight (% of Factor)	50%	50%	50%	50%	60%	20%	20%	60%	20%	20%	50%	50%	100%
Factor Value	1.1		0.7		0.7			0.2			1.3		3.4
Factor Weight (% of Project Score)	45%		5%		15%			5%			10%		20%
Weighted Factor Value	0.5		0.0		0.1			0.0			0.1		0.7
Project Benefit	1.4												
SMART SCALE Cost	$9,698,532												
SMART SCALE Score (Project Benefit per $10m SMART SCALE Cost)	1.5												

Supporting Documents

Current Attachments

Description
FAMPO Resolution 17-04

Attachment Type
Resolution of Support

File Name
FAMPO Resolution 17-04 Authorizing support for GWRC and FAMPO Smart Scale Candidate Projects.pdf

Description
Conceptual Layout - Overall

Attachment Type
Project Sketch

File Name
ENON ROAD Overall.PDF

Description
Conceptual Layout - Enon Road

Attachment Type
Project Sketch

File Name
ENON ROAD SHEET 1.pdf

Description
Conceptual Layout - Route 1 / Enon Road

Attachment Type
Project Sketch

File Name
ENON ROAD SHEET 2.pdf

Description
Board of Supervisors Support

Attachment Type
Resolution of Support

File Name
Stafford County Resolution R16-217(R2).pdf

Description
FRED Transit - D5 Line Schedule

Attachment Type
Other

File Name
FRED D5 Route.pdf

Description
Comp Plan Transportation Element

Attachment Type
Local Comprehensive Plan

File Name
Stafford County Comp Plan - Chapter 4 - Transportation Element.pdf

Description
Comp Plan Future Land Use

Attachment Type
Local Comprehensive Plan

File Name
Stafford County Comp Plan - Future Land Use Map.pdf

Description
Project Cost Summary

Attachment Type
Other Committed Funds

File Name
Enon Road - Project Expenditures.pdf

Description
Approval Letter

Attachment Type
Site Development Plan

File Name
Potomac Creek Ind Park M & S Welding.pdf

Description
Turning Movement Counts (1)

Attachment Type
Other

File Name
Route 1-Enon753 raw data2011-2012.pdf

Description
Turning Movement Counts (2)

Attachment Type
Other

File Name
Route 1-Enon753 2011AM 2012PM volumes.pdf

Description
REDS reference

Attachment Type
Local/Regional Economic Development Strategy

File Name
GWRC-FAMPO_Enon Rd.pdf

Description
Detailed Cost Estimate

Attachment Type
Detailed Cost Estimate

File Name
1180 Detail Estimate.pdf

Description
Detailed Project Sketches

Attachment Type
Project Sketch

File Name
ENON ROAD DISPLAYS- VDOT PROJECT 0753-089-R90.pdf

Virginia Department of Rail and Public Transportation
600 East Main Street, Suite 2102
Richmond, VA 23219
(804) 786-4440

VDOT Central Office
1401 East Broad Street
Richmond, VA 23219
(804) 367-7623 (toll-free)
711 (hearing impaired)

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FREDERICKSBURG TODAY

Five regional transportation projects recommended for funding by the Commonwealth Transportation Board/SMART SCALE

Published on: January 28, 2023 | Traffic

From the Fredericksburg Area Metropolitan Planning Organization:

During the January 12th, 2023 Commonwealth Transportation Board (CTB) meeting, the board reviewed and recommended funding for the Round 5 projects of SMART SCALE. SMART SCALE is Virginia's main competitive grant funding program. Using algorithms, it evaluates and scores potential transportation projects based on their improvement to safety, congestion, accessibility, land use, economic development, and the environment according to statewide need.

Through the Office of Intermodal Planning and Investment (OIPI), it allows state officials to recommend funding based on scores and available funds. The funding recommendations are then presented to the public and the CTB at the same time which signifies the start of the budget season. Virginia districts submitted the largest number of SMART SCALE applications in the current Round 5 of any SMART SCALE round to date. Last week, the CTB learned the amount of money available for transportation programming, which is just under $1.7B statewide. This is the most money ever to support SMART Scale and was above the projected amount.

The submitted projects were competing against each other within the Fredericksburg District for $142 million district-wide funding, as well as other projects in the state with high priority program funding totaling $52 million. Five of the projects that the board recommended to fund belong to the

Fredericksburg Area Metropolitan Planning Organization (FAMPO) and the George Washington Regional Commission (GWRC). The following FAMPO and GWRC projects were recommended for funding:

1. Roadway and Pedestrian Improvements — US 1 Layhill Road in Stafford County

2. Turn Lanes — American Legion Rd/Eskimo Hill Rd to US 1 in Stafford County

3. Road Widening to 4 lanes & Multimodal Improvements – Dixon St (US 17 Bus) near Dixon Park Roadway in Fredericksburg

4. Bicycle and Pedestrian Facilities — US 1 from Harrison Rd to Kings Mill Dr in Fredericksburg City and Spotsylvania County

5. Multimodal Improvements – Virginia Central Railway trail (VCR) Regional Project in Fredericksburg City and Spotsylvania County connecting the path from the i-95 to the new Chatham Bridge.

In addition to this, the City of Fredericksburg and Counties of Spotsylvania and Stafford received funding for a further approximately $100 million of new transportation projects in this round. "I am very pleased with the number of projects and amount of money projected to come to the district," CTB district representative Laura Sellers said.

Ian Ollis, FAMPO Administrator notes: "This is the largest number of projects from the FAMPO/GWRC region that have been recommended for funding in 5 rounds of the Smart Scale competition. We are excited to see improved future mobility for those driving cars, biking through the region or on foot."
George Washington Regional Commission Executive Director, Chip Boyles, relayed that "the GWRC is glad to be working so closely with FAMPO. The collaboration has produced such winning results in very needed transportation projects benefitting the entire Planning District 16 region (City of Fredericksburg and Counties of Caroline, King George, Spotsylvania and Stafford)."

CTB Representative Sellers is already looking to the future. She added, "I would like to see all our localities competitively participating in this program, which is something I will work on before the next round. Over the next few weeks and months, I will be meeting with localities to understand their needs. What worked? What doesn't? And how we can make things better."

For further information, please email FAMPO at fampo@gwregion.org.

Recent News Read More News

H. 2030 Future Conditions without Development – Capacity Analysis Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	266	435	77	268	560	714	127	14	286	83
v/c Ratio	0.45	0.60	0.51	0.54	0.64	0.67	0.35	0.11	0.13	0.34	0.13
Control Delay	57.5	55.2	8.5	66.4	55.3	42.7	15.5	1.9	56.0	36.7	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	55.2	8.5	66.4	55.3	42.7	15.5	1.9	56.0	36.7	3.6
Queue Length 50th (ft)	47	104	53	58	101	203	124	0	11	91	0
Queue Length 95th (ft)	77	142	148	108	142	#324	249	25	32	130	24
Internal Link Dist (ft)		2747			953		8667			1803	
Turn Bay Length (ft)	500			300		400		700	550		500
Base Capacity (vph)	396	823	846	166	713	840	2019	1173	267	940	683
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.32	0.51	0.46	0.38	0.67	0.35	0.11	0.05	0.30	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	245	400	71	220	27	515	657	117	13	263	76
Future Volume (vph)	114	245	400	71	220	27	515	657	117	13	263	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3505	1404	1752	3411		2694	3438	1568	1805	3282	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3505	1404	1752	3411		2694	3438	1568	1805	3282	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	266	435	77	239	29	560	714	127	14	286	83
RTOR Reduction (vph)	0	0	179	0	9	0	0	0	47	0	0	55
Lane Group Flow (vph)	124	266	256	77	259	0	560	714	80	14	286	28
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	9.7	15.1	52.6	9.9	14.5		37.5	66.1	76.0	3.0	30.7	40.4
Effective Green, g (s)	9.7	15.1	52.6	9.9	14.5		37.5	66.1	76.0	3.0	30.7	40.4
Actuated g/C Ratio	0.08	0.13	0.44	0.08	0.12		0.31	0.55	0.63	0.02	0.26	0.34
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	274	441	615	144	412		841	1893	993	45	839	503
v/s Ratio Prot	0.04	0.08	0.13	c0.04	c0.08		c0.21	c0.21	0.01	0.01	0.09	0.00
v/s Ratio Perm			0.05						0.04			0.01
v/c Ratio	0.45	0.60	0.42	0.53	0.63		0.67	0.38	0.08	0.31	0.34	0.06
Uniform Delay, d1	52.6	49.6	23.1	52.8	50.2		35.8	15.3	8.5	57.5	36.4	26.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	2.3	0.5	3.8	3.0		2.0	0.6	0.0	3.9	1.1	0.0
Delay (s)	53.8	51.9	23.6	56.6	53.2		37.8	15.9	8.5	61.4	37.5	27.0
Level of Service	D	D	C	E	D		D	B	A	E	D	C
Approach Delay (s)		37.3			54.0			24.0			36.1	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



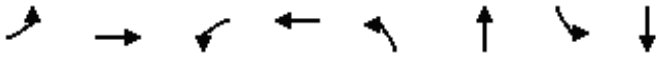
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	245	400	71	220	27	515	657	117	13	263	76
Future Volume (veh/h)	114	245	400	71	220	27	515	657	117	13	263	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1678	1856	1841	1826	1455	1826	1856	1900	1752	1781
Adj Flow Rate, veh/h	124	266	435	77	239	29	560	714	127	14	286	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	15	3	4	5	30	5	3	0	10	8
Cap, veh/h	200	828	562	106	734	88	430	1601	820	39	1060	569
Arrive On Green	0.06	0.24	0.24	0.06	0.23	0.23	0.16	0.46	0.46	0.02	0.32	0.32
Sat Flow, veh/h	3428	3526	1422	1767	3144	377	2689	3469	1572	1810	3328	1510
Grp Volume(v), veh/h	124	266	435	77	132	136	560	714	127	14	286	83
Grp Sat Flow(s),veh/h/ln	1714	1763	1422	1767	1749	1773	1345	1735	1572	1810	1664	1510
Q Serve(g_s), s	4.2	7.5	28.2	5.1	7.5	7.7	19.2	16.7	5.0	0.9	7.7	4.4
Cycle Q Clear(g_c), s	4.2	7.5	28.2	5.1	7.5	7.7	19.2	16.7	5.0	0.9	7.7	4.4
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	828	562	106	408	414	430	1601	820	39	1060	569
V/C Ratio(X)	0.62	0.32	0.77	0.73	0.32	0.33	1.30	0.45	0.15	0.36	0.27	0.15
Avail Cap(c_a), veh/h	400	828	562	168	408	414	430	1601	820	268	1060	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.60	0.60	0.60	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	38.0	31.6	55.4	38.1	38.2	50.4	21.9	14.9	57.9	30.5	24.7
Incr Delay (d2), s/veh	3.1	0.2	6.7	9.1	0.5	0.5	145.8	0.5	0.2	5.4	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.2	11.6	2.5	3.2	3.4	15.1	6.8	1.8	0.5	3.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	38.2	38.3	64.5	38.6	38.7	196.2	22.4	15.2	63.2	31.1	25.2
LnGrp LOS	E	D	D	E	D	D	F	C	B	E	C	C
Approach Vol, veh/h		825			345			1401			383	
Approach Delay, s/veh		41.3			44.4			91.2			31.0	
Approach LOS		D			D			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	61.0	15.0	34.2	27.0	43.8	14.8	34.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	17.8	* 37	* 14	* 25	19.2	* 34	11.4	* 28
Max Q Clear Time (g_c+I1), s	2.9	18.7	6.2	9.7	21.2	9.7	7.1	30.2
Green Ext Time (p_c), s	0.0	14.4	0.2	0.8	0.0	8.9	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	64.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	128	130	333	99	1097	100	701
v/c Ratio	0.37	0.39	0.35	0.75	0.27	0.77	0.42	0.50
Control Delay	32.8	21.7	30.9	36.3	14.6	32.0	18.1	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	21.7	30.9	36.3	14.6	32.0	18.1	24.5
Queue Length 50th (ft)	41	30	65	133	30	340	30	180
Queue Length 95th (ft)	93	94	134	275	70	511	71	286
Internal Link Dist (ft)		2966		420		3738		8667
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	236	562	384	630	391	2025	263	1972
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.23	0.34	0.53	0.25	0.54	0.38	0.36

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	35	83	120	61	246	91	965	44	92	569	73
Future Volume (vph)	78	35	83	120	61	246	91	965	44	92	569	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.88		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1623		1703	1620		1736	3443		1719	3292	
Flt Permitted	0.30	1.00		0.57	1.00		0.31	1.00		0.12	1.00	
Satd. Flow (perm)	528	1623		1027	1620		571	3443		224	3292	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.88
Adj. Flow (vph)	85	38	90	130	66	267	99	1049	48	100	618	83
RTOR Reduction (vph)	0	65	0	0	109	0	0	2	0	0	7	0
Lane Group Flow (vph)	85	63	0	130	224	0	99	1095	0	100	694	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	25.5	19.1		32.3	22.5		53.4	45.1		55.2	46.0	
Effective Green, g (s)	25.5	19.1		32.3	22.5		53.4	45.1		55.2	46.0	
Actuated g/C Ratio	0.23	0.18		0.30	0.21		0.49	0.41		0.51	0.42	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	190	285		366	335		369	1428		240	1393	
v/s Ratio Prot	0.03	0.04		c0.03	c0.14		0.02	c0.32		c0.04	0.21	
v/s Ratio Perm	0.08			0.07			0.11			0.18		
v/c Ratio	0.45	0.22		0.36	0.67		0.27	0.77		0.42	0.50	
Uniform Delay, d1	34.0	38.4		29.1	39.7		15.3	27.3		17.4	22.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.4		0.6	5.0		0.4	3.0		1.2	0.6	
Delay (s)	35.6	38.8		29.7	44.6		15.7	30.3		18.6	23.5	
Level of Service	D	D		C	D		B	C		B	C	
Approach Delay (s)		37.5			40.4			29.1			22.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



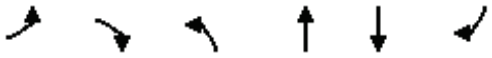
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	35	83	120	61	246	91	965	44	92	569	73
Future Volume (veh/h)	78	35	83	120	61	246	91	965	44	92	569	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	85	38	90	130	66	267	99	1049	48	100	618	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.88
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	191	98	232	366	74	299	358	1443	66	240	1284	172
Arrive On Green	0.05	0.20	0.20	0.08	0.22	0.22	0.05	0.42	0.42	0.05	0.42	0.42
Sat Flow, veh/h	1682	485	1149	1725	329	1331	1753	3406	156	1739	3024	405
Grp Volume(v), veh/h	85	0	128	130	0	333	99	539	558	100	348	353
Grp Sat Flow(s),veh/h/ln	1682	0	1634	1725	0	1660	1753	1749	1813	1739	1706	1723
Q Serve(g_s), s	4.1	0.0	7.0	6.0	0.0	20.0	3.2	26.4	26.4	3.3	15.2	15.2
Cycle Q Clear(g_c), s	4.1	0.0	7.0	6.0	0.0	20.0	3.2	26.4	26.4	3.3	15.2	15.2
Prop In Lane	1.00		0.70	1.00		0.80	1.00		0.09	1.00		0.24
Lane Grp Cap(c), veh/h	191	0	329	366	0	373	358	741	768	240	725	732
V/C Ratio(X)	0.45	0.00	0.39	0.35	0.00	0.89	0.28	0.73	0.73	0.42	0.48	0.48
Avail Cap(c_a), veh/h	239	0	518	410	0	559	430	1041	1079	327	1033	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	35.5	29.2	0.0	38.7	16.4	24.7	24.7	19.4	21.4	21.4
Incr Delay (d2), s/veh	1.6	0.0	0.7	0.6	0.0	11.9	0.4	3.0	2.9	1.2	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.8	2.6	0.0	9.4	1.2	10.3	10.7	1.3	5.7	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	36.3	29.8	0.0	50.5	16.9	27.7	27.6	20.5	22.4	22.4
LnGrp LOS	C	A	D	C	A	D	B	C	C	C	C	C
Approach Vol, veh/h		213			463			1196			801	
Approach Delay, s/veh		35.1			44.7			26.7			22.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	50.4	12.4	28.1	11.9	50.4	10.1	30.5
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 62	10.5	32.6	* 10	* 61	8.5	34.6
Max Q Clear Time (g_c+I1), s	5.2	17.2	8.0	9.0	5.3	28.4	6.1	22.0
Green Ext Time (p_c), s	0.1	9.6	0.1	0.4	0.1	15.2	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	20	29	1082	744	29
Future Volume (Veh/h)	18	20	29	1082	744	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	19	22	31	1163	800	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1444	400	831			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1444	400	831			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	96	96			
cM capacity (veh/h)	118	600	797			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	41	31	582	582	400	400	31
Volume Left	19	31	0	0	0	0	0
Volume Right	22	0	0	0	0	0	31
cSH	208	797	1700	1700	1700	1700	1700
Volume to Capacity	0.20	0.04	0.34	0.34	0.24	0.24	0.02
Queue Length 95th (ft)	18	3	0	0	0	0	0
Control Delay (s)	26.6	9.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	A					
Approach Delay (s)	26.6	0.3			0.0		
Approach LOS	D						

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

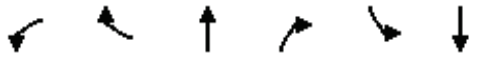
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	20	29	1082	744	29
Future Vol, veh/h	18	20	29	1082	744	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	415	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	22	31	1163	800	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1444	400	831	0	-	0
Stage 1	800	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	123	600	797	-	-	-
Stage 1	403	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	118	600	797	-	-	-
Mov Cap-2 Maneuver	118	-	-	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	485	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	797	-	204	-	-
HCM Lane V/C Ratio	0.039	-	0.2	-	-
HCM Control Delay (s)	9.7	-	27	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	391	317	1008	1045	134	639
v/c Ratio	1.08	0.66	0.36	0.75	0.42	0.19
Control Delay	125.3	30.6	26.1	17.6	13.6	9.5
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	125.3	30.6	26.1	18.0	13.6	9.5
Queue Length 50th (ft)	~439	127	289	574	45	82
Queue Length 95th (ft)	#653	241	374	885	71	100
Internal Link Dist (ft)	1062		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	363	478	2767	1386	317	3308
Starvation Cap Reductn	0	0	0	76	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.66	0.36	0.80	0.42	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	292	927	961	123	588
Future Volume (vph)	360	292	927	961	123	588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	1612	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.25	1.00
Satd. Flow (perm)	1719	1583	4940	1568	422	4893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	317	1008	1045	134	639
RTOR Reduction (vph)	0	143	0	104	0	0
Lane Group Flow (vph)	391	174	1008	941	134	639
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	32.8	32.8	86.8	119.6	94.6	104.8
Effective Green, g (s)	32.8	32.8	86.8	119.6	94.6	104.8
Actuated g/C Ratio	0.21	0.21	0.56	0.77	0.61	0.68
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	363	334	2766	1209	317	3308
v/s Ratio Prot	c0.23		0.20	c0.16	c0.02	0.13
v/s Ratio Perm		0.11		0.44	0.24	
v/c Ratio	1.08	0.52	0.36	0.78	0.42	0.19
Uniform Delay, d1	61.1	54.1	18.9	10.1	13.1	9.4
Progression Factor	1.00	1.00	1.36	5.03	1.00	1.00
Incremental Delay, d2	69.4	3.6	0.3	3.6	0.9	0.1
Delay (s)	130.5	57.7	26.0	54.5	14.0	9.5
Level of Service	F	E	C	D	B	A
Approach Delay (s)	97.9		40.5			10.3
Approach LOS	F		D			B

Intersection Summary			
HCM 2000 Control Delay	45.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	360	292	927	961	123	588
Future Volume (veh/h)	360	292	927	961	123	588
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	391	317	1008	1045	134	639
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	368	335	2805	1218	227	3343
Arrive On Green	0.21	0.21	0.94	0.94	0.05	0.68
Sat Flow, veh/h	1739	1585	5149	1572	1640	5107
Grp Volume(v), veh/h	391	317	1008	1045	134	639
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1640	1648
Q Serve(g_s), s	32.8	30.5	2.8	87.2	5.4	7.5
Cycle Q Clear(g_c), s	32.8	30.5	2.8	87.2	5.4	7.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	368	335	2805	1218	227	3343
V/C Ratio(X)	1.06	0.95	0.36	0.86	0.59	0.19
Avail Cap(c_a), veh/h	368	335	2805	1218	231	3343
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	61.1	60.2	2.1	8.2	12.9	9.3
Incr Delay (d2), s/veh	64.4	36.4	0.3	6.8	3.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	15.3	0.8	3.2	2.2	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	125.5	96.7	2.4	15.0	16.7	9.5
LnGrp LOS	F	F	A	B	B	A
Approach Vol, veh/h	708		2053			773
Approach Delay, s/veh	112.6		8.8			10.7
Approach LOS	F		A			B

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		115.0			17.6	97.4	40.0
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		104.8			7.8	86.8	32.8
Max Q Clear Time (g_c+I1), s		9.5			7.4	89.2	34.8
Green Ext Time (p_c), s		7.1			0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	138	399	373	711
v/c Ratio	0.40	0.46	0.82	1.05
Control Delay	17.5	18.5	49.4	75.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.5	18.5	49.4	75.9
Queue Length 50th (ft)	46	156	211	~427
Queue Length 95th (ft)	79	226	338	#801
Internal Link Dist (ft)		2439	275	2063
Turn Bay Length (ft)	275			
Base Capacity (vph)	502	1498	838	678
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.27	0.45	1.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	379	0	0	354	0	403	0	273	0	0	0
Future Volume (vph)	131	379	0	0	354	0	403	0	273	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1759			1659				
Flt Permitted	0.23	1.00			1.00			0.97				
Satd. Flow (perm)	386	1827			1759			1659				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	138	399	0	0	373	0	424	0	287	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	63	0	0	0	0
Lane Group Flow (vph)	138	399	0	0	373	0	0	648	0	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	44.9	44.9			24.7			35.4				
Effective Green, g (s)	44.9	44.9			24.7			35.4				
Actuated g/C Ratio	0.47	0.47			0.26			0.37				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	344	860			455			616				
v/s Ratio Prot	0.05	c0.22			c0.21							
v/s Ratio Perm	0.14							0.39				
v/c Ratio	0.40	0.46			0.82			1.05				
Uniform Delay, d1	16.7	17.1			33.2			29.9				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.8	0.4			11.0			50.4				
Delay (s)	17.5	17.5			44.2			80.4				
Level of Service	B	B			D			F				
Approach Delay (s)		17.5			44.2			80.4			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	51.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	95.3	Sum of lost time (s)	22.4
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	379	0	0	354	0	403	0	273	0	0	0
Future Volume (veh/h)	131	379	0	0	354	0	403	0	273	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	138	399	0	0	373	0	424	0	287			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	265	769	0	0	441	0	419	0	284			
Arrive On Green	0.08	0.42	0.00	0.00	0.25	0.00	0.41	0.00	0.41			
Sat Flow, veh/h	1626	1841	0	0	1781	0	1028	0	696			
Grp Volume(v), veh/h	138	399	0	0	373	0	711	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1723	0	0			
Q Serve(g_s), s	5.1	13.8	0.0	0.0	17.1	0.0	35.0	0.0	0.0			
Cycle Q Clear(g_c), s	5.1	13.8	0.0	0.0	17.1	0.0	35.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.60		0.40			
Lane Grp Cap(c), veh/h	265	769	0	0	441	0	702	0	0			
V/C Ratio(X)	0.52	0.52	0.00	0.00	0.85	0.00	1.01	0.00	0.00			
Avail Cap(c_a), veh/h	602	1659	0	0	934	0	702	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	22.0	18.6	0.0	0.0	30.7	0.0	25.4	0.0	0.0			
Incr Delay (d2), s/veh	1.6	0.5	0.0	0.0	4.5	0.0	37.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.9	5.4	0.0	0.0	7.3	0.0	20.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	19.1	0.0	0.0	35.3	0.0	62.4	0.0	0.0			
LnGrp LOS	C	B	A	A	D	A	F	A	A			
Approach Vol, veh/h		537			373			711				
Approach Delay, s/veh		20.3			35.3			62.4				
Approach LOS		C			D			E				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		43.3		42.6	14.6	28.7						
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4						
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45						
Max Q Clear Time (g_c+I1), s		15.8		37.0	7.1	19.1						
Green Ext Time (p_c), s		2.5		0.0	0.3	2.1						

Intersection Summary												
HCM 6th Ctrl Delay			42.2									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	296	388	154	668	262
v/c Ratio	0.61	0.56	0.32	0.67	0.60
Control Delay	30.4	6.1	11.0	16.6	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	6.1	11.0	16.6	33.3
Queue Length 50th (ft)	116	0	32	198	105
Queue Length 95th (ft)	240	66	77	399	226
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	933	975	593	1590	1221
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.40	0.26	0.42	0.21

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	272	357	142	615	0	0	0	0	240	1	0
Future Volume (vph)	0	272	357	142	615	0	0	0	0	240	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1774	
Flt Permitted		1.00	1.00	0.38	1.00						0.95	
Satd. Flow (perm)		1696	1455	612	1810						1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	388	154	668	0	0	0	0	261	1	0
RTOR Reduction (vph)	0	0	274	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	114	154	668	0	0	0	0	0	262	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		22.1	22.1	41.8	41.8						18.7	
Effective Green, g (s)		22.1	22.1	41.8	41.8						18.7	
Actuated g/C Ratio		0.29	0.29	0.56	0.56						0.25	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		497	427	485	1004						440	
v/s Ratio Prot		0.17		0.05	c0.37							
v/s Ratio Perm			0.08	0.13							0.15	
v/c Ratio		0.60	0.27	0.32	0.67						0.60	
Uniform Delay, d1		22.8	20.4	9.1	11.8						25.0	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		2.2	0.5	0.4	1.8						2.5	
Delay (s)		25.0	20.8	9.5	13.7						27.5	
Level of Service		C	C	A	B						C	
Approach Delay (s)		22.7			12.9			0.0			27.5	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.3	Sum of lost time (s)	22.7
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	357	142	615	0	0	0	0	240	1	0
Future Volume (veh/h)	0	272	357	142	615	0	0	0	0	240	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	296	388	154	668	0				261	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	594	508	399	1031	0				347	1	0
Arrive On Green	0.00	0.35	0.35	0.09	0.56	0.00				0.19	0.19	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1803	7	0
Grp Volume(v), veh/h	0	296	388	154	668	0				262	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	8.3	14.3	3.5	15.3	0.0				8.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.3	14.3	3.5	15.3	0.0				8.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h	0	594	508	399	1031	0				348	0	0
V/C Ratio(X)	0.00	0.50	0.76	0.39	0.65	0.00				0.75	0.00	0.00
Avail Cap(c_a), veh/h	0	1132	968	774	2037	0				1487	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	15.8	17.7	10.7	9.1	0.0				23.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	3.4	0.6	1.0	0.0				4.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	4.4	1.0	4.3	0.0				3.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.7	21.1	11.3	10.1	0.0				27.9	0.0	0.0
LnGrp LOS	A	B	C	B	B	A				C	A	A
Approach Vol, veh/h		684			822						262	
Approach Delay, s/veh		19.2			10.3						27.9	
Approach LOS		B			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		42.3		18.6	13.4	28.9						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		17.3		10.3	5.5	16.3						
Green Ext Time (p_c), s		7.7		1.5	0.4	4.7						

Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	68	73	7	58	1	306	2	8	1	1	63
Future Volume (Veh/h)	31	68	73	7	58	1	306	2	8	1	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	74	79	8	63	1	333	2	9	1	1	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.99			0.99	0.99	0.99	0.99	0.99	
vC, conflicting volume	64			153			330	262	114	271	300	64
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			140			318	249	100	259	289	64
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			40	100	99	100	100	92
cM capacity (veh/h)	1431			1184			560	631	907	667	600	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	187	72	344	70
Volume Left	34	8	333	1
Volume Right	79	1	9	68
cSH	1431	1184	566	851
Volume to Capacity	0.02	0.01	0.61	0.08
Queue Length 95th (ft)	2	1	102	7
Control Delay (s)	1.5	0.9	20.7	9.6
Lane LOS	A	A	C	A
Approach Delay (s)	1.5	0.9	20.7	9.6
Approach LOS			C	A

Intersection Summary				
Average Delay	12.1			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			

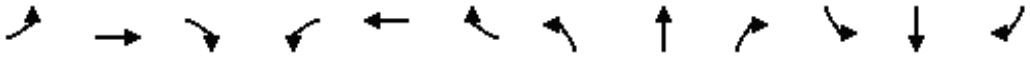
Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	68	73	7	58	1	306	2	8	1	1	63
Future Vol, veh/h	31	68	73	7	58	1	306	2	8	1	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	34	74	79	8	63	1	333	2	9	1	1	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	153	0	0	296	262	114	267	301	64
Stage 1	-	-	-	-	-	-	182	182	-	80	80	-
Stage 2	-	-	-	-	-	-	114	80	-	187	221	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1431	-	-	1181	-	-	650	646	900	690	615	859
Stage 1	-	-	-	-	-	-	813	753	-	934	832	-
Stage 2	-	-	-	-	-	-	884	832	-	819	724	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1181	-	-	582	625	900	664	595	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	582	625	-	664	595	-
Stage 1	-	-	-	-	-	-	792	733	-	910	826	-
Stage 2	-	-	-	-	-	-	807	826	-	788	705	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.9	19.4	9.6
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	588	1431	-	-	1181	-	-	849
HCM Lane V/C Ratio	0.584	0.024	-	-	0.006	-	-	0.083
HCM Control Delay (s)	19.4	7.6	0	-	8.1	0	-	9.6
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	3.8	0.1	-	-	0	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	11	1	307	1	10	21	70	9	2
Future Volume (Veh/h)	1	1	1	11	1	307	1	10	21	70	9	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.85
Hourly flow rate (vph)	1	1	1	12	1	334	1	11	23	76	10	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	522	199	11	189	188	22	12			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	522	199	11	189	188	22	12			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.4		
p0 queue free %	100	100	100	98	100	68	100			95		
cM capacity (veh/h)	306	664	1076	743	673	1046	1620			1474		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	347	35	88
Volume Left	1	12	1	76
Volume Right	1	334	23	2
cSH	526	1030	1620	1474
Volume to Capacity	0.01	0.34	0.00	0.05
Queue Length 95th (ft)	0	37	0	4
Control Delay (s)	11.9	10.3	0.2	6.6
Lane LOS	B	B	A	A
Approach Delay (s)	11.9	10.3	0.2	6.6
Approach LOS	B	B		

Intersection Summary				
Average Delay	8.8			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	8.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	11	1	307	1	10	21	70	9	2
Future Vol, veh/h	1	1	1	11	1	307	1	10	21	70	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	85
Heavy Vehicles, %	0	0	0	0	0	5	0	25	17	19	0	0
Mvmt Flow	1	1	1	12	1	334	1	11	23	76	10	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	355	199	11	189	189	23	12	0	0	34	0	0
Stage 1	163	163	-	25	25	-	-	-	-	-	-	-
Stage 2	192	36	-	164	164	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.25	4.1	-	-	4.29	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.345	2.2	-	-	2.371	-	-
Pot Cap-1 Maneuver	604	700	1076	776	709	1045	1620	-	-	1474	-	-
Stage 1	844	767	-	998	878	-	-	-	-	-	-	-
Stage 2	814	869	-	843	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	394	663	1076	743	671	1045	1620	-	-	1474	-	-
Mov Cap-2 Maneuver	394	663	-	743	671	-	-	-	-	-	-	-
Stage 1	843	727	-	997	877	-	-	-	-	-	-	-
Stage 2	553	868	-	797	726	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	10.3	0.2	6.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	603	1029	1474	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.337	0.052	-	-
HCM Control Delay (s)	7.2	0	-	11	10.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.5	0.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	134	364	891	155	274	493	443	82	32	1440	74
v/c Ratio	0.61	1.26	2.61	1.24	0.91	2.12	0.19	0.07	0.36	0.65	0.06
Control Delay	92.2	200.2	753.5	219.8	110.3	553.5	12.0	1.3	90.9	22.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.2	200.2	753.5	219.8	110.3	553.5	12.0	1.3	90.9	22.5	1.7
Queue Length 50th (ft)	78	~273	~1660	~219	165	~461	102	0	36	529	2
Queue Length 95th (ft)	118	#387	#1929	#381	#268	#584	135	16	76	601	17
Internal Link Dist (ft)		2747			953		8667			1803	
Turn Bay Length (ft)	500			300		400		700	550		500
Base Capacity (vph)	235	290	342	125	300	232	2377	1220	126	2212	1167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	1.26	2.61	1.24	0.91	2.13	0.19	0.07	0.25	0.65	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	349	855	149	236	27	473	425	79	31	1382	71
Future Volume (vph)	129	349	855	149	236	27	473	425	79	31	1382	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3574	1568	1770	3523		3335	3574	1568	1736	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3574	1568	1770	3523		3335	3574	1568	1736	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	364	891	155	246	28	493	443	82	32	1440	74
RTOR Reduction (vph)	0	0	56	0	5	0	0	0	22	0	0	21
Lane Group Flow (vph)	134	364	835	155	269	0	493	443	60	32	1440	53
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	11.1	14.2	26.4	12.4	14.7		12.2	115.0	127.4	7.5	109.4	120.5
Effective Green, g (s)	11.1	14.2	26.4	12.4	14.7		12.2	115.0	127.4	7.5	109.4	120.5
Actuated g/C Ratio	0.06	0.08	0.15	0.07	0.08		0.07	0.66	0.73	0.04	0.63	0.69
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	217	290	236	125	295		232	2348	1141	74	2212	1090
v/s Ratio Prot	0.04	0.10	c0.25	c0.09	0.08		0.15	c0.12	0.00	0.02	c0.41	0.00
v/s Ratio Perm			0.29						0.03			0.03
v/c Ratio	0.62	1.26	3.54	1.24	0.91		2.12	0.19	0.05	0.43	0.65	0.05
Uniform Delay, d1	79.9	80.4	74.3	81.3	79.5		81.4	11.7	6.7	81.7	20.7	8.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	139.9	1152.6	158.6	30.8		520.5	0.2	0.0	4.0	1.5	0.0
Delay (s)	85.0	220.3	1226.9	239.9	110.3		601.9	11.9	6.7	85.7	22.2	8.8
Level of Service	F	F	F	F	F		F	B	A	F	C	A
Approach Delay (s)		853.0			157.1			297.2			22.9	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	362.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	115.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



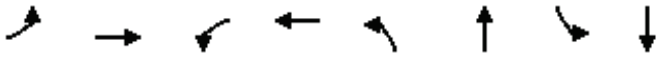
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	349	855	149	236	27	473	425	79	31	1382	71
Future Volume (veh/h)	129	349	855	149	236	27	473	425	79	31	1382	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1870	1885	1900	1826	1885	1856	1841	1870	1870
Adj Flow Rate, veh/h	134	364	891	155	246	28	493	443	82	32	1440	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	174	291	237	126	322	36	235	2380	1156	55	2213	1067
Arrive On Green	0.05	0.08	0.08	0.07	0.10	0.10	0.07	0.66	0.66	0.03	0.62	0.62
Sat Flow, veh/h	3456	3582	1572	1781	3245	366	3374	3582	1572	1753	3554	1585
Grp Volume(v), veh/h	134	364	891	155	135	139	493	443	82	32	1440	74
Grp Sat Flow(s),veh/h/ln	1728	1791	1572	1781	1791	1819	1687	1791	1572	1753	1777	1585
Q Serve(g_s), s	6.7	14.2	14.2	12.4	12.8	13.1	12.2	8.3	2.5	3.2	45.0	2.8
Cycle Q Clear(g_c), s	6.7	14.2	14.2	12.4	12.8	13.1	12.2	8.3	2.5	3.2	45.0	2.8
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	291	237	126	178	181	235	2380	1156	55	2213	1067
V/C Ratio(X)	0.77	1.25	3.76	1.23	0.76	0.77	2.10	0.19	0.07	0.58	0.65	0.07
Avail Cap(c_a), veh/h	237	291	237	126	178	181	235	2380	1156	128	2222	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.1	80.4	74.3	81.3	76.8	76.9	81.4	11.2	6.5	83.6	20.9	9.8
Incr Delay (d2), s/veh	10.0	138.7	1250.4	153.8	17.0	18.3	505.9	0.2	0.1	9.2	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	12.1	93.0	11.1	6.8	7.1	21.8	3.4	0.9	1.6	18.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	219.1	1324.7	235.1	93.8	95.2	587.3	11.4	6.6	92.8	22.4	9.9
LnGrp LOS	F	F	F	F	F	F	F	B	A	F	C	A
Approach Vol, veh/h		1389			429			1018			1546	
Approach Delay, s/veh		916.1			145.3			289.9			23.3	
Approach LOS		F			F			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	121.9	16.8	23.6	20.0	114.6	20.0	20.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	12.8	* 1.1E2	* 12	* 14	12.2	* 1.1E2	12.4	* 14
Max Q Clear Time (g_c+I1), s	5.2	10.3	8.7	15.1	14.2	47.0	14.4	16.2
Green Ext Time (p_c), s	0.0	24.3	0.1	0.0	0.0	59.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	380.2
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	254	75	206	78	854	307	2204
v/c Ratio	0.41	0.97	0.44	0.78	0.64	0.48	0.71	1.07
Control Delay	46.8	96.5	48.3	51.6	45.8	23.4	19.0	70.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	96.5	48.3	51.6	45.8	23.4	19.0	70.9
Queue Length 50th (ft)	57	192	53	98	23	258	105	~1173
Queue Length 95th (ft)	102	#383	97	#205	#101	340	158	#1338
Internal Link Dist (ft)		2966		420		3738		8667
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	221	262	200	291	122	1782	469	2056
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.97	0.38	0.71	0.64	0.48	0.65	1.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	94	147	71	47	149	74	751	60	292	2012	82
Future Volume (vph)	77	94	147	71	47	149	74	751	60	292	2012	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1689		1583	1610		1770	3454		1752	3512	
Flt Permitted	0.29	1.00		0.25	1.00		0.06	1.00		0.24	1.00	
Satd. Flow (perm)	504	1689		409	1610		107	3454		434	3512	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	99	155	75	49	157	78	791	63	307	2118	86
RTOR Reduction (vph)	0	40	0	0	83	0	0	4	0	0	2	0
Lane Group Flow (vph)	81	214	0	75	123	0	78	850	0	307	2202	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	28.1	17.9		24.9	16.3		75.1	69.9		91.4	79.4	
Effective Green, g (s)	28.1	17.9		24.9	16.3		75.1	69.9		91.4	79.4	
Actuated g/C Ratio	0.21	0.13		0.18	0.12		0.55	0.51		0.67	0.58	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	190	221		148	192		122	1767		432	2041	
v/s Ratio Prot	0.03	c0.13		c0.03	0.08		0.02	0.25		c0.08	c0.63	
v/s Ratio Perm	0.06			0.06			0.33			0.40		
v/c Ratio	0.43	0.97		0.51	0.64		0.64	0.48		0.71	1.08	
Uniform Delay, d1	45.7	59.1		48.4	57.4		31.1	21.6		12.7	28.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	51.0		2.7	7.1		10.5	0.4		5.4	45.0	
Delay (s)	47.2	110.0		51.1	64.5		41.6	22.0		18.1	73.6	
Level of Service	D	F		D	E		D	C		B	E	
Approach Delay (s)		94.9			60.9			23.7			66.8	
Approach LOS		F			E			C			E	

Intersection Summary			
HCM 2000 Control Delay	58.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	136.6	Sum of lost time (s)	25.5
Intersection Capacity Utilization	101.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



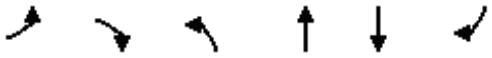
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	94	147	71	47	149	74	751	60	292	2012	82
Future Volume (veh/h)	77	94	147	71	47	149	74	751	60	292	2012	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	81	99	155	75	49	157	78	791	63	307	2118	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	151	88	138	137	51	163	116	1756	140	466	2055	83
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.04	0.53	0.53	0.09	0.59	0.59
Sat Flow, veh/h	1697	662	1037	1612	388	1244	1781	3308	263	1767	3482	140
Grp Volume(v), veh/h	81	0	254	75	0	206	78	421	433	307	1074	1130
Grp Sat Flow(s),veh/h/ln	1697	0	1699	1612	0	1632	1781	1763	1808	1767	1777	1845
Q Serve(g_s), s	5.5	0.0	17.8	5.4	0.0	16.8	2.7	19.8	19.8	10.2	79.2	79.2
Cycle Q Clear(g_c), s	5.5	0.0	17.8	5.4	0.0	16.8	2.7	19.8	19.8	10.2	79.2	79.2
Prop In Lane	1.00		0.61	1.00		0.76	1.00		0.15	1.00		0.08
Lane Grp Cap(c), veh/h	151	0	226	137	0	214	116	936	960	466	1049	1089
V/C Ratio(X)	0.54	0.00	1.13	0.55	0.00	0.96	0.67	0.45	0.45	0.66	1.02	1.04
Avail Cap(c_a), veh/h	218	0	226	204	0	214	123	936	960	539	1049	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	58.2	48.1	0.0	58.0	32.1	19.4	19.4	13.9	27.5	27.5
Incr Delay (d2), s/veh	3.0	0.0	98.0	3.4	0.0	50.8	12.4	0.7	0.7	2.4	34.0	37.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	13.7	2.3	0.0	10.0	1.6	7.6	7.8	3.9	39.4	42.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	0.0	156.2	51.5	0.0	108.7	44.6	20.1	20.1	16.3	61.5	65.1
LnGrp LOS	D	A	F	D	A	F	D	C	C	B	F	F
Approach Vol, veh/h		335			281			932			2511	
Approach Delay, s/veh		130.8			93.5			22.2			57.6	
Approach LOS		F			F			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	86.0	11.5	25.2	19.5	78.1	11.7	25.0
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 5.2	* 79	12.5	17.6	* 18	* 66	12.5	17.6
Max Q Clear Time (g_c+I1), s	4.7	81.2	7.4	19.8	12.2	21.8	7.5	18.8
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.5	12.1	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	58.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	43	27	866	2205	25
Future Volume (Veh/h)	18	43	27	866	2205	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	19	46	29	921	2346	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2864	1173	2373			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2864	1173	2373			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	75	86			
cM capacity (veh/h)	11	185	202			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	65	29	460	460	1173	1173	27
Volume Left	19	29	0	0	0	0	0
Volume Right	46	0	0	0	0	0	27
cSH	34	202	1700	1700	1700	1700	1700
Volume to Capacity	1.93	0.14	0.27	0.27	0.69	0.69	0.02
Queue Length 95th (ft)	182	12	0	0	0	0	0
Control Delay (s)	690.7	25.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	D					
Approach Delay (s)	690.7	0.8			0.0		
Approach LOS	F						

Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	13.8

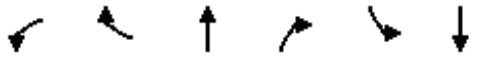
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	43	27	866	2205	25
Future Vol, veh/h	18	43	27	866	2205	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	415	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	46	29	921	2346	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2865	1173	2373	0	-	0
Stage 1	2346	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 13	185	202	-	-	-
Stage 1	58	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 11	185	202	-	-	-
Mov Cap-2 Maneuver	~ 11	-	-	-	-	-
Stage 1	50	-	-	-	-	-
Stage 2	562	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 710.8	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	202	-	33	-	-
HCM Lane V/C Ratio	0.142	-	1.966	-	-
HCM Control Delay (s)	25.8	-	$ 710.8	-	-
HCM Lane LOS	D	-	F	-	-
HCM 95th %tile Q(veh)	0.5	-	7.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	608	160	721	680	346	2098
v/c Ratio	0.90	0.24	0.48	0.55	0.83	0.84
Control Delay	63.4	5.0	62.9	9.0	44.3	38.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3
Total Delay	63.4	5.0	62.9	9.0	44.3	38.7
Queue Length 50th (ft)	589	0	231	125	224	688
Queue Length 95th (ft)	#818	48	341	272	#323	754
Internal Link Dist (ft)	1062		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	685	671	1501	1249	434	2512
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	72
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.24	0.48	0.54	0.80	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	584	154	692	653	332	2014
Future Volume (vph)	584	154	692	653	332	2014
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	1805	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.29	1.00
Satd. Flow (perm)	1719	1442	5085	1599	560	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	608	160	721	680	346	2098
RTOR Reduction (vph)	0	97	0	49	0	0
Lane Group Flow (vph)	608	63	721	631	346	2098
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	62.8	62.8	47.2	110.0	69.6	79.8
Effective Green, g (s)	62.8	62.8	47.2	110.0	69.6	79.8
Actuated g/C Ratio	0.39	0.39	0.30	0.69	0.43	0.50
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	674	565	1500	1099	417	2511
v/s Ratio Prot	c0.35		0.14	0.23	0.12	c0.42
v/s Ratio Perm		0.04		0.17	0.24	
v/c Ratio	0.90	0.11	0.48	0.57	0.83	0.84
Uniform Delay, d1	45.7	30.9	46.3	12.9	32.1	34.5
Progression Factor	1.00	1.00	1.31	1.15	1.00	1.00
Incremental Delay, d2	16.8	0.2	1.0	1.4	12.8	3.5
Delay (s)	62.5	31.1	62.0	16.2	44.9	37.9
Level of Service	E	C	E	B	D	D
Approach Delay (s)	55.9		39.7			38.9
Approach LOS	E		D			D

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	584	154	692	653	332	2014
Future Volume (veh/h)	584	154	692	653	332	2014
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	608	160	721	680	346	2098
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	654	549	1575	1093	372	2610
Arrive On Green	0.38	0.38	0.10	0.10	0.14	0.52
Sat Flow, veh/h	1739	1459	5274	1598	1810	5233
Grp Volume(v), veh/h	608	160	721	680	346	2098
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1810	1689
Q Serve(g_s), s	53.7	12.3	21.3	32.5	20.7	54.8
Cycle Q Clear(g_c), s	53.7	12.3	21.3	32.5	20.7	54.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	654	549	1575	1093	372	2610
V/C Ratio(X)	0.93	0.29	0.46	0.62	0.93	0.80
Avail Cap(c_a), veh/h	693	582	1575	1093	383	2610
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	47.9	35.0	59.2	17.0	34.6	32.1
Incr Delay (d2), s/veh	20.8	1.1	0.9	2.5	28.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.0	4.4	9.9	14.1	11.8	22.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.8	36.0	60.2	19.5	63.0	34.8
LnGrp LOS	E	D	E	B	E	C
Approach Vol, veh/h	768		1401			2444
Approach Delay, s/veh	61.9		40.4			38.8
Approach LOS	E		D			D

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		92.6			33.1	59.6	67.4
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		78.8			23.8	44.8	63.8
Max Q Clear Time (g_c+I1), s		56.8			22.7	34.5	55.7
Green Ext Time (p_c), s		18.5			0.1	6.9	4.5

Intersection Summary	
HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	190	630	547	491
v/c Ratio	0.60	0.63	0.90	0.98
Control Delay	24.1	20.3	55.0	73.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.1	20.3	55.0	73.1
Queue Length 50th (ft)	66	294	369	~349
Queue Length 95th (ft)	133	404	#590	#654
Internal Link Dist (ft)		2439	275	2063
Turn Bay Length (ft)	275			
Base Capacity (vph)	431	1286	740	503
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.49	0.74	0.98

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	586	0	0	509	0	304	1	152	0	0	0
Future Volume (vph)	177	586	0	0	509	0	304	1	152	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.96				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1810			1541				
Flt Permitted	0.13	1.00			1.00			0.97				
Satd. Flow (perm)	217	1827			1810			1541				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	190	630	0	0	547	0	327	1	163	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	190	630	0	0	547	0	0	478	0	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	60.6	60.6			37.3			35.4				
Effective Green, g (s)	60.6	60.6			37.3			35.4				
Actuated g/C Ratio	0.55	0.55			0.34			0.32				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	316	997			608			491				
v/s Ratio Prot	0.09	c0.34			c0.30							
v/s Ratio Perm	0.24							0.31				
v/c Ratio	0.60	0.63			0.90			0.97				
Uniform Delay, d1	19.2	17.5			35.1			37.3				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	3.2	1.3			16.1			33.6				
Delay (s)	22.4	18.8			51.2			71.0				
Level of Service	C	B			D			E				
Approach Delay (s)		19.6			51.2			71.0			0.0	
Approach LOS		B			D			E			A	

Intersection Summary			
HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	111.0	Sum of lost time (s)	22.4
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	586	0	0	509	0	304	1	152	0	0	0
Future Volume (veh/h)	177	586	0	0	509	0	304	1	152	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	190	630	0	0	547	0	327	1	163			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	287	960	0	0	621	0	358	1	179			
Arrive On Green	0.10	0.52	0.00	0.00	0.34	0.00	0.31	0.31	0.31			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1158	4	577			
Grp Volume(v), veh/h	190	630	0	0	547	0	491	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1738	0	0			
Q Serve(g_s), s	6.3	22.1	0.0	0.0	25.1	0.0	24.2	0.0	0.0			
Cycle Q Clear(g_c), s	6.3	22.1	0.0	0.0	25.1	0.0	24.2	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.67		0.33			
Lane Grp Cap(c), veh/h	287	960	0	0	621	0	538	0	0			
V/C Ratio(X)	0.66	0.66	0.00	0.00	0.88	0.00	0.91	0.00	0.00			
Avail Cap(c_a), veh/h	584	1603	0	0	925	0	685	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	19.8	15.5	0.0	0.0	27.6	0.0	29.5	0.0	0.0			
Incr Delay (d2), s/veh	2.6	0.8	0.0	0.0	6.9	0.0	14.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	8.1	0.0	0.0	11.1	0.0	11.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	16.2	0.0	0.0	34.5	0.0	43.8	0.0	0.0			
LnGrp LOS	C	B	A	A	C	A	D	A	A			
Approach Vol, veh/h		820			547			491				
Approach Delay, s/veh		17.7			34.5			43.8				
Approach LOS		B			C			D				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		53.8		35.1	16.2	37.6			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		24.1		26.2	8.3	27.1			
Green Ext Time (p_c), s		4.6		1.3	0.5	3.1			

Intersection Summary		
HCM 6th Ctrl Delay		29.5
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	519	683	351	595	379
v/c Ratio	0.83	0.69	0.80	0.59	0.80
Control Delay	47.9	6.4	32.8	18.2	52.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	6.4	32.8	18.2	52.0
Queue Length 50th (ft)	339	0	134	248	258
Queue Length 95th (ft)	#554	60	#306	414	346
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	642	1005	440	1032	783
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.68	0.80	0.58	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	587	302	512	0	0	0	0	316	10	0
Future Volume (vph)	0	446	587	302	512	0	0	0	0	316	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.17	1.00						0.95	
Satd. Flow (perm)		1792	1583	317	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	519	683	351	595	0	0	0	0	367	12	0
RTOR Reduction (vph)	0	0	445	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	519	238	351	595	0	0	0	0	0	379	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		39.1	39.1	67.1	67.1						30.2	
Effective Green, g (s)		39.1	39.1	67.1	67.1						30.2	
Actuated g/C Ratio		0.35	0.35	0.60	0.60						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		625	552	441	1015						470	
v/s Ratio Prot		0.29		c0.14	0.35							
v/s Ratio Perm			0.15	c0.33							0.22	
v/c Ratio		0.83	0.43	0.80	0.59						0.81	
Uniform Delay, d1		33.5	28.0	20.3	13.9						38.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		9.6	0.7	9.6	1.0						10.3	
Delay (s)		43.0	28.7	29.9	14.9						48.5	
Level of Service		D	C	C	B						D	
Approach Delay (s)		34.9			20.5			0.0			48.5	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	112.1	Sum of lost time (s)	22.7
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	587	302	512	0	0	0	0	316	10	0
Future Volume (veh/h)	0	446	587	302	512	0	0	0	0	316	10	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	519	683	351	595	0				367	12	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	643	563	380	1002	0				405	13	0
Arrive On Green	0.00	0.36	0.36	0.16	0.58	0.00				0.29	0.29	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1413	46	0
Grp Volume(v), veh/h	0	519	683	351	595	0				379	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	29.2	40.0	15.3	24.9	0.0				28.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.2	40.0	15.3	24.9	0.0				28.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	643	563	380	1002	0				419	0	0
V/C Ratio(X)	0.00	0.81	1.21	0.92	0.59	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	643	563	416	1038	0				647	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.8	36.3	27.3	15.1	0.0				38.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	7.9	111.8	25.1	1.1	0.0				13.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.5	32.0	7.5	9.0	0.0				11.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	40.7	148.1	52.4	16.1	0.0				52.1	0.0	0.0
LnGrp LOS	A	D	F	D	B	A				D	A	A
Approach Vol, veh/h		1202			946						379	
Approach Delay, s/veh		101.8			29.6						52.1	
Approach LOS		F			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		73.4		39.2	25.5	47.9						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		26.9		30.2	17.3	42.0						
Green Ext Time (p_c), s		6.4		2.1	0.3	0.0						

Intersection Summary												
HCM 6th Ctrl Delay			67.3									
HCM 6th LOS			E									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	73	309	2	94	1	130	4	2	1	2	43
Future Volume (Veh/h)	63	73	309	2	94	1	130	4	2	1	2	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	79	336	2	102	1	141	4	2	1	2	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	103			415			538	490	247	494	658	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	103			317			450	399	134	402	581	102
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	94			100			66	99	100	100	99	94
cM capacity (veh/h)	1049			777			419	464	844	361	366	801

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	483	105	147	50
Volume Left	68	2	141	1
Volume Right	336	1	2	47
cSH	1049	777	423	748
Volume to Capacity	0.06	0.00	0.35	0.07
Queue Length 95th (ft)	5	0	38	5
Control Delay (s)	1.9	0.2	18.0	10.2
Lane LOS	A	A	C	B
Approach Delay (s)	1.9	0.2	18.0	10.2
Approach LOS			C	B

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

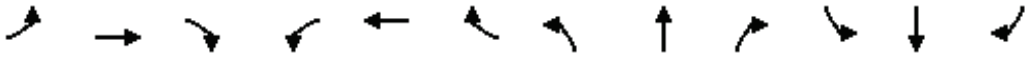
Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	73	309	2	94	1	130	4	2	1	2	43
Future Vol, veh/h	63	73	309	2	94	1	130	4	2	1	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	68	79	336	2	102	1	141	4	2	1	2	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	415	0	0	514	490	247	493	658	103
Stage 1	-	-	-	-	-	-	383	383	-	107	107	-
Stage 2	-	-	-	-	-	-	131	107	-	386	551	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1049	-	-	767	-	-	466	482	797	359	387	801
Stage 1	-	-	-	-	-	-	634	616	-	707	811	-
Stage 2	-	-	-	-	-	-	865	811	-	479	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	767	-	-	406	438	797	330	351	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	406	438	-	330	351	-
Stage 1	-	-	-	-	-	-	578	561	-	644	809	-
Stage 2	-	-	-	-	-	-	810	809	-	432	473	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.2	18.6	10.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	410	1049	-	-	767	-	-	737
HCM Lane V/C Ratio	0.361	0.065	-	-	0.003	-	-	0.068
HCM Control Delay (s)	18.6	8.7	0	-	9.7	0	-	10.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.6	0.2	-	-	0	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	11	1	132	1	4	29	307	7	1
Future Volume (Veh/h)	1	1	1	11	1	132	1	4	29	307	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	12	1	143	1	4	32	334	8	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	842	714	8	700	699	20	9			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	842	714	8	700	699	20	9			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	100	86	100			79		
cM capacity (veh/h)	206	283	1079	297	288	1049	1624			1575		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	156	37	343
Volume Left	1	12	1	334
Volume Right	1	143	32	1
cSH	322	866	1624	1575
Volume to Capacity	0.01	0.18	0.00	0.21
Queue Length 95th (ft)	1	16	0	20
Control Delay (s)	16.3	10.1	0.2	7.7
Lane LOS	C	B	A	A
Approach Delay (s)	16.3	10.1	0.2	7.7
Approach LOS	C	B		

Intersection Summary				
Average Delay	7.9			
Intersection Capacity Utilization	39.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	11	1	132	1	4	29	307	7	1
Future Vol, veh/h	1	1	1	11	1	132	1	4	29	307	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	5	0	0	8	2	33	0
Mvmt Flow	1	1	1	12	1	143	1	4	32	334	8	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	771	715	9	700	699	20	9	0	0	36	0	0
Stage 1	677	677	-	22	22	-	-	-	-	-	-	-
Stage 2	94	38	-	678	677	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.25	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.345	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	320	359	1079	357	366	1049	1624	-	-	1575	-	-
Stage 1	446	455	-	1002	881	-	-	-	-	-	-	-
Stage 2	918	867	-	445	455	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	230	282	1079	297	288	1049	1624	-	-	1575	-	-
Mov Cap-2 Maneuver	230	282	-	297	288	-	-	-	-	-	-	-
Stage 1	446	358	-	1001	880	-	-	-	-	-	-	-
Stage 2	791	866	-	349	358	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.7	10.1	0.2	7.7
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1624	-	-	340	866	1575	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01	0.181	0.212	-	-
HCM Control Delay (s)	7.2	0	-	15.7	10.1	7.9	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.8	-	-

I. 2030 Future Conditions without Development – Simulation Analysis Worksheets

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	81	97	160	157	189	140	186	167	362	371	302	225
Average Queue (ft)	32	52	80	80	82	59	112	79	189	213	92	97
95th Queue (ft)	69	89	131	134	149	113	173	148	311	330	221	192
Link Distance (ft)			2766	2766	2766		971	971			8608	8608
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)									0	0	0	
Queuing Penalty (veh)									0	0	0	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	50	48	169	152	83
Average Queue (ft)	9	14	90	69	27
95th Queue (ft)	32	39	152	135	63
Link Distance (ft)			1821	1821	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			500
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	134	178	259	351	83	354	373	130	226	249
Average Queue (ft)	50	69	67	153	27	172	171	30	82	96
95th Queue (ft)	107	140	155	280	67	320	328	87	178	198
Link Distance (ft)		2976		390		3728	3728		8608	8608
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)			0	1						
Queuing Penalty (veh)			0	1						

Intersection: 3: US-1 & Sage Ln

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	55	46
Average Queue (ft)	20	11
95th Queue (ft)	43	35
Link Distance (ft)	589	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		415
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B41	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	710	291	12	269	289	400	593	309	145	159	150
Average Queue (ft)	437	84	1	168	183	163	263	155	54	64	40
95th Queue (ft)	752	283	17	257	278	318	517	336	120	127	102
Link Distance (ft)	1008		521	1009	1009	1009			2884	2884	2884
Upstream Blk Time (%)	0	0									
Queuing Penalty (veh)	2	0									
Storage Bay Dist (ft)		1000					800	800			
Storage Blk Time (%)	0	0				0	0				
Queuing Penalty (veh)	1	0				1	0				

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	136	238	260	1501
Average Queue (ft)	59	120	172	801
95th Queue (ft)	109	208	261	1588
Link Distance (ft)		2475	251	2100
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			4	
Storage Bay Dist (ft)	275			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	208	161	147	267	213
Average Queue (ft)	100	70	63	129	116
95th Queue (ft)	175	127	117	225	188
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)					0
Queuing Penalty (veh)					1
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	45	169	102
Average Queue (ft)	2	3	77	46
95th Queue (ft)	19	20	134	86
Link Distance (ft)	390	609	212	438
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	27	143	41
Average Queue (ft)	2	73	3
95th Queue (ft)	13	113	23
Link Distance (ft)	150	1045	212
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 12

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	115	124	2794	2809	2804	299	478	422	395	400	4485	4202
Average Queue (ft)	34	53	2180	2349	2567	233	229	187	346	360	2106	1420
95th Queue (ft)	86	106	3817	3647	3317	345	490	431	505	512	4532	3804
Link Distance (ft)			2766	2766	2766		971	971			8608	8608
Upstream Blk Time (%)			34	67	74							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)						19	10		4	59	59	
Queuing Penalty (veh)						22	15		9	127	281	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	37	101	461	460	95
Average Queue (ft)	2	32	287	283	17
95th Queue (ft)	16	75	429	429	88
Link Distance (ft)			1821	1821	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			500
Storage Blk Time (%)			0	0	0
Queuing Penalty (veh)			0	0	0

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	286	487	237	323	108	306	326	272	506	521
Average Queue (ft)	75	244	65	147	35	129	137	87	279	290
95th Queue (ft)	245	489	172	304	86	274	292	180	460	473
Link Distance (ft)		2976		390		3728	3728		8608	8608
Upstream Blk Time (%)				2						
Queuing Penalty (veh)				6						
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)	0	4	0	4				0	0	
Queuing Penalty (veh)	0	3	0	3				0	1	

Intersection: 3: US-1 & Sage Ln

Movement	EB	NB	SB
Directions Served	LR	L	R
Maximum Queue (ft)	113	72	2
Average Queue (ft)	41	18	0
95th Queue (ft)	86	51	2
Link Distance (ft)	589		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		415	290
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B41	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	789	135	7	312	323	299	444	483	505	461	432
Average Queue (ft)	450	34	0	169	176	149	130	254	293	304	262
95th Queue (ft)	716	114	7	271	285	255	315	502	462	461	419
Link Distance (ft)	1008		521	1009	1009	1009			2884	2884	2884
Upstream Blk Time (%)	0										
Queuing Penalty (veh)	1										
Storage Bay Dist (ft)		1000					800	800			
Storage Blk Time (%)	0							0	0		
Queuing Penalty (veh)	0							1	0		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	274	379	266	579
Average Queue (ft)	98	177	196	288
95th Queue (ft)	201	324	292	521
Link Distance (ft)		2475	251	2100
Upstream Blk Time (%)			5	
Queuing Penalty (veh)			24	
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	1		
Queuing Penalty (veh)	0	3		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	446	405	290	337	231
Average Queue (ft)	230	170	141	153	181
95th Queue (ft)	405	338	253	288	253
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)	1	0			5
Queuing Penalty (veh)	13	0			17
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)	1	0			
Queuing Penalty (veh)	7	1			

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	108	50	125	119
Average Queue (ft)	17	4	53	42
95th Queue (ft)	70	27	113	94
Link Distance (ft)	390	609	212	438
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			2	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	27	98	8	64
Average Queue (ft)	3	48	0	11
95th Queue (ft)	16	84	5	44
Link Distance (ft)	150	1045	990	212
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 535

J. Documentation for Data Center Rates

Bowman

Memorandum

To: Mr. Casey Frazier – Sr. Real Estate Development Manager; AWS Data Center Supply Solutions

From: Michael J. Young, P.E.

Date: 3/1/2023

Re: AWS Data Center Trip Generation Assessment

As requested, Bowman has prepared a trip generation assessment to determine the weighted average trip generation rate for Amazon Web Services (AWS) Data Centers located in the Commonwealth of Virginia. This evaluation was performed in accordance with the criteria and guidelines established in the Institute of Transportation Engineers (ITE) *Trip Generation Handbook, 3rd Edition*.

Background Information

AWS develops and constructs data centers throughout the country and the Commonwealth of Virginia. The data centers developed by AWS are highly specialized and modern facilities, and the evolving design of these facilities incorporate efficient operations and automated systems.

There are several data centers planned in Virginia by AWS and, as part of the development of these sites, traffic projections need to be developed to anticipate potential impacts.

The ITE *Trip Generation Manual, 11th Edition* includes such traffic projection information for data center sites. However, the trip generation rates from the Manual were developed based on two (2) surveyed sites for daily trips, six (6) surveyed sites for AM peak hour trips, and five (5) surveyed sites for PM peak hour trips. Due to the limited number of surveyed sites, the Trip Generation Manual offers the following disclaimer for this information:

> *"Caution should be used when applying trip generation rates for data centers, as the database contains a small number of sites with limited data on the number of tenants and employees."*

Data centers have a very small number of visitors, and the majority of trips are typically driven by employees or deliveries. Due to the technological advancements referenced above, data centers have become more efficient over time and rely on fewer on-site employees to operate.

As such, the number of employees, and not the building square footage, appears to be a better indicator for the projected number of trips associated with a data center. The ITE Trip Generation Manual does not include employee information for data centers.

The ITE Trip Generation Manual also notes that the sites included were surveyed in the 2010s. Due to the aforementioned technological advancements, it is also likely that the traffic generation rates from the 2010s are no longer applicable to newer facilities.

Therefore, Bowman has prepared this trip generation assessment with the following purposes:

1. To determine the average weekday, morning peak hour, and evening peak hour trip generation rates for a fully operational AWS Data Center. These average rates will be developed based on data from six (6) existing facilities, and will then be utilized throughout the planning process for future AWS Data Center developments in the Commonwealth of Virginia.

2. To compare these trip generation rates to the trip generation data documented in the ITE *Trip Generation Manual, 11th Edition*.

Methodology

The methodology utilized for this assessment was developed based on the criteria and guidelines included in the ITE *Trip Generation Handbook, 3rd Edition,* Chapter 9, "Use of Local Data to Estimate Trip Generation." Chapter 9 outlines the process for calculating the weighted average trip rate based on traffic data collected from existing facilities.

Chapter 9 also notes that trip generation data should be collected at a minimum of three (3) local sites, but that collecting data at five (5) or more sites is preferrable. Please note that, for the purposes of this evaluation, trip generation information from six (6) existing sites was evaluated.

Site Selection

For the purposes of this assessment, traffic data was collected from six (6) existing AWS Data Center campuses, all of which are located within the Commonwealth of Virginia. The sites surveyed are similar in both size and anticipated operations as the future data centers planned in Virginia by AWS.

Additional information regarding the building square footage and number of employees at each surveyed campus is as follows:

- Campus 1: 285,000 SF / 50 Employees
- Campus 2: 600,000 SF / 100 Employees
- Campus 3: 520,000 SF / 75 Employees
- Campus 4: 310,000 SF / 50 Employees
- Campus 5: 435,000 SF / 75 Employees
- Campus 6: 725,000 SF / 160 Employees

Trip Generation Data Collection

Cumulative trip data for each campus identified above was provided by AWS for the time period of January, 2022 to January, 2023. The AWS Data Centers are all secure facilities with historical data records, and the trip data provided to Bowman was extracted from the security card readers at each campus entrance.

Typical vehicle and heavy vehicle information was able to be included in this dataset, as the security gates at the facilities have separate card readers for trucks vs. passenger cars.

The trip data provided to Bowman was further refined to only include the card reader information recorded on an average weekday (Tuesday, Wednesday, or Thursday). The card reader information is timestamped, and therefore, the AM and PM peak hour trips for each campus were able to be extracted from the highest one-hour period of trips from 7:00 AM – 9:00 AM (AM peak), and from 4:00 PM – 6:00 PM (PM peak).

Data Summary and Evaluation

Based on the data provided, the existing trips per day for each surveyed campus were developed as shown in **Table 1.**

Table 1. Existing Campus Trips per Day

Campus	No. of Average Weekdays Recorded Jan '22 - Jan '23	Trip Type	Total Recorded Daily Trips Jan '22 - Jan '23	Trips per Day	Total Recorded AM Peak Trips Jan '22 - Jan '23	AM Peak Hour Trips per Day	Total Recorded PM Peak Trips Jan '22 - Jan '23	PM Peak Hour Trips per Day
Campus 1	159	Car	39,272	246.99	4,360	27.42	1,583	9.96
		Truck	1,500	9.43	95	0.60	0	0.00
		TOTAL	**40,772**	**256.43**	**4,455**	**28.02**	**1,583**	**9.96**
Campus 2	159	Car	90,362	568.31	11,238	70.68	3,263	20.52
		Truck	2,026	12.74	198	1.25	7	0.04
		TOTAL	**92,388**	**581.06**	**11,436**	**71.92**	**3,270**	**20.57**
Campus 3	130	Car	41,442	318.78	5,867	45.13	1,930	14.85
		Truck	646	4.97	84	0.65	7	0.05
		TOTAL	**42,088**	**323.75**	**5,951**	**45.78**	**1,937**	**14.90**
Campus 4	159	Car	29,504	185.56	2,442	15.36	1,373	8.64
		Truck	3,984	25.06	195	1.23	60	0.38
		TOTAL	**33,488**	**210.62**	**2,637**	**16.58**	**1,433**	**9.01**
Campus 5	159	Car	45,538	286.40	6,309	39.68	1,863	11.72
		Truck	5,782	36.36	653	4.11	60	0.38
		TOTAL	**51,320**	**322.77**	**6,962**	**43.79**	**1,923**	**12.09**
Campus 6	130	Car	58,394	449.18	7,871	60.55	2,333	17.95
		Truck	2,324	17.88	285	2.19	50	0.38
		TOTAL	**60,718**	**467.06**	**8,156**	**62.74**	**2,383**	**18.33**

The campus-specific size and number of employees were then applied to these total trips to develop the average trips per 1,000 SF and the average trips per employee at each campus as shown in **Table 2.**

Table 2. Average Campus Trips per 1,000 SF and per Employee

Campus	Square Footage (SF)	No. of Employees	Trip Type	Trips per Day	Daily Trips per 1,000 SF	Daily Trips per Employee	AM Peak Hour Trips per Day	AM Peak Hour Trips per 1,000 SF	AM Peak Hour Trips per Employee	PM Peak Hour Trips per Day	PM Peak Hour Trips per 1,000 SF	PM Peak Hour Trips per Employee
Campus 1	285,000	50	Car	246.99	0.87	4.94	27.42	0.10	0.55	9.96	0.03	0.20
			Truck	9.43	0.03	0.19	0.60	0.00	0.01	0.00	0.00	0.00
			TOTAL	256.43	**0.90**	**5.13**	28.02	**0.10**	**0.56**	9.96	**0.03**	**0.20**
Campus 2	600,000	100	Car	568.31	0.95	5.68	70.68	0.12	0.71	20.52	0.03	0.21
			Truck	12.74	0.02	0.13	1.25	0.00	0.01	0.04	0.00	0.00
			TOTAL	581.06	**0.97**	**5.81**	71.92	**0.12**	**0.72**	20.57	**0.03**	**0.21**
Campus 3	520,000	75	Car	318.78	0.61	4.25	45.13	0.09	0.60	14.85	0.03	0.20
			Truck	4.97	0.01	0.07	0.65	0.00	0.01	0.05	0.00	0.00
			TOTAL	323.75	**0.62**	**4.32**	45.78	**0.09**	**0.61**	14.90	**0.03**	**0.20**
Campus 4	310,000	50	Car	185.56	0.60	3.71	15.36	0.05	0.31	8.64	0.03	0.17
			Truck	25.06	0.08	0.50	1.23	0.00	0.02	0.38	0.00	0.01
			TOTAL	210.62	**0.68**	**4.21**	16.58	**0.05**	**0.33**	9.01	**0.03**	**0.18**
Campus 5	435,000	75	Car	286.40	0.66	3.82	39.68	0.09	0.53	11.72	0.03	0.16
			Truck	36.36	0.08	0.48	4.11	0.01	0.05	0.38	0.00	0.01
			TOTAL	322.77	**0.74**	**4.30**	43.79	**0.10**	**0.58**	12.09	**0.03**	**0.16**
Campus 6	725,000	160	Car	449.18	0.62	2.81	60.55	0.08	0.38	17.95	0.02	0.11
			Truck	17.88	0.02	0.11	2.19	0.00	0.01	0.38	0.00	0.00
			TOTAL	467.06	**0.64**	**2.92**	62.74	**0.09**	**0.39**	18.33	**0.03**	**0.11**

The cumulative trip, square footage, and employee data across all six (6) campuses were then combined to develop the weighted average trip rates per the criteria in the ITE *Trip Generation Handbook, 3rd Edition*.

The weighted average trip generation rates are shown in **Table 3.**

Table 3. Weighted Average Trip Generation Rates

	Square Footage (SF)	No. of Employees	Trip Type	Trips per Day	Daily Trips per 1,000 SF	Daily Trips per Employee	AM Peak Hour Trips per Day	AM Peak Hour Trips per 1,000 SF	AM Peak Hour Trips per Employee	PM Peak Hour Trips per Day	PM Peak Hour Trips per 1,000 SF	PM Peak Hour Trips per Employee
WEIGHTED AVERAGE	2,875,000	510	Car	2055.24	0.71	4.03	258.82	0.09	0.51	83.62	0.03	0.16
			Truck	106.44	0.04	0.21	10.01	0.00	0.02	1.24	0.00	0.00
			TOTAL	2161.68	**0.75**	**4.24**	268.83	**0.09**	**0.53**	84.86	**0.03**	**0.17**

Note: Values shown represent the cumulative data from all six (6) surveyed AWS campuses.

Data Comparison with ITE Trip Generation Manual

The average projected trip generation rates for the existing data centers shown in **Table 3** were then compared with the published rates from the ITE Trip Generation Manual for data centers (Land Use 160).

As noted above, although the number of employees at a data center appears to be a better indicator of the projected number of trips, the ITE Trip Generation Manual does not include any employee information. Therefore, the comparison of rates was limited to building square footage only. The average rate comparison is shown in **Table 4.**

Table 4. Average Rate Comparison – ITE Trip Generation Manual vs. Existing Campus Data

Data Source	Weekday per 1,000 SF	AM Peak Hour per 1,000 SF	PM Peak Hour per 1,000 Sf
ITE Manual	0.99	0.11	0.09
Existing Campus Data	0.75	0.09	0.03
Existing Campus % of ITE Rate	**75.8%**	**81.8%**	**33.3%**

As shown in **Table 4,** the site-specific campus data indicates that the average trip rates for the AWS Data Centers are lower than those included in the ITE Trip Generation Manual.

PM Peak Hour of Generator Evaluation

Based on the data provided by AWS, the PM Peak Hour (highest one-hour period from 4:00 PM – 6:00 PM) trip generation rate shown in **Table 4** is 1/3 the size of both the ITE Manual PM Peak Hour trip generation rate, and the existing campus AM Peak Hour trip generation rate.

Upon review of the data provided by AWS, this PM Peak Hour trip generation rate appears to be a result of the campus operations being more intensive during times when the surrounding roadways are not as busy ("off-peak"). Therefore, through additional coordination with VDOT, it was requested that this memorandum also evaluate the PM Peak Hour of *Generator* for the existing data center campuses.

Instead of only evaluating the highest one-hour period from 4:00 PM – 6:00 PM, the "PM Peak Hour of Generator" is the most trip-intensive hour of a development for any time between 12:00 PM and 12:00 AM.

The trip data for each campus was combined into 15-minute intervals for this 12:00 PM – 12:00 AM timeframe in order to determine the PM Peak Hour of Generator for each campus. The results

of this evaluation indicate that the PM Peak Hour of Generator generally falls somewhere within the timeframe of 12:30 PM to 2:15 PM depending on the campus.

The existing PM Peak Hours of Generator and associated trips per day for each surveyed campus were developed and are included in **Table 5.** The campus-specific size and number of employees were then applied to these trips per day to develop the average PM Peak Hour of Generator trips per 1,000 SF and per employee at each campus.

Table 5. PM Peak Hour of Generator Existing Campus Trips per Day, per 1,000 SF, and per Employee

Campus	No. of Average Weekdays Recorded Jan '22 - Jan '23	Observed PM Peak Hour of Generator	Square Footage (SF)	No. of Employees	Trip Type	Total Recorded PM Peak Hour of Generator Trips Jan '22 - Jan '23	PM Peak Hour of Generator Trips per Day	PM Peak Hour of Generator Trips per 1,000 SF	PM Peak Hour of Generator Trips per Employee
Campus 1	159	1:15 PM - 2:15 PM	285,000	50	Car	3,710	23.33	0.08	0.47
					Truck	229	1.44	0.01	0.03
					TOTAL	**3,939**	**24.77**	**0.09**	**0.50**
Campus 2	159	1:15 PM - 2:15 PM	600,000	100	Car	8,386	52.74	0.09	0.53
					Truck	162	1.02	0.00	0.01
					TOTAL	**8,548**	**53.76**	**0.09**	**0.54**
Campus 3	130	1:15 PM - 2:15 PM	520,000	75	Car	3,355	25.81	0.05	0.34
					Truck	62	0.48	0.00	0.01
					TOTAL	**3,417**	**26.28**	**0.05**	**0.35**
Campus 4	159	1:00 PM - 2:00 PM	310,000	50	Car	2,743	17.25	0.06	0.35
					Truck	536	3.37	0.01	0.07
					TOTAL	**3,279**	**20.62**	**0.07**	**0.41**
Campus 5	159	12:30 PM - 1:30 PM	435,000	75	Car	3,195	20.09	0.05	0.27
					Truck	524	3.30	0.01	0.04
					TOTAL	**3,719**	**23.39**	**0.05**	**0.31**
Campus 6	130	1:00 PM - 2:00 PM	725,000	160	Car	4,919	37.84	0.05	0.24
					Truck	262	2.02	0.00	0.01
					TOTAL	**5,181**	**39.85**	**0.05**	**0.25**

This information was then combined in **Table 6** to develop the weighted average PM Peak Hour of Generator trip rates per the criteria in the ITE *Trip Generation Handbook, 3rd Edition*.

Table 6. Weighted Average PM Peak Hour of Generator Trip Generation Rates

	Square Footage (SF)	No. of Employees	Trip Type	PM Peak Hour of Generator Trips per Day	PM Peak Hour of Generator Trips per 1,000 SF	PM Peak Hour of Generator Trips per Employee
WEIGHTED AVERAGE	2,875,000	510	Car	177.07	0.06	0.35
			Truck	11.62	0.00	0.02
			TOTAL	188.69	**0.07**	**0.37**

Note: Values shown represent the cumulative data from all six (6) surveyed AWS campuses.

As shown in **Table 6**, the calculated PM Peak Hour of Generator for the existing campuses currently generates an average of 0.07 trips per 1,000 SF and 0.37 trips per employee. These rates represent values that are over twice as intensive as those associated with the standard PM Peak Hour from 4:00 PM – 6:00 PM (0.03 trips per 1,000 SF and 0.17 trips per employee).

Conclusions

Based on the evaluation contained in this memorandum, the anticipated site trip rates associated with the AWS Data Centers are lower than those included in the ITE Trip Generation Manual.

The AWS rates appear to be a more appropriate estimation of future trips, as the rates from the Trip Generation Manual were developed based on a fewer number of surveyed sites. The Trip Generation Manual also only includes data from the 2010s, and the lower AWS trip generation rate is consistent with changes in the data center industry since then.

The average PM Peak Hour trip generation rate at the existing campuses is 1/3 the size of both the ITE Manual PM Peak Hour trip generation rate and the existing campus average AM Peak Hour trip generation rate. Therefore, VDOT requested an additional evaluation to determine the PM Peak Hour of Generator for the existing campuses.

Based on this evaluation, the PM Peak Hour of Generator for each campus generally falls somewhere within the timeframe of 12:30 PM to 2:15 PM, and the site trips during these timeframes are over twice as intensive as those associated with the standard PM Peak Hour from 4:00 PM – 6:00 PM.

Data centers have become more efficient and automated over this time, and typically require fewer on-site employees to operate. Because data centers have a very small number of visitors, the majority of trips are typically associated with either employees or deliveries.

Therefore, the number of employees at a campus appears to be the most statistically relevant indicator for the projected number of data center site trips. As such, it is proposed to use the following rates throughout the planning process for future AWS Data Center developments in the Commonwealth of Virginia:

- **4.24 Daily Trips per Employee**
- **0.53 Morning Peak Hour Trips per Employee**
- **0.17 Evening Peak Hour Trips per Employee**

Mary Lee

From: Hedrich, Peter <peter.hedrich@vdot.virginia.gov>
Sent: Monday, March 6, 2023 8:26 AM
To: Michael Young
Cc: Carolyn Oster; Washington, Thomas; James Rice; Kevin D. Sitzman; Mike J. Zuraf; Mary Lee
Subject: Re: [EXTERNAL] Re: 2023-02-16 AWS Data Center Trip Generation Assessment Memorandum
Attachments: 2023-03-01 Revised AWS Data Center Trip Generation Assessment.pdf

Hello Michael,
Your trip generation study is approved by Fredericksburg District as well as Central Office Transportation Land Use. We will require using the trip generation based on square feet of building area. Trip generation based on the peak hour of adjacent street traffic is acceptable unless there is an afternoon analysis required due to school operations, in which case the PM peak hour of the generator is to be used.
I have also copied Gorove Slade as they were also looking for approval of trip generation for data centers based on a study. The Gorove Slade study provided a helpful comparison, but given the more extensive data set provided in the Bowman Study, we will be using the Bowman results going forward.
Please let me know if you have any questions.
Thank you,
Peter

Peter A. Hedrich, PE, PTOE
District Traffic Engineer
Virginia Department of Transportation
87 Deacon Rd.
Fredericksburg VA 22405
D: 540-899-4540 C: 207-939-0806
Peter.Hedrich@VDOT.virginia.gov
Office Hours 7 AM - 3:30 PM

K. 2030 Future Conditions with Development – Capacity Analysis Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	266	560	77	268	662	727	127	14	301	83
v/c Ratio	0.45	0.60	0.67	0.54	0.64	0.80	0.36	0.11	0.13	0.35	0.13
Control Delay	57.5	55.2	15.7	66.4	55.3	48.3	15.6	1.9	56.0	36.6	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	55.2	15.7	66.4	55.3	48.3	15.6	1.9	56.0	36.6	3.6
Queue Length 50th (ft)	47	104	156	58	101	252	127	0	11	96	0
Queue Length 95th (ft)	77	142	303	108	142	#414	254	25	32	136	24
Internal Link Dist (ft)		2754			953		8663			2896	
Turn Bay Length (ft)	500		500	300		400		700	550		700
Base Capacity (vph)	396	823	834	166	713	830	2019	1173	267	940	689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.32	0.67	0.46	0.38	0.80	0.36	0.11	0.05	0.32	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	245	515	71	220	27	609	669	117	13	277	76
Future Volume (vph)	114	245	515	71	220	27	609	669	117	13	277	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3505	1404	1752	3411		2694	3438	1568	1805	3282	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3505	1404	1752	3411		2694	3438	1568	1805	3282	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	266	560	77	239	29	662	727	127	14	301	83
RTOR Reduction (vph)	0	0	172	0	9	0	0	0	47	0	0	55
Lane Group Flow (vph)	124	266	388	77	259	0	662	727	80	14	301	28
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	9.7	15.1	52.1	9.9	14.5		37.0	66.1	76.0	3.0	31.2	40.9
Effective Green, g (s)	9.7	15.1	52.1	9.9	14.5		37.0	66.1	76.0	3.0	31.2	40.9
Actuated g/C Ratio	0.08	0.13	0.43	0.08	0.12		0.31	0.55	0.63	0.02	0.26	0.34
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	274	441	609	144	412		830	1893	993	45	853	509
v/s Ratio Prot	0.04	0.08	c0.20	c0.04	0.08		c0.25	c0.21	0.01	0.01	0.09	0.00
v/s Ratio Perm			0.08						0.04			0.01
v/c Ratio	0.45	0.60	0.64	0.53	0.63		0.80	0.38	0.08	0.31	0.35	0.06
Uniform Delay, d1	52.6	49.6	26.6	52.8	50.2		38.1	15.4	8.5	57.5	36.2	26.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	2.3	2.2	3.8	3.0		5.4	0.6	0.0	3.9	1.1	0.0
Delay (s)	53.8	51.9	28.7	56.6	53.2		43.4	15.9	8.5	61.4	37.3	26.6
Level of Service	D	D	C	E	D		D	B	A	E	D	C
Approach Delay (s)		38.5			54.0			27.3			35.9	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



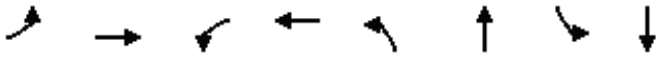
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	245	515	71	220	27	609	669	117	13	277	76
Future Volume (veh/h)	114	245	515	71	220	27	609	669	117	13	277	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1678	1856	1841	1826	1455	1826	1856	1900	1752	1781
Adj Flow Rate, veh/h	124	266	560	77	239	29	662	727	127	14	301	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	15	3	4	5	30	5	3	0	10	8
Cap, veh/h	200	828	562	106	734	88	430	1601	820	39	1060	569
Arrive On Green	0.06	0.24	0.24	0.06	0.23	0.23	0.16	0.46	0.46	0.02	0.32	0.32
Sat Flow, veh/h	3428	3526	1422	1767	3144	377	2689	3469	1572	1810	3328	1510
Grp Volume(v), veh/h	124	266	560	77	132	136	662	727	127	14	301	83
Grp Sat Flow(s),veh/h/ln	1714	1763	1422	1767	1749	1773	1345	1735	1572	1810	1664	1510
Q Serve(g_s), s	4.2	7.5	28.2	5.1	7.5	7.7	19.2	17.1	5.0	0.9	8.1	4.4
Cycle Q Clear(g_c), s	4.2	7.5	28.2	5.1	7.5	7.7	19.2	17.1	5.0	0.9	8.1	4.4
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	828	562	106	408	414	430	1601	820	39	1060	569
V/C Ratio(X)	0.62	0.32	1.00	0.73	0.32	0.33	1.54	0.45	0.15	0.36	0.28	0.15
Avail Cap(c_a), veh/h	400	828	562	168	408	414	430	1601	820	268	1060	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.58	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	38.0	36.2	55.4	38.1	38.2	50.4	22.0	14.9	57.9	30.7	24.7
Incr Delay (d2), s/veh	3.1	0.2	37.2	9.1	0.5	0.5	249.1	0.5	0.2	5.4	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.2	21.3	2.5	3.2	3.4	21.3	6.9	1.8	0.5	3.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	38.2	73.4	64.5	38.6	38.7	299.5	22.5	15.2	63.2	31.3	25.2
LnGrp LOS	E	D	E	E	D	D	F	C	B	E	C	C
Approach Vol, veh/h		950			345			1516			398	
Approach Delay, s/veh		61.6			44.4			142.9			31.2	
Approach LOS		E			D			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	61.0	15.0	34.2	27.0	43.8	14.8	34.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	17.8	* 37	* 14	* 25	19.2	* 34	11.4	* 28
Max Q Clear Time (g_c+I1), s	2.9	19.1	6.2	9.7	21.2	10.1	7.1	30.2
Green Ext Time (p_c), s	0.0	14.3	0.2	0.8	0.0	9.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	94.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	160	117	262	124	1281	85	853
v/c Ratio	0.33	0.50	0.36	0.68	0.37	0.78	0.38	0.58
Control Delay	34.9	22.9	34.6	37.5	14.3	29.6	16.1	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	22.9	34.6	37.5	14.3	29.6	16.1	24.2
Queue Length 50th (ft)	46	34	64	114	36	410	24	227
Queue Length 95th (ft)	94	105	123	224	76	589	56	334
Internal Link Dist (ft)		1275		420		3738		8663
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	265	583	335	618	348	2055	251	2006
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.27	0.35	0.42	0.36	0.62	0.34	0.43

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1606		1703	1638		1736	3448		1719	3310	
Flt Permitted	0.43	1.00		0.49	1.00		0.24	1.00		0.10	1.00	
Satd. Flow (perm)	755	1606		875	1638		430	3448		182	3310	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	38	122	117	66	196	124	1236	45	85	774	79
RTOR Reduction (vph)	0	92	0	0	83	0	0	2	0	0	5	0
Lane Group Flow (vph)	85	68	0	117	179	0	124	1279	0	85	848	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	23.1	16.8		29.9	20.2		60.4	51.8		57.0	50.1	
Effective Green, g (s)	23.1	16.8		29.9	20.2		60.4	51.8		57.0	50.1	
Actuated g/C Ratio	0.21	0.15		0.27	0.18		0.55	0.47		0.51	0.45	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	208	243		308	298		336	1613		189	1498	
v/s Ratio Prot	0.02	0.04		c0.03	c0.11		c0.03	c0.37		0.03	0.26	
v/s Ratio Perm	0.06			0.07			0.17			0.20		
v/c Ratio	0.41	0.28		0.38	0.60		0.37	0.79		0.45	0.57	
Uniform Delay, d1	36.6	41.6		31.8	41.6		13.6	24.9		17.8	22.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.6		0.8	3.4		0.7	3.2		1.7	0.8	
Delay (s)	37.9	42.2		32.6	45.0		14.3	28.1		19.5	23.1	
Level of Service	D	D		C	D		B	C		B	C	
Approach Delay (s)		40.8			41.1			26.9			22.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	85	38	122	117	66	196	124	1236	45	85	774	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	192	63	201	279	76	225	349	1638	60	222	1453	148
Arrive On Green	0.06	0.16	0.16	0.07	0.18	0.18	0.05	0.48	0.48	0.04	0.46	0.46
Sat Flow, veh/h	1682	384	1234	1725	422	1253	1753	3442	125	1739	3126	319
Grp Volume(v), veh/h	85	0	160	117	0	262	124	628	653	85	422	431
Grp Sat Flow(s),veh/h/ln	1682	0	1619	1725	0	1675	1753	1749	1818	1739	1706	1739
Q Serve(g_s), s	4.3	0.0	9.6	5.8	0.0	15.9	3.8	30.6	30.7	2.6	18.4	18.4
Cycle Q Clear(g_c), s	4.3	0.0	9.6	5.8	0.0	15.9	3.8	30.6	30.7	2.6	18.4	18.4
Prop In Lane	1.00		0.76	1.00		0.75	1.00		0.07	1.00		0.18
Lane Grp Cap(c), veh/h	192	0	263	279	0	301	349	832	866	222	793	808
V/C Ratio(X)	0.44	0.00	0.61	0.42	0.00	0.87	0.36	0.75	0.75	0.38	0.53	0.53
Avail Cap(c_a), veh/h	235	0	506	327	0	556	407	1026	1067	316	1018	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	0.0	40.6	33.2	0.0	41.6	14.9	22.3	22.3	18.5	19.8	19.8
Incr Delay (d2), s/veh	1.6	0.0	2.3	1.0	0.0	7.7	0.6	3.7	3.6	1.1	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	3.9	2.5	0.0	7.2	1.4	11.8	12.3	1.0	6.9	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	0.0	42.8	34.2	0.0	49.3	15.6	26.1	26.0	19.5	21.0	21.0
LnGrp LOS	D	A	D	C	A	D	B	C	C	B	C	C
Approach Vol, veh/h		245			379			1405			938	
Approach Delay, s/veh		40.5			44.6			25.1			20.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	55.3	12.1	24.4	11.4	56.4	10.3	26.2
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 62	10.5	32.6	* 10	* 61	8.5	34.6
Max Q Clear Time (g_c+I1), s	5.8	20.4	7.8	11.6	4.6	32.7	6.3	17.9
Green Ext Time (p_c), s	0.1	12.3	0.1	0.5	0.1	17.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	115	212	31	1160	128	187	817
v/c Ratio	0.11	0.47	0.33	0.08	0.74	0.16	0.54	0.28
Control Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Length 50th (ft)	0	77	25	8	360	0	53	118
Queue Length 95th (ft)	0	161	100	21	475	17	132	157
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		300	300	
Base Capacity (vph)	357	317	689	385	2573	1195	395	4052
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.31	0.08	0.45	0.11	0.47	0.20

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1689			1770	1583	1770	3539	1583	1770	5056	
Flt Permitted		0.98			0.95	1.00	0.33	1.00	1.00	0.11	1.00	
Satd. Flow (perm)		1689			1770	1583	618	3539	1583	204	5056	
Peak-hour factor, PHF	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Adj. Flow (vph)	19	0	22	115	0	212	31	1160	128	187	786	31
RTOR Reduction (vph)	0	39	0	0	0	119	0	0	70	0	3	0
Lane Group Flow (vph)	0	2	0	0	115	93	31	1160	58	187	814	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Effective Green, g (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Actuated g/C Ratio		0.06			0.13	0.27	0.48	0.45	0.45	0.64	0.56	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		96			234	508	331	1604	717	338	2816	
v/s Ratio Prot		c0.00			c0.06	0.02	0.00	c0.33		c0.07	0.16	
v/s Ratio Perm						0.03	0.04		0.04	0.28		
v/c Ratio		0.02			0.49	0.18	0.09	0.72	0.08	0.55	0.29	
Uniform Delay, d1		47.6			43.1	30.3	14.6	23.8	16.6	14.8	12.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			1.6	0.2	0.1	1.6	0.0	2.0	0.1	
Delay (s)		47.7			44.7	30.5	14.7	25.4	16.6	16.8	12.6	
Level of Service		D			D	C	B	C	B	B	B	
Approach Delay (s)		47.7			35.5			24.3			13.4	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

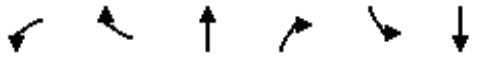
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	22	115	0	212	31	1160	128	187	786	31
Peak Hour Factor	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	0	73	257	0	353	405	1613	720	293	2506	99
Arrive On Green	0.08	0.00	0.08	0.14	0.00	0.14	0.03	0.45	0.45	0.08	0.50	0.50
Sat Flow, veh/h	774	0	896	1781	0	1585	1781	3554	1585	1781	5040	198
Grp Volume(v), veh/h	41	0	0	115	0	212	31	1160	128	187	530	287
Grp Sat Flow(s),veh/h/ln	1670	0	0	1781	0	1585	1781	1777	1585	1781	1702	1835
Q Serve(g_s), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Prop In Lane	0.46		0.54	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	137	0	0	257	0	353	405	1613	720	293	1692	912
V/C Ratio(X)	0.30	0.00	0.00	0.45	0.00	0.60	0.08	0.72	0.18	0.64	0.31	0.31
Avail Cap(c_a), veh/h	202	0	0	305	0	395	450	2541	1133	441	2777	1497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	0.0	38.8	0.0	34.6	13.3	22.0	16.1	18.3	14.9	14.9
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.2	0.0	2.1	0.1	0.6	0.1	2.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.7	0.0	4.8	0.3	9.7	1.6	2.0	3.1	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	0.0	40.1	0.0	36.7	13.4	22.6	16.2	20.6	15.0	15.1
LnGrp LOS	D	A	A	D	A	D	B	C	B	C	B	B
Approach Vol, veh/h		41			327			1319			1004	
Approach Delay, s/veh		44.1			37.9			21.8			16.1	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	55.4		14.1	13.7	51.1		20.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	81.0		12.0	16.0	71.0		17.0				
Max Q Clear Time (g_c+I1), s	2.9	11.3		4.3	7.4	28.3		13.9				
Green Ext Time (p_c), s	0.0	9.7		0.0	0.4	16.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		21.9	
HCM 6th LOS		C	

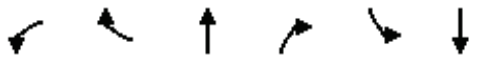


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	391	396	1054	1045	198	677
v/c Ratio	1.08	0.84	0.38	0.77	0.65	0.20
Control Delay	125.3	49.5	26.2	19.8	22.2	9.6
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	125.3	49.5	26.2	20.3	22.2	9.6
Queue Length 50th (ft)	~439	232	306	652	69	88
Queue Length 95th (ft)	#653	#408	393	922	104	106
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	363	470	2766	1358	303	3308
Starvation Cap Reductn	0	0	0	79	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.84	0.38	0.82	0.65	0.20

Intersection Summary

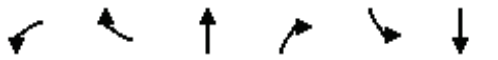
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	364	970	961	182	623
Future Volume (vph)	360	364	970	961	182	623
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	1612	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.23	1.00
Satd. Flow (perm)	1719	1583	4940	1568	397	4893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	396	1054	1045	198	677
RTOR Reduction (vph)	0	136	0	63	0	0
Lane Group Flow (vph)	391	260	1054	982	198	677
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	32.8	32.8	86.8	119.6	94.6	104.8
Effective Green, g (s)	32.8	32.8	86.8	119.6	94.6	104.8
Actuated g/C Ratio	0.21	0.21	0.56	0.77	0.61	0.68
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	363	334	2766	1209	303	3308
v/s Ratio Prot	c0.23		0.21	c0.17	c0.03	0.14
v/s Ratio Perm		0.16		0.45	0.37	
v/c Ratio	1.08	0.78	0.38	0.81	0.65	0.20
Uniform Delay, d1	61.1	57.7	19.1	10.8	14.3	9.4
Progression Factor	1.00	1.00	1.35	3.82	1.00	1.00
Incremental Delay, d2	69.4	13.6	0.3	4.4	5.0	0.1
Delay (s)	130.5	71.3	26.0	45.8	19.3	9.6
Level of Service	F	E	C	D	B	A
Approach Delay (s)	100.7		35.9			11.8
Approach LOS	F		D			B

Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	360	364	970	961	182	623
Future Volume (veh/h)	360	364	970	961	182	623
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	391	396	1054	1045	198	677
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	368	335	2791	1213	230	3343
Arrive On Green	0.21	0.21	1.00	1.00	0.05	0.68
Sat Flow, veh/h	1739	1585	5149	1572	1640	5107
Grp Volume(v), veh/h	391	396	1054	1045	198	677
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1640	1648
Q Serve(g_s), s	32.8	32.8	0.0	86.8	7.8	8.0
Cycle Q Clear(g_c), s	32.8	32.8	0.0	86.8	7.8	8.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	368	335	2791	1213	230	3343
V/C Ratio(X)	1.06	1.18	0.38	0.86	0.86	0.20
Avail Cap(c_a), veh/h	368	335	2791	1213	230	3343
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	61.1	61.1	0.0	8.1	17.6	9.4
Incr Delay (d2), s/veh	64.4	107.7	0.3	6.9	26.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	22.8	0.1	7.3	4.7	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	125.5	168.8	0.3	15.0	44.4	9.6
LnGrp LOS	F	F	A	B	D	A
Approach Vol, veh/h	787		2099			875
Approach Delay, s/veh	147.3		7.6			17.4
Approach LOS	F		A			B

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		115.0			18.0	97.0	40.0
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		104.8			7.8	86.8	32.8
Max Q Clear Time (g_c+I1), s		10.0			9.8	88.8	34.8
Green Ext Time (p_c), s		7.6			0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.1
HCM 6th LOS	D



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	138	414	421	772
v/c Ratio	0.42	0.46	0.85	1.18
Control Delay	17.3	17.9	50.3	122.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.3	17.9	50.3	122.6
Queue Length 50th (ft)	46	164	248	~539
Queue Length 95th (ft)	79	234	389	#963
Internal Link Dist (ft)		2439	275	2104
Turn Bay Length (ft)	275			
Base Capacity (vph)	486	1443	807	656
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.28	0.29	0.52	1.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.94				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1759			1656				
Flt Permitted	0.20	1.00			1.00			0.97				
Satd. Flow (perm)	338	1827			1759			1656				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	138	414	0	0	421	0	424	0	348	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	65	0	0	0	0
Lane Group Flow (vph)	138	414	0	0	421	0	0	707	0	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	48.6	48.6			28.1			35.5				
Effective Green, g (s)	48.6	48.6			28.1			35.5				
Actuated g/C Ratio	0.49	0.49			0.28			0.36				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	332	895			498			593				
v/s Ratio Prot	0.05	c0.23			c0.24							
v/s Ratio Perm	0.15							0.43				
v/c Ratio	0.42	0.46			0.85			1.19				
Uniform Delay, d1	16.9	16.6			33.5			31.8				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.8	0.4			12.5			102.5				
Delay (s)	17.7	17.0			45.9			134.3				
Level of Service	B	B			D			F				
Approach Delay (s)		17.2			45.9			134.3			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	76.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	99.1	Sum of lost time (s)	22.4
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	138	414	0	0	421	0	424	0	348			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	257	807	0	0	489	0	370	0	304			
Arrive On Green	0.08	0.44	0.00	0.00	0.27	0.00	0.39	0.00	0.39			
Sat Flow, veh/h	1626	1841	0	0	1781	0	941	0	773			
Grp Volume(v), veh/h	138	414	0	0	421	0	772	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1714	0	0			
Q Serve(g_s), s	5.1	14.5	0.0	0.0	20.0	0.0	35.0	0.0	0.0			
Cycle Q Clear(g_c), s	5.1	14.5	0.0	0.0	20.0	0.0	35.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.55		0.45			
Lane Grp Cap(c), veh/h	257	807	0	0	489	0	673	0	0			
V/C Ratio(X)	0.54	0.51	0.00	0.00	0.86	0.00	1.15	0.00	0.00			
Avail Cap(c_a), veh/h	581	1600	0	0	900	0	673	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	22.0	18.1	0.0	0.0	30.7	0.0	27.0	0.0	0.0			
Incr Delay (d2), s/veh	1.7	0.5	0.0	0.0	4.6	0.0	82.5	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.9	5.6	0.0	0.0	8.6	0.0	28.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	18.6	0.0	0.0	35.3	0.0	109.6	0.0	0.0			
LnGrp LOS	C	B	A	A	D	A	F	A	A			
Approach Vol, veh/h		552			421			772				
Approach Delay, s/veh		19.9			35.3			109.6				
Approach LOS		B			D			F				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		46.5		42.6	14.6	31.8			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		16.5		37.0	7.1	22.0			
Green Ext Time (p_c), s		2.6		0.0	0.3	2.4			

Intersection Summary		
HCM 6th Ctrl Delay		63.3
HCM 6th LOS		E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	296	388	205	668	277
v/c Ratio	0.62	0.57	0.41	0.66	0.63
Control Delay	33.0	6.4	12.1	16.5	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	6.4	12.1	16.5	36.0
Queue Length 50th (ft)	126	0	46	208	121
Queue Length 95th (ft)	255	68	104	410	252
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	882	943	581	1535	1154
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.41	0.35	0.44	0.24

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1774	
Flt Permitted		1.00	1.00	0.37	1.00						0.95	
Satd. Flow (perm)		1696	1455	598	1810						1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	388	205	668	0	0	0	0	276	1	0
RTOR Reduction (vph)	0	0	277	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	111	205	668	0	0	0	0	0	277	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		22.9	22.9	45.2	45.2						19.9	
Effective Green, g (s)		22.9	22.9	45.2	45.2						19.9	
Actuated g/C Ratio		0.29	0.29	0.57	0.57						0.25	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		486	417	508	1023						441	
v/s Ratio Prot		0.17		0.07	c0.37							
v/s Ratio Perm			0.08	0.16							0.16	
v/c Ratio		0.61	0.27	0.40	0.65						0.63	
Uniform Delay, d1		24.6	22.0	9.7	11.9						26.7	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		2.5	0.5	0.5	1.7						3.2	
Delay (s)		27.1	22.5	10.2	13.6						29.9	
Level of Service		C	C	B	B						C	
Approach Delay (s)		24.5			12.8			0.0			29.9	
Approach LOS		C			B			A			C	

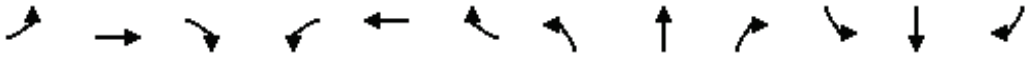
Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	22.7
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	296	388	205	668	0				276	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	584	499	423	1047	0				359	1	0
Arrive On Green	0.00	0.34	0.34	0.11	0.57	0.00				0.20	0.20	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1803	7	0
Grp Volume(v), veh/h	0	296	388	205	668	0				277	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	8.9	15.4	5.1	16.0	0.0				9.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.9	15.4	5.1	16.0	0.0				9.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h	0	584	499	423	1047	0				360	0	0
V/C Ratio(X)	0.00	0.51	0.78	0.48	0.64	0.00				0.77	0.00	0.00
Avail Cap(c_a), veh/h	0	1058	905	728	1905	0				1390	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.2	19.3	11.3	9.3	0.0				24.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	3.7	0.9	0.9	0.0				4.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.2	4.9	1.5	4.6	0.0				4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.1	23.0	12.2	10.3	0.0				29.6	0.0	0.0
LnGrp LOS	A	B	C	B	B	A				C	A	A
Approach Vol, veh/h		684			873						277	
Approach Delay, s/veh		20.9			10.7						29.6	
Approach LOS		C			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		45.2		19.9	15.3	30.0						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		18.0		11.4	7.1	17.4						
Green Ext Time (p_c), s		7.7		1.6	0.5	4.7						

Intersection Summary												
HCM 6th Ctrl Delay			17.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Future Volume (Veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	74	61	8	63	1	248	2	9	1	1	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked												
vC, conflicting volume	64			135			320	252	104	262	282	64
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			135			320	252	104	262	282	64
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			56	100	99	100	100	92
cM capacity (veh/h)	1431			1201			563	634	911	671	611	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	169	72	259	70
Volume Left	34	8	248	1
Volume Right	61	1	9	68
cSH	1431	1201	571	852
Volume to Capacity	0.02	0.01	0.45	0.08
Queue Length 95th (ft)	2	1	59	7
Control Delay (s)	1.7	0.9	16.4	9.6
Lane LOS	A	A	C	A
Approach Delay (s)	1.7	0.9	16.4	9.6
Approach LOS			C	A

Intersection Summary				
Average Delay	9.3			
Intersection Capacity Utilization	41.3%	ICU Level of Service	A	
Analysis Period (min)	15			

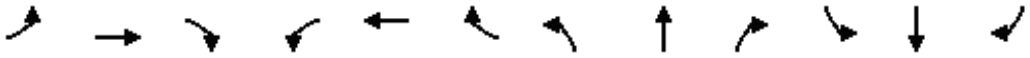
Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Future Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	34	74	61	8	63	1	248	2	9	1	1	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	135	0	0	287	253	105	258	283	64
Stage 1	-	-	-	-	-	-	173	173	-	80	80	-
Stage 2	-	-	-	-	-	-	114	80	-	178	203	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1431	-	-	1201	-	-	659	654	910	699	629	859
Stage 1	-	-	-	-	-	-	822	760	-	934	832	-
Stage 2	-	-	-	-	-	-	884	832	-	828	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1201	-	-	590	632	910	673	608	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	632	-	673	608	-
Stage 1	-	-	-	-	-	-	801	740	-	910	826	-
Stage 2	-	-	-	-	-	-	807	826	-	796	718	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.9	15.6	9.6
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1431	-	-	1201	-	-	850
HCM Lane V/C Ratio	0.433	0.024	-	-	0.006	-	-	0.083
HCM Control Delay (s)	15.6	7.6	0	-	8	0	-	9.6
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Future Volume (Veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	249	1	11	23	58	10	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	400	163	11	152	152	22	12			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	400	163	11	152	152	22	12			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	76	100			96		
cM capacity (veh/h)	418	702	1076	791	712	1054	1620			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	261	35	70
Volume Left	1	12	1	58
Volume Right	1	249	23	2
cSH	602	1039	1620	1578
Volume to Capacity	0.00	0.25	0.00	0.04
Queue Length 95th (ft)	0	25	0	3
Control Delay (s)	11.0	9.6	0.2	6.2
Lane LOS	B	A	A	A
Approach Delay (s)	11.0	9.6	0.2	6.2
Approach LOS	B	A		

Intersection Summary				
Average Delay	8.1			
Intersection Capacity Utilization	31.6%	ICU Level of Service	A	
Analysis Period (min)	15			

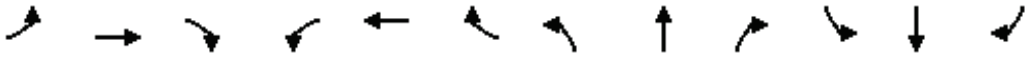
Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Future Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	25	2	2	0	0
Mvmt Flow	1	0	1	12	0	249	1	11	23	58	10	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	276	163	11	153	153	23	12	0	0	34	0	0
Stage 1	127	127	-	25	25	-	-	-	-	-	-	-
Stage 2	149	36	-	128	128	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	729	1076	814	739	1054	1620	-	-	1578	-	-
Stage 1	882	791	-	993	874	-	-	-	-	-	-	-
Stage 2	858	865	-	876	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	505	701	1076	790	711	1054	1620	-	-	1578	-	-
Mov Cap-2 Maneuver	505	701	-	790	711	-	-	-	-	-	-	-
Stage 1	881	762	-	992	873	-	-	-	-	-	-	-
Stage 2	655	864	-	843	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9.6	0.2	6.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	687	1038	1578	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.251	0.037	-	-
HCM Control Delay (s)	7.2	0	-	10.3	9.6	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Future Volume (Veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	247	60	3	271	1	49	0	2	1	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	272			307			580	573	277	574	602	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272			307			580	573	277	574	602	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			88	100	100	100	100	99
cM capacity (veh/h)	1291			1254			418	426	762	425	409	767

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	316	275	51	9
Volume Left	9	3	49	1
Volume Right	60	1	2	8
cSH	1291	1254	425	704
Volume to Capacity	0.01	0.00	0.12	0.01
Queue Length 95th (ft)	1	0	10	1
Control Delay (s)	0.3	0.1	14.6	10.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	0.1	14.6	10.2
Approach LOS			B	B

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	36.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Future Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	247	60	3	271	1	49	0	2	1	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	272	0	0	307	0	0	577	573	277	574	603	272
Stage 1	-	-	-	-	-	-	295	295	-	278	278	-
Stage 2	-	-	-	-	-	-	282	278	-	296	325	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1291	-	-	1254	-	-	428	430	762	430	413	767
Stage 1	-	-	-	-	-	-	713	669	-	728	680	-
Stage 2	-	-	-	-	-	-	725	680	-	712	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1291	-	-	1254	-	-	420	425	762	425	408	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	425	-	425	408	-
Stage 1	-	-	-	-	-	-	707	664	-	722	678	-
Stage 2	-	-	-	-	-	-	716	678	-	704	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	14.5	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	428	1291	-	-	1254	-	-	697
HCM Lane V/C Ratio	0.119	0.007	-	-	0.003	-	-	0.012
HCM Control Delay (s)	14.5	7.8	0	-	7.9	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	27	1	231	22	1
Future Volume (Veh/h)	203	27	1	231	22	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	29	1	251	24	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			250		488	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		488	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1316		538	804

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	250	252	25
Volume Left	0	1	24
Volume Right	29	0	1
cSH	1700	1316	545
Volume to Capacity	0.15	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	11.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

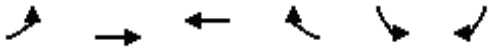
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	27	1	231	22	1
Future Vol, veh/h	203	27	1	231	22	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	221	29	1	251	24	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	250	0	489	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1316	-	538	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1316	-	537	803
Mov Cap-2 Maneuver	-	-	-	-	537	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	1316	-
HCM Lane V/C Ratio	0.046	-	-	0.001	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	160	196	2	1	36
Future Volume (Veh/h)	44	160	196	2	1	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	174	213	2	1	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	215				484	214
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215				484	214
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	95
cM capacity (veh/h)	1355				523	826

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	222	215	40
Volume Left	48	0	1
Volume Right	0	2	39
cSH	1355	1700	814
Volume to Capacity	0.04	0.13	0.05
Queue Length 95th (ft)	3	0	4
Control Delay (s)	1.9	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	1.9	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

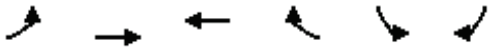
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	160	196	2	1	36
Future Vol, veh/h	44	160	196	2	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	174	213	2	1	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	215	0	-	0	484	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1355	-	-	-	542	826
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1355	-	-	-	521	826
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	813
HCM Lane V/C Ratio	0.035	-	-	-	0.049
HCM Control Delay (s)	7.8	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	161	198	158	35	1
Future Volume (Veh/h)	1	161	198	158	35	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	175	215	172	38	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	387				478	301
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387				478	301
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	100
cM capacity (veh/h)	1171				546	739

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	176	387	39
Volume Left	1	0	38
Volume Right	0	172	1
cSH	1171	1700	549
Volume to Capacity	0.00	0.23	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.1	0.0	12.1
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	12.1
Approach LOS			B

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		30.1%	ICU Level of Service
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	161	198	158	35	1
Future Vol, veh/h	1	161	198	158	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	175	215	172	38	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	387	0	-	0	478	301
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1171	-	-	-	546	739
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	854	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1171	-	-	-	545	739
Mov Cap-2 Maneuver	-	-	-	-	545	-
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	854	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1171	-	-	-	549
HCM Lane V/C Ratio	0.001	-	-	-	0.071
HCM Control Delay (s)	8.1	0	-	-	12.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	41	2	323	33	2
Future Volume (Veh/h)	155	41	2	323	33	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	168	45	2	351	36	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			213		546	190
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		546	190
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1357		498	851

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	353	38
Volume Left	0	2	36
Volume Right	45	0	2
cSH	1700	1357	509
Volume to Capacity	0.13	0.00	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.1	12.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.6
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

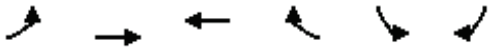
Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	155	41	2	323	33	2
Future Vol, veh/h	155	41	2	323	33	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	45	2	351	36	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	213	0	546	191
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	355	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1357	-	499	851
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1357	-	498	851
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	510	-	-	1357	-
HCM Lane V/C Ratio	0.075	-	-	0.002	-
HCM Control Delay (s)	12.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	67	252	5	4	73
Future Volume (Veh/h)	90	67	252	5	4	73
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	73	274	5	4	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	279				546	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				546	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	90
cM capacity (veh/h)	1284				461	762

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	171	279	83
Volume Left	98	0	4
Volume Right	0	5	79
cSH	1284	1700	739
Volume to Capacity	0.08	0.16	0.11
Queue Length 95th (ft)	6	0	9
Control Delay (s)	4.9	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	4.9	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	67	252	5	4	73
Future Vol, veh/h	90	67	252	5	4	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	73	274	5	4	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	279	0	-	0	546	277
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1284	-	-	-	499	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	776	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	459	762
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	776	-

Approach	EB	WB	SB
HCM Control Delay, s	4.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	737
HCM Lane V/C Ratio	0.076	-	-	-	0.114
HCM Control Delay (s)	8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	8	1	250	7	1
Future Volume (Veh/h)	63	8	1	250	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	9	1	272	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			77		346	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		346	72
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1522		650	990

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	273	9
Volume Left	0	1	8
Volume Right	9	0	1
cSH	1700	1522	676
Volume to Capacity	0.05	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	10.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

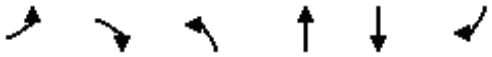
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	8	1	250	7	1
Future Vol, veh/h	63	8	1	250	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	9	1	272	8	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	347	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1522	-	650	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1522	-	649	989
Mov Cap-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	678	-	-	1522	-
HCM Lane V/C Ratio	0.013	-	-	0.001	-
HCM Control Delay (s)	10.4	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	1	1	1	1	9
Future Volume (Veh/h)	8	1	1	1	1	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	1	1	1	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	9	6	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9	6	11			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	1011	1077	1608			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	2	11
Volume Left	9	1	0
Volume Right	1	0	10
cSH	1017	1608	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	1	1	1	1	9
Future Vol, veh/h	8	1	1	1	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	1	1	1	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	9	6	11	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1011	1077	1608	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1010	1077	1608	-	-	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1017	-	-
HCM Lane V/C Ratio	0.001	-	0.01	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	134	364	913	155	274	544	449	82	32	1443	74
v/c Ratio	0.61	1.26	2.67	1.24	0.91	2.34	0.19	0.07	0.36	0.65	0.06
Control Delay	92.2	200.2	781.8	219.8	110.3	647.9	12.1	1.3	90.9	22.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.2	200.2	781.8	219.8	110.3	647.9	12.1	1.3	90.9	22.5	1.7
Queue Length 50th (ft)	78	~273	~1713	~219	165	~523	103	0	36	531	2
Queue Length 95th (ft)	118	#387	#1979	#381	#268	#648	137	16	76	603	17
Internal Link Dist (ft)		2754			953		8663			2896	
Turn Bay Length (ft)	500		500	300		400		700	550		700
Base Capacity (vph)	235	290	342	125	300	232	2377	1220	126	2212	1167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	1.26	2.67	1.24	0.91	2.34	0.19	0.07	0.25	0.65	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	349	876	149	236	27	522	431	79	31	1385	71
Future Volume (vph)	129	349	876	149	236	27	522	431	79	31	1385	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3574	1568	1770	3523		3335	3574	1568	1736	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3574	1568	1770	3523		3335	3574	1568	1736	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	364	912	155	246	28	544	449	82	32	1443	74
RTOR Reduction (vph)	0	0	56	0	5	0	0	0	22	0	0	21
Lane Group Flow (vph)	134	364	857	155	269	0	544	449	60	32	1443	53
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	11.1	14.2	26.4	12.4	14.7		12.2	115.0	127.4	7.5	109.4	120.5
Effective Green, g (s)	11.1	14.2	26.4	12.4	14.7		12.2	115.0	127.4	7.5	109.4	120.5
Actuated g/C Ratio	0.06	0.08	0.15	0.07	0.08		0.07	0.66	0.73	0.04	0.63	0.69
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	217	290	236	125	295		232	2348	1141	74	2212	1090
v/s Ratio Prot	0.04	0.10	c0.25	c0.09	0.08		0.16	c0.13	0.00	0.02	c0.41	0.00
v/s Ratio Perm			0.29						0.03			0.03
v/c Ratio	0.62	1.26	3.63	1.24	0.91		2.34	0.19	0.05	0.43	0.65	0.05
Uniform Delay, d1	79.9	80.4	74.3	81.3	79.5		81.4	11.8	6.7	81.7	20.8	8.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	139.9	1194.5	158.6	30.8		618.4	0.2	0.0	4.0	1.5	0.0
Delay (s)	85.0	220.3	1268.8	239.9	110.3		699.8	11.9	6.7	85.7	22.3	8.8
Level of Service	F	F	F	F	F		F	B	A	F	C	A
Approach Delay (s)		885.9			157.1			359.6			22.9	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	389.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	117.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	349	876	149	236	27	522	431	79	31	1385	71
Future Volume (veh/h)	129	349	876	149	236	27	522	431	79	31	1385	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1870	1885	1900	1826	1885	1856	1841	1870	1870
Adj Flow Rate, veh/h	134	364	912	155	246	28	544	449	82	32	1443	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	174	291	237	126	322	36	235	2380	1156	55	2213	1067
Arrive On Green	0.05	0.08	0.08	0.07	0.10	0.10	0.07	0.66	0.66	0.03	0.62	0.62
Sat Flow, veh/h	3456	3582	1572	1781	3245	366	3374	3582	1572	1753	3554	1585
Grp Volume(v), veh/h	134	364	912	155	135	139	544	449	82	32	1443	74
Grp Sat Flow(s),veh/h/ln	1728	1791	1572	1781	1791	1819	1687	1791	1572	1753	1777	1585
Q Serve(g_s), s	6.7	14.2	14.2	12.4	12.8	13.1	12.2	8.4	2.5	3.2	45.1	2.8
Cycle Q Clear(g_c), s	6.7	14.2	14.2	12.4	12.8	13.1	12.2	8.4	2.5	3.2	45.1	2.8
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	291	237	126	178	181	235	2380	1156	55	2213	1067
V/C Ratio(X)	0.77	1.25	3.84	1.23	0.76	0.77	2.31	0.19	0.07	0.58	0.65	0.07
Avail Cap(c_a), veh/h	237	291	237	126	178	181	235	2380	1156	128	2222	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.1	80.4	74.3	81.3	76.8	76.9	81.4	11.3	6.5	83.6	21.0	9.8
Incr Delay (d2), s/veh	10.0	138.7	1290.2	153.8	17.0	18.3	602.3	0.2	0.1	9.2	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	12.1	95.6	11.1	6.8	7.1	25.0	3.4	0.9	1.6	18.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	219.1	1364.5	235.1	93.8	95.2	683.7	11.4	6.6	92.8	22.5	9.9
LnGrp LOS	F	F	F	F	F	F	F	B	A	F	C	A
Approach Vol, veh/h		1410			429			1075			1549	
Approach Delay, s/veh		947.9			145.3			351.2			23.3	
Approach LOS		F			F			F			C	

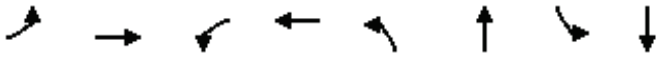
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	121.9	16.8	23.6	20.0	114.6	20.0	20.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	12.8	* 1.1E2	* 12	* 14	12.2	* 1.1E2	12.4	* 14
Max Q Clear Time (g_c+I1), s	5.2	10.4	8.7	15.1	14.2	47.1	14.4	16.2
Green Ext Time (p_c), s	0.0	24.8	0.1	0.0	0.0	59.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	406.1
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	259	69	177	91	927	235	2302
v/c Ratio	0.37	0.98	0.41	0.71	0.75	0.50	0.60	1.12
Control Delay	45.3	99.6	47.5	48.9	59.1	22.5	15.8	88.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	99.6	47.5	48.9	59.1	22.5	15.8	88.1
Queue Length 50th (ft)	57	~197	48	86	30	274	76	~1263
Queue Length 95th (ft)	102	#391	90	171	#136	371	119	#1434
Internal Link Dist (ft)		1275		420		3738		8663
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	241	263	200	278	122	1848	450	2061
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.98	0.34	0.64	0.75	0.50	0.52	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1686		1583	1622		1770	3467		1752	3513	
Flt Permitted	0.37	1.00		0.25	1.00		0.06	1.00		0.21	1.00	
Satd. Flow (perm)	656	1686		417	1622		103	3467		396	3513	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	99	160	69	49	128	91	876	51	235	2216	86
RTOR Reduction (vph)	0	42	0	0	68	0	0	3	0	0	2	0
Lane Group Flow (vph)	81	217	0	69	109	0	91	924	0	235	2300	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	28.0	17.8		24.4	16.0		77.3	72.1		91.4	79.4	
Effective Green, g (s)	28.0	17.8		24.4	16.0		77.3	72.1		91.4	79.4	
Actuated g/C Ratio	0.21	0.13		0.18	0.12		0.57	0.53		0.67	0.58	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	210	220		146	190		122	1833		389	2046	
v/s Ratio Prot	0.03	c0.13		c0.03	0.07		0.03	0.27		c0.06	c0.65	
v/s Ratio Perm	0.05			0.06			0.39			0.35		
v/c Ratio	0.39	0.99		0.47	0.57		0.75	0.50		0.60	1.12	
Uniform Delay, d1	45.4	59.1		48.5	56.9		31.3	20.6		12.1	28.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	56.6		2.4	4.1		21.7	0.5		2.6	62.9	
Delay (s)	46.6	115.7		50.9	61.1		53.0	21.1		14.7	91.4	
Level of Service	D	F		D	E		D	C		B	F	
Approach Delay (s)		99.3			58.2			23.9			84.3	
Approach LOS		F			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	69.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	136.3	Sum of lost time (s)	25.5
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	81	99	160	69	49	128	91	876	51	235	2216	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	169	85	138	132	57	150	118	1876	109	425	2068	80
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.04	0.55	0.55	0.07	0.59	0.59
Sat Flow, veh/h	1697	648	1048	1612	455	1187	1781	3386	197	1767	3489	134
Grp Volume(v), veh/h	81	0	259	69	0	177	91	456	471	235	1121	1181
Grp Sat Flow(s),veh/h/ln	1697	0	1697	1612	0	1642	1781	1763	1820	1767	1777	1846
Q Serve(g_s), s	5.5	0.0	17.6	4.9	0.0	14.1	2.9	20.8	20.8	7.5	79.2	79.2
Cycle Q Clear(g_c), s	5.5	0.0	17.6	4.9	0.0	14.1	2.9	20.8	20.8	7.5	79.2	79.2
Prop In Lane	1.00		0.62	1.00		0.72	1.00		0.11	1.00		0.07
Lane Grp Cap(c), veh/h	169	0	224	132	0	207	118	977	1009	425	1054	1095
V/C Ratio(X)	0.48	0.00	1.16	0.52	0.00	0.85	0.77	0.47	0.47	0.55	1.06	1.08
Avail Cap(c_a), veh/h	236	0	224	205	0	216	123	977	1009	533	1054	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	58.0	48.6	0.0	57.1	32.3	17.9	17.9	13.2	27.2	27.2
Incr Delay (d2), s/veh	2.1	0.0	109.7	3.2	0.0	26.0	24.2	0.7	0.7	1.1	46.6	51.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	14.2	2.1	0.0	7.4	2.3	7.9	8.2	2.8	42.9	45.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	0.0	167.7	51.8	0.0	83.1	56.6	18.6	18.6	14.3	73.8	78.2
LnGrp LOS	D	A	F	D	A	F	E	B	B	B	F	F
Approach Vol, veh/h		340			246			1018			2537	
Approach Delay, s/veh		139.6			74.3			22.0			70.3	
Approach LOS		F			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	86.0	10.9	25.0	16.8	80.8	11.7	24.3
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 5.2	* 79	12.5	17.6	* 18	* 66	12.5	17.6
Max Q Clear Time (g_c+I1), s	4.9	81.2	6.9	19.6	9.5	22.8	7.5	16.1
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.5	13.4	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	64.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	57	100	29	909	35	104	2367
v/c Ratio	0.21	0.26	0.28	0.17	0.44	0.04	0.26	0.69
Control Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Length 50th (ft)	0	45	0	7	214	0	28	541
Queue Length 95th (ft)	4	91	49	18	263	0	48	606
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		300	300	
Base Capacity (vph)	479	216	360	172	2396	1109	396	3436
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.28	0.17	0.38	0.03	0.26	0.69

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.90			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1661			1770	1583	1770	3539	1583	1770	5077	
Flt Permitted		0.99			0.95	1.00	0.06	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1661			1770	1583	108	3539	1583	464	5077	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	0	46	57	0	100	29	909	35	104	2340	27
RTOR Reduction (vph)	0	60	0	0	0	87	0	0	14	0	1	0
Lane Group Flow (vph)	0	5	0	0	57	13	29	909	21	104	2366	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Effective Green, g (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Actuated g/C Ratio		0.07			0.07	0.13	0.62	0.59	0.59	0.68	0.62	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		120			128	288	110	2090	935	391	3160	
v/s Ratio Prot		c0.00			c0.03	0.00	0.01	0.26		c0.02	c0.47	
v/s Ratio Perm						0.01	0.15		0.01	0.17		
v/c Ratio		0.04			0.45	0.05	0.26	0.43	0.02	0.27	0.75	
Uniform Delay, d1		50.4			51.9	44.4	13.6	13.2	9.9	7.5	15.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			2.5	0.1	1.3	0.1	0.0	0.4	1.0	
Delay (s)		50.5			54.4	44.4	14.9	13.3	9.9	7.9	16.6	
Level of Service		D			D	D	B	B	A	A	B	
Approach Delay (s)		50.5			48.0			13.2			16.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

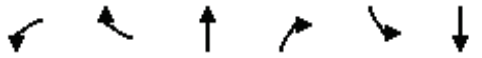
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	46	57	0	100	29	909	35	104	2340	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	0	102	175	0	232	151	2017	900	402	3043	35
Arrive On Green	0.09	0.00	0.09	0.10	0.00	0.10	0.03	0.57	0.57	0.05	0.58	0.58
Sat Flow, veh/h	479	0	1159	1781	0	1585	1781	3554	1585	1781	5204	60
Grp Volume(v), veh/h	65	0	0	57	0	100	29	909	35	104	1530	837
Grp Sat Flow(s),veh/h/ln	1638	0	0	1781	0	1585	1781	1777	1585	1781	1702	1860
Q Serve(g_s), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Cycle Q Clear(g_c), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Prop In Lane	0.29		0.71	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	144	0	0	175	0	232	151	2017	900	402	1991	1088
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.43	0.19	0.45	0.04	0.26	0.77	0.77
Avail Cap(c_a), veh/h	311	0	0	176	0	233	184	2198	981	405	2106	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	0.0	50.9	0.0	47.1	17.8	15.2	11.6	11.1	19.0	19.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	1.3	0.6	0.2	0.0	0.3	1.7	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	1.7	0.0	2.9	0.3	6.5	0.4	1.0	14.3	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	0.0	52.0	0.0	48.4	18.4	15.4	11.6	11.5	20.7	22.1
LnGrp LOS	D	A	A	D	A	D	B	B	B	B	C	C
Approach Vol, veh/h		65			157			973			2471	
Approach Delay, s/veh		54.7			49.7			15.3			20.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	76.9		16.7	11.8	74.8		17.9				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	75.0		23.0	6.0	75.0		12.0				
Max Q Clear Time (g_c+I1), s	2.8	43.2		6.6	4.9	20.0		9.0				
Green Ext Time (p_c), s	0.0	27.7		0.2	0.0	12.2		0.2				

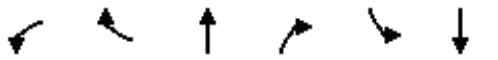
Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	608	174	729	680	378	2117
v/c Ratio	0.90	0.26	0.50	0.56	0.90	0.84
Control Delay	63.4	4.9	63.6	9.5	53.1	38.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3
Total Delay	63.4	4.9	63.6	9.5	53.1	39.2
Queue Length 50th (ft)	589	0	234	138	250	698
Queue Length 95th (ft)	#818	50	344	267	#405	764
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	685	679	1471	1234	426	2512
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	76
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.26	0.50	0.55	0.89	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	584	167	700	653	363	2032
Future Volume (vph)	584	167	700	653	363	2032
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	1805	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.29	1.00
Satd. Flow (perm)	1719	1442	5085	1599	547	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	608	174	729	680	378	2117
RTOR Reduction (vph)	0	106	0	41	0	0
Lane Group Flow (vph)	608	68	729	639	378	2117
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	62.8	62.8	46.3	109.1	69.6	79.8
Effective Green, g (s)	62.8	62.8	46.3	109.1	69.6	79.8
Actuated g/C Ratio	0.39	0.39	0.29	0.68	0.43	0.50
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	674	565	1471	1090	421	2511
v/s Ratio Prot	c0.35		0.14	0.23	0.13	c0.42
v/s Ratio Perm		0.05		0.17	c0.26	
v/c Ratio	0.90	0.12	0.50	0.59	0.90	0.84
Uniform Delay, d1	45.7	31.0	47.2	13.5	33.3	34.7
Progression Factor	1.00	1.00	1.31	1.10	1.00	1.00
Incremental Delay, d2	16.8	0.3	1.1	1.4	21.2	3.7
Delay (s)	62.5	31.3	62.9	16.3	54.5	38.3
Level of Service	E	C	E	B	D	D
Approach Delay (s)	55.5		40.4			40.8
Approach LOS	E		D			D

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	584	167	700	653	363	2032
Future Volume (veh/h)	584	167	700	653	363	2032
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	608	174	729	680	378	2117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	654	549	1545	1084	379	2609
Arrive On Green	0.38	0.38	0.10	0.10	0.15	0.51
Sat Flow, veh/h	1739	1459	5274	1598	1810	5233
Grp Volume(v), veh/h	608	174	729	680	378	2117
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1810	1689
Q Serve(g_s), s	53.7	13.5	21.6	32.8	23.7	55.7
Cycle Q Clear(g_c), s	53.7	13.5	21.6	32.8	23.7	55.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	654	549	1545	1084	379	2609
V/C Ratio(X)	0.93	0.32	0.47	0.63	1.00	0.81
Avail Cap(c_a), veh/h	693	582	1545	1084	379	2609
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	47.9	35.3	59.9	17.5	36.7	32.3
Incr Delay (d2), s/veh	20.7	1.2	1.0	2.6	45.3	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.9	4.9	10.0	14.3	15.0	22.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.6	36.5	60.9	20.0	82.1	35.2
LnGrp LOS	E	D	E	C	F	D
Approach Vol, veh/h	782		1409			2495
Approach Delay, s/veh	61.5		41.2			42.3
Approach LOS	E		D			D

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		92.6			34.0	58.6	67.4
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		78.8			23.8	44.8	63.8
Max Q Clear Time (g_c+I1), s		57.7			25.7	34.8	55.7
Green Ext Time (p_c), s		17.9			0.0	6.7	4.6

Intersection Summary	
HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	190	632	575	503
v/c Ratio	0.61	0.62	0.92	1.02
Control Delay	25.8	19.7	56.6	85.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.8	19.7	56.6	85.5
Queue Length 50th (ft)	66	296	397	~409
Queue Length 95th (ft)	141	405	#651	#684
Internal Link Dist (ft)		2439	275	2104
Turn Bay Length (ft)	275			
Base Capacity (vph)	419	1252	721	492
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.50	0.80	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1810			1540				
Flt Permitted	0.12	1.00			1.00			0.97				
Satd. Flow (perm)	195	1827			1810			1540				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	190	632	0	0	575	0	327	1	175	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	190	632	0	0	575	0	0	489	0	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	63.5	63.5			39.6			35.3				
Effective Green, g (s)	63.5	63.5			39.6			35.3				
Actuated g/C Ratio	0.56	0.56			0.35			0.31				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	312	1019			629			477				
v/s Ratio Prot	0.09	c0.35			c0.32							
v/s Ratio Perm	0.25							0.32				
v/c Ratio	0.61	0.62			0.91			1.02				
Uniform Delay, d1	19.7	17.0			35.5			39.2				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	3.4	1.2			17.8			47.5				
Delay (s)	23.1	18.2			53.3			86.7				
Level of Service	C	B			D			F				
Approach Delay (s)		19.3			53.3			86.7			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	113.8	Sum of lost time (s)	22.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	190	632	0	0	575	0	327	1	175			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	274	970	0	0	643	0	354	1	189			
Arrive On Green	0.10	0.53	0.00	0.00	0.35	0.00	0.31	0.31	0.31			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1128	3	604			
Grp Volume(v), veh/h	190	632	0	0	575	0	503	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1735	0	0			
Q Serve(g_s), s	6.6	23.3	0.0	0.0	28.0	0.0	26.4	0.0	0.0			
Cycle Q Clear(g_c), s	6.6	23.3	0.0	0.0	28.0	0.0	26.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.65		0.35			
Lane Grp Cap(c), veh/h	274	970	0	0	643	0	544	0	0			
V/C Ratio(X)	0.69	0.65	0.00	0.00	0.89	0.00	0.92	0.00	0.00			
Avail Cap(c_a), veh/h	550	1514	0	0	873	0	645	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	21.0	16.0	0.0	0.0	28.8	0.0	31.2	0.0	0.0			
Incr Delay (d2), s/veh	3.1	0.7	0.0	0.0	9.2	0.0	17.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.4	8.7	0.0	0.0	12.9	0.0	13.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.1	16.8	0.0	0.0	38.1	0.0	48.6	0.0	0.0			
LnGrp LOS	C	B	A	A	D	A	D	A	A			
Approach Vol, veh/h		822			575			503				
Approach Delay, s/veh		18.5			38.1			48.6				
Approach LOS		B			D			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		57.0		37.1	16.4	40.5						
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4						
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45						
Max Q Clear Time (g_c+I1), s		25.3		28.4	8.6	30.0						
Green Ext Time (p_c), s		4.6		1.2	0.5	3.1						

Intersection Summary												
HCM 6th Ctrl Delay			32.4									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	519	683	380	595	382
v/c Ratio	0.84	0.69	0.87	0.59	0.81
Control Delay	48.2	6.4	40.8	18.4	52.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	6.4	40.8	18.4	52.1
Queue Length 50th (ft)	341	0	161	250	260
Queue Length 95th (ft)	#555	60	#361	417	350
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	641	1005	439	1030	781
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.68	0.87	0.58	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.17	1.00						0.95	
Satd. Flow (perm)		1792	1583	314	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	519	683	380	595	0	0	0	0	370	12	0
RTOR Reduction (vph)	0	0	445	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	519	238	380	595	0	0	0	0	0	382	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		39.1	39.1	67.1	67.1						30.5	
Effective Green, g (s)		39.1	39.1	67.1	67.1						30.5	
Actuated g/C Ratio		0.35	0.35	0.60	0.60						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		623	550	438	1012						474	
v/s Ratio Prot		0.29		c0.15	0.35							
v/s Ratio Perm			0.15	c0.36							0.22	
v/c Ratio		0.83	0.43	0.87	0.59						0.81	
Uniform Delay, d1		33.7	28.1	22.8	14.1						38.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		9.7	0.7	16.4	1.0						10.2	
Delay (s)		43.4	28.9	39.2	15.1						48.4	
Level of Service		D	C	D	B						D	
Approach Delay (s)		35.1			24.5			0.0			48.4	
Approach LOS		D			C			A			D	

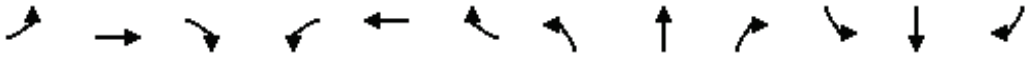
Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	112.4	Sum of lost time (s)	22.7
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	519	683	380	595	0				370	12	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	624	546	398	1007	0				407	13	0
Arrive On Green	0.00	0.34	0.34	0.17	0.58	0.00				0.29	0.29	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1413	46	0
Grp Volume(v), veh/h	0	519	683	380	595	0				382	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	30.6	40.0	18.4	25.5	0.0				29.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.6	40.0	18.4	25.5	0.0				29.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	624	546	398	1007	0				420	0	0
V/C Ratio(X)	0.00	0.83	1.25	0.95	0.59	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	624	546	398	1007	0				628	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	35.0	38.1	30.5	15.3	0.0				39.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.7	127.6	33.3	1.1	0.0				14.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.5	34.0	10.8	9.3	0.0				12.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.7	165.6	63.8	16.4	0.0				54.4	0.0	0.0
LnGrp LOS	A	D	F	E	B	A				D	A	A
Approach Vol, veh/h		1202			975						382	
Approach Delay, s/veh		113.4			34.9						54.4	
Approach LOS		F			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		75.8		40.3	27.9	47.9						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		27.5		31.3	20.4	42.0						
Green Ext Time (p_c), s		6.4		2.1	0.0	0.0						

Intersection Summary												
HCM 6th Ctrl Delay			74.7									
HCM 6th LOS			E									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Future Volume (Veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	79	249	2	102	1	107	4	2	1	2	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	103			328			494	446	204	450	570	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	103			261			436	386	129	390	517	102
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	94			100			76	99	100	100	100	94
cM capacity (veh/h)	1049			847			442	486	876	381	410	801

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	396	105	113	50
Volume Left	68	2	107	1
Volume Right	249	1	2	47
cSH	1049	847	447	756
Volume to Capacity	0.06	0.00	0.25	0.07
Queue Length 95th (ft)	5	0	25	5
Control Delay (s)	2.1	0.2	15.7	10.1
Lane LOS	A	A	C	B
Approach Delay (s)	2.1	0.2	15.7	10.1
Approach LOS			C	B

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

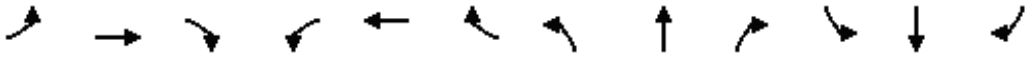
Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Future Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	68	79	249	2	102	1	107	4	2	1	2	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	328	0	0	471	447	204	450	571	103
Stage 1	-	-	-	-	-	-	340	340	-	107	107	-
Stage 2	-	-	-	-	-	-	131	107	-	343	464	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1049	-	-	838	-	-	498	509	842	386	434	801
Stage 1	-	-	-	-	-	-	669	643	-	707	811	-
Stage 2	-	-	-	-	-	-	865	811	-	509	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	838	-	-	437	466	842	357	397	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	437	466	-	357	397	-
Stage 1	-	-	-	-	-	-	614	590	-	649	809	-
Stage 2	-	-	-	-	-	-	810	809	-	463	521	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.2	15.9	10.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	442	1049	-	-	838	-	-	748
HCM Lane V/C Ratio	0.256	0.065	-	-	0.003	-	-	0.067
HCM Control Delay (s)	15.9	8.7	0	-	9.3	0	-	10.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Future Volume (Veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	109	1	4	32	246	8	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	632	538	8	524	523	20	9			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	632	538	8	524	523	20	9			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	90	100			84		
cM capacity (veh/h)	313	379	1079	408	387	1058	1624			1575		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	121	37	255
Volume Left	1	12	1	246
Volume Right	1	109	32	1
cSH	485	914	1624	1575
Volume to Capacity	0.00	0.13	0.00	0.16
Queue Length 95th (ft)	0	11	0	14
Control Delay (s)	12.5	9.5	0.2	7.5
Lane LOS	B	A	A	A
Approach Delay (s)	12.5	9.5	0.2	7.5
Approach LOS	B	A		

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			

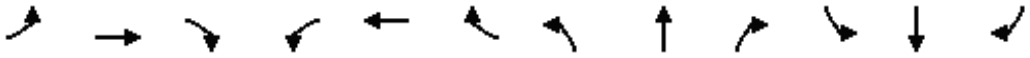
Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Future Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	33	0
Mvmt Flow	1	0	1	12	0	109	1	4	32	246	8	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	578	539	9	523	523	20	9	0	0	36	0	0
Stage 1	501	501	-	22	22	-	-	-	-	-	-	-
Stage 2	77	38	-	501	501	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	430	449	1079	465	459	1058	1624	-	-	1575	-	-
Stage 1	556	543	-	996	877	-	-	-	-	-	-	-
Stage 2	937	863	-	552	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	378	1079	408	386	1058	1624	-	-	1575	-	-
Mov Cap-2 Maneuver	339	378	-	408	386	-	-	-	-	-	-	-
Stage 1	555	458	-	995	876	-	-	-	-	-	-	-
Stage 2	840	862	-	465	458	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	9.5	0.2	7.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1624	-	-	516	914	1575	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.132	0.156	-	-
HCM Control Delay (s)	7.2	0	-	12	9.5	7.7	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.6	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Future Volume (Veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	130	11	1	132	1	25	0	1	1	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	133			141			278	274	136	275	280	132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	133			141			278	274	136	275	280	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	100	100	100	100
cM capacity (veh/h)	1452			1442			670	631	913	676	627	917

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	143	134	26	5
Volume Left	2	1	25	1
Volume Right	11	1	1	4
cSH	1452	1442	677	856
Volume to Capacity	0.00	0.00	0.04	0.01
Queue Length 95th (ft)	0	0	3	0
Control Delay (s)	0.1	0.1	10.5	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	0.1	0.1	10.5	9.2
Approach LOS			B	A

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	19.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Future Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	130	11	1	132	1	25	0	1	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	141	0	0	277	275	136	275	280	133
Stage 1	-	-	-	-	-	-	140	140	-	135	135	-
Stage 2	-	-	-	-	-	-	137	135	-	140	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1442	-	-	675	632	913	677	628	916
Stage 1	-	-	-	-	-	-	863	781	-	868	785	-
Stage 2	-	-	-	-	-	-	866	785	-	863	777	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1442	-	-	671	631	913	675	627	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	671	631	-	675	627	-
Stage 1	-	-	-	-	-	-	862	780	-	867	784	-
Stage 2	-	-	-	-	-	-	861	784	-	861	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.5	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	678	1452	-	-	1442	-	-	855
HCM Lane V/C Ratio	0.038	0.001	-	-	0.001	-	-	0.006
HCM Control Delay (s)	10.5	7.5	0	-	7.5	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	115	5	1	110	12	1
Future Volume (Veh/h)	115	5	1	110	12	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	125	5	1	120	13	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			130		250	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		250	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1455		738	923

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	130	121	14
Volume Left	0	1	13
Volume Right	5	0	1
cSH	1700	1455	749
Volume to Capacity	0.08	0.00	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.1	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		16.6%	ICU Level of Service
Analysis Period (min)		15	

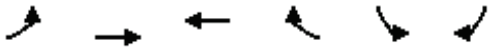
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	5	1	110	12	1
Future Vol, veh/h	115	5	1	110	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	5	1	120	13	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	250	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	739	922
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	738	922
Mov Cap-2 Maneuver	-	-	-	-	738	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	750	-	-	1455	-
HCM Lane V/C Ratio	0.019	-	-	0.001	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	108	91	1	1	19
Future Volume (Veh/h)	8	108	91	1	1	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	117	99	1	1	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	100				234	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				234	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1493				749	956

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	126	100	22
Volume Left	9	0	1
Volume Right	0	1	21
cSH	1493	1700	944
Volume to Capacity	0.01	0.06	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.6	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

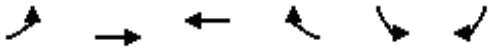
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	108	91	1	1	19
Future Vol, veh/h	8	108	91	1	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	117	99	1	1	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	235	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1493	-	-	-	753	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	748	956
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	943
HCM Lane V/C Ratio	0.006	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	109	92	65	165	1
Future Volume (Veh/h)	1	109	92	65	165	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	118	100	71	179	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171				256	136
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171				256	136
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				76	100
cM capacity (veh/h)	1406				733	913

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	119	171	180
Volume Left	1	0	179
Volume Right	0	71	1
cSH	1406	1700	733
Volume to Capacity	0.00	0.10	0.25
Queue Length 95th (ft)	0	0	24
Control Delay (s)	0.1	0.0	11.5
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	11.5
Approach LOS			B

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	109	92	65	165	1
Future Vol, veh/h	1	109	92	65	165	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	118	100	71	179	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	171	0	-	0	256	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1406	-	-	-	733	913
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	732	913
Mov Cap-2 Maneuver	-	-	-	-	732	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	733
HCM Lane V/C Ratio	0.001	-	-	-	0.246
HCM Control Delay (s)	7.6	0	-	-	11.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	267	7	1	140	17	1
Future Volume (Veh/h)	267	7	1	140	17	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	290	8	1	152	18	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			298		448	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		448	294
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1263		568	745

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	298	153	19
Volume Left	0	1	18
Volume Right	8	0	1
cSH	1700	1263	575
Volume to Capacity	0.18	0.00	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.1	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

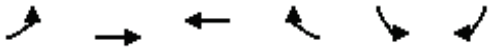
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	267	7	1	140	17	1
Future Vol, veh/h	267	7	1	140	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	290	8	1	152	18	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	298	0	448	294
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1263	-	568	745
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1263	-	567	745
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	873	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	1263	-
HCM Lane V/C Ratio	0.034	-	-	0.001	-
HCM Control Delay (s)	11.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	251	102	1	2	38
Future Volume (Veh/h)	17	251	102	1	2	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	273	111	1	2	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	112				420	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				420	112
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	96
cM capacity (veh/h)	1478				582	942

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	291	112	43
Volume Left	18	0	2
Volume Right	0	1	41
cSH	1478	1700	915
Volume to Capacity	0.01	0.07	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	251	102	1	2	38
Future Vol, veh/h	17	251	102	1	2	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	273	111	1	2	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	421	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	309	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1478	-	-	-	589	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1478	-	-	-	581	941
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1478	-	-	-	913
HCM Lane V/C Ratio	0.013	-	-	-	0.048
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	252	1	1	100	3	1
Future Volume (Veh/h)	252	1	1	100	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	274	1	1	109	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		386	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		386	274
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1288		617	764

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	275	110	4
Volume Left	0	1	3
Volume Right	1	0	1
cSH	1700	1288	648
Volume to Capacity	0.16	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.6
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

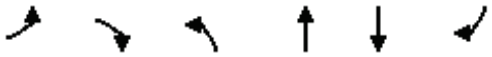
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	252	1	1	100	3	1
Future Vol, veh/h	252	1	1	100	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	1	1	109	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	386	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	617	764
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1288	-	616	764
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	647	-	-	1288	-
HCM Lane V/C Ratio	0.007	-	-	0.001	-
HCM Control Delay (s)	10.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	1	1	1	1	1
Future Volume (Veh/h)	3	1	1	1	1	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	1	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1017	1083	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	2	2
Volume Left	3	1	0
Volume Right	1	0	1
cSH	1033	1620	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	1	1	1	1
Future Vol, veh/h	3	1	1	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	1	1	1	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	5	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1017	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1016	1082	1620	-	-	-
Mov Cap-2 Maneuver	1016	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1032	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	266	560	77	268	662	727	127	14	301	83
v/c Ratio	0.46	0.81	0.38	0.51	0.42	0.88	0.37	0.11	0.14	0.32	0.12
Control Delay	58.1	65.6	3.0	63.7	43.0	55.5	17.3	1.9	56.8	36.8	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	65.6	3.0	63.7	43.0	55.5	17.3	1.9	56.8	36.8	2.4
Queue Length 50th (ft)	47	198	14	58	93	240	143	0	11	103	0
Queue Length 95th (ft)	78	287	45	106	130	#365	260	24	32	146	19
Internal Link Dist (ft)		2739			953		8663			2894	
Turn Bay Length (ft)	500		500	300		400		700	550		700
Base Capacity (vph)	325	387	1504	197	769	768	1940	1166	145	935	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.69	0.37	0.39	0.35	0.86	0.37	0.11	0.10	0.32	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	245	515	71	220	27	609	669	117	13	277	76
Future Volume (vph)	114	245	515	71	220	27	609	669	117	13	277	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.8	4.5	4.5	6.2		4.5	5.3	4.5	4.5	5.6	4.5
Lane Util. Factor	0.97	1.00	0.88	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	1845	2472	1752	3411		2694	3438	1568	1805	3282	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	1845	2472	1752	3411		2694	3438	1568	1805	3282	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	266	560	77	239	29	662	727	127	14	301	83
RTOR Reduction (vph)	0	0	264	0	8	0	0	0	47	0	0	53
Lane Group Flow (vph)	124	266	296	77	260	0	662	727	80	14	301	30
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	9.5	21.5	55.0	10.4	22.0		33.5	65.0	75.4	3.0	34.2	43.7
Effective Green, g (s)	9.5	21.5	55.0	10.4	22.0		33.5	65.0	75.4	3.0	34.2	43.7
Actuated g/C Ratio	0.08	0.18	0.46	0.09	0.18		0.28	0.54	0.63	0.02	0.29	0.36
Clearance Time (s)	4.5	5.8	4.5	4.5	6.2		4.5	5.3	4.5	4.5	5.6	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	269	330	1133	151	625		752	1862	985	45	935	544
v/s Ratio Prot	0.04	c0.14	0.07	c0.04	0.08		c0.25	c0.21	0.01	0.01	0.09	0.00
v/s Ratio Perm			0.05						0.04			0.02
v/c Ratio	0.46	0.81	0.26	0.51	0.42		0.88	0.39	0.08	0.31	0.32	0.06
Uniform Delay, d1	52.8	47.2	20.0	52.4	43.3		41.3	16.0	8.7	57.5	33.8	24.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	13.4	0.1	2.7	0.5		11.7	0.6	0.0	3.9	0.9	0.0
Delay (s)	54.1	60.6	20.1	55.1	43.8		53.0	16.6	8.8	61.4	34.7	24.8
Level of Service	D	E	C	E	D		D	B	A	E	C	C
Approach Delay (s)		35.9			46.3			31.9			33.6	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



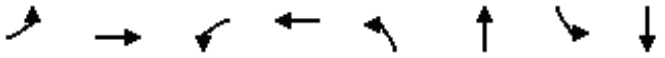
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	245	515	71	220	27	609	669	117	13	277	76
Future Volume (veh/h)	114	245	515	71	220	27	609	669	117	13	277	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1678	1856	1841	1826	1455	1826	1856	1900	1752	1781
Adj Flow Rate, veh/h	124	266	560	77	239	29	662	727	127	14	301	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	15	3	4	5	30	5	3	0	10	8
Cap, veh/h	181	350	1128	99	602	72	706	1967	979	28	1065	563
Arrive On Green	0.05	0.19	0.19	0.06	0.19	0.19	0.26	0.57	0.57	0.02	0.32	0.32
Sat Flow, veh/h	3428	1856	2502	1767	3144	377	2689	3469	1572	1810	3328	1510
Grp Volume(v), veh/h	124	266	560	77	132	136	662	727	127	14	301	83
Grp Sat Flow(s),veh/h/ln	1714	1856	1251	1767	1749	1773	1345	1735	1572	1810	1664	1510
Q Serve(g_s), s	4.3	16.3	19.0	5.2	7.9	8.1	28.9	13.8	4.0	0.9	8.1	4.4
Cycle Q Clear(g_c), s	4.3	16.3	19.0	5.2	7.9	8.1	28.9	13.8	4.0	0.9	8.1	4.4
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	181	350	1128	99	335	339	706	1967	979	28	1065	563
V/C Ratio(X)	0.69	0.76	0.50	0.78	0.39	0.40	0.94	0.37	0.13	0.50	0.28	0.15
Avail Cap(c_a), veh/h	329	390	1182	199	391	396	728	1967	979	146	1065	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.58	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	46.1	23.3	55.9	42.4	42.5	43.3	14.2	9.3	58.6	30.5	25.0
Incr Delay (d2), s/veh	4.5	7.7	0.3	12.5	0.8	0.8	13.1	0.3	0.2	13.0	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	8.1	5.5	2.6	3.5	3.6	10.7	5.3	1.3	0.5	3.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	53.8	23.7	68.4	43.2	43.3	56.4	14.5	9.4	71.6	31.2	25.5
LnGrp LOS	E	D	C	E	D	D	E	B	A	E	C	C
Approach Vol, veh/h		950			345			1516			398	
Approach Delay, s/veh		36.9			48.8			32.4			31.4	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	73.6	10.8	29.2	36.0	44.0	11.2	28.8
Change Period (Y+Rc), s	4.5	* 5.6	4.5	* 6.2	4.5	* 5.6	4.5	* 6.2
Max Green Setting (Gmax), s	9.7	* 52	11.5	* 27	32.5	* 28	13.5	* 25
Max Q Clear Time (g_c+I1), s	2.9	15.8	6.3	10.1	30.9	10.1	7.2	21.0
Green Ext Time (p_c), s	0.0	25.8	0.2	0.8	0.6	7.7	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	160	117	262	124	1281	85	853
v/c Ratio	0.33	0.50	0.36	0.68	0.37	0.78	0.38	0.58
Control Delay	34.9	22.9	34.6	37.5	14.3	29.6	16.1	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	22.9	34.6	37.5	14.3	29.6	16.1	24.2
Queue Length 50th (ft)	46	34	64	114	36	410	24	227
Queue Length 95th (ft)	94	105	123	224	76	589	56	334
Internal Link Dist (ft)		2701		420		3738		8663
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	265	583	335	618	348	2055	251	2006
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.27	0.35	0.42	0.36	0.62	0.34	0.43

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1606		1703	1638		1736	3448		1719	3310	
Flt Permitted	0.43	1.00		0.49	1.00		0.24	1.00		0.10	1.00	
Satd. Flow (perm)	755	1606		875	1638		430	3448		182	3310	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	38	122	117	66	196	124	1236	45	85	774	79
RTOR Reduction (vph)	0	92	0	0	83	0	0	2	0	0	5	0
Lane Group Flow (vph)	85	68	0	117	179	0	124	1279	0	85	848	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	23.1	16.8		29.9	20.2		60.4	51.8		57.0	50.1	
Effective Green, g (s)	23.1	16.8		29.9	20.2		60.4	51.8		57.0	50.1	
Actuated g/C Ratio	0.21	0.15		0.27	0.18		0.55	0.47		0.51	0.45	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	208	243		308	298		336	1613		189	1498	
v/s Ratio Prot	0.02	0.04		c0.03	c0.11		c0.03	c0.37		0.03	0.26	
v/s Ratio Perm	0.06			0.07			0.17			0.20		
v/c Ratio	0.41	0.28		0.38	0.60		0.37	0.79		0.45	0.57	
Uniform Delay, d1	36.6	41.6		31.8	41.6		13.6	24.9		17.8	22.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.6		0.8	3.4		0.7	3.2		1.7	0.8	
Delay (s)	37.9	42.2		32.6	45.0		14.3	28.1		19.5	23.1	
Level of Service	D	D		C	D		B	C		B	C	
Approach Delay (s)		40.8			41.1			26.9			22.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	85	38	122	117	66	196	124	1236	45	85	774	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	192	63	201	279	76	225	349	1638	60	222	1453	148
Arrive On Green	0.06	0.16	0.16	0.07	0.18	0.18	0.05	0.48	0.48	0.04	0.46	0.46
Sat Flow, veh/h	1682	384	1234	1725	422	1253	1753	3442	125	1739	3126	319
Grp Volume(v), veh/h	85	0	160	117	0	262	124	628	653	85	422	431
Grp Sat Flow(s),veh/h/ln	1682	0	1619	1725	0	1675	1753	1749	1818	1739	1706	1739
Q Serve(g_s), s	4.3	0.0	9.6	5.8	0.0	15.9	3.8	30.6	30.7	2.6	18.4	18.4
Cycle Q Clear(g_c), s	4.3	0.0	9.6	5.8	0.0	15.9	3.8	30.6	30.7	2.6	18.4	18.4
Prop In Lane	1.00		0.76	1.00		0.75	1.00		0.07	1.00		0.18
Lane Grp Cap(c), veh/h	192	0	263	279	0	301	349	832	866	222	793	808
V/C Ratio(X)	0.44	0.00	0.61	0.42	0.00	0.87	0.36	0.75	0.75	0.38	0.53	0.53
Avail Cap(c_a), veh/h	235	0	506	327	0	556	407	1026	1067	316	1018	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	0.0	40.6	33.2	0.0	41.6	14.9	22.3	22.3	18.5	19.8	19.8
Incr Delay (d2), s/veh	1.6	0.0	2.3	1.0	0.0	7.7	0.6	3.7	3.6	1.1	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	3.9	2.5	0.0	7.2	1.4	11.8	12.3	1.0	6.9	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	0.0	42.8	34.2	0.0	49.3	15.6	26.1	26.0	19.5	21.0	21.0
LnGrp LOS	D	A	D	C	A	D	B	C	C	B	C	C
Approach Vol, veh/h		245			379			1405			938	
Approach Delay, s/veh		40.5			44.6			25.1			20.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	55.3	12.1	24.4	11.4	56.4	10.3	26.2
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 62	10.5	32.6	* 10	* 61	8.5	34.6
Max Q Clear Time (g_c+I1), s	5.8	20.4	7.8	11.6	4.6	32.7	6.3	17.9
Green Ext Time (p_c), s	0.1	12.3	0.1	0.5	0.1	17.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	115	212	31	1160	128	187	817
v/c Ratio	0.11	0.47	0.33	0.08	0.74	0.16	0.54	0.28
Control Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Length 50th (ft)	0	77	25	8	360	0	53	118
Queue Length 95th (ft)	0	161	100	21	475	17	132	157
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		500	300	
Base Capacity (vph)	357	317	689	385	2573	1195	395	4052
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.31	0.08	0.45	0.11	0.47	0.20

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1689			1770	1583	1770	3539	1583	1770	5056	
Flt Permitted		0.98			0.95	1.00	0.33	1.00	1.00	0.11	1.00	
Satd. Flow (perm)		1689			1770	1583	618	3539	1583	204	5056	
Peak-hour factor, PHF	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Adj. Flow (vph)	19	0	22	115	0	212	31	1160	128	187	786	31
RTOR Reduction (vph)	0	39	0	0	0	119	0	0	70	0	3	0
Lane Group Flow (vph)	0	2	0	0	115	93	31	1160	58	187	814	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Effective Green, g (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Actuated g/C Ratio		0.06			0.13	0.27	0.48	0.45	0.45	0.64	0.56	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		96			234	508	331	1604	717	338	2816	
v/s Ratio Prot		c0.00			c0.06	0.02	0.00	c0.33		c0.07	0.16	
v/s Ratio Perm						0.03	0.04		0.04	0.28		
v/c Ratio		0.02			0.49	0.18	0.09	0.72	0.08	0.55	0.29	
Uniform Delay, d1		47.6			43.1	30.3	14.6	23.8	16.6	14.8	12.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			1.6	0.2	0.1	1.6	0.0	2.0	0.1	
Delay (s)		47.7			44.7	30.5	14.7	25.4	16.6	16.8	12.6	
Level of Service		D			D	C	B	C	B	B	B	
Approach Delay (s)		47.7			35.5			24.3			13.4	
Approach LOS		D			D			C			B	

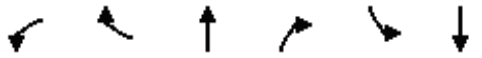
Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	22	115	0	212	31	1160	128	187	786	31
Peak Hour Factor	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	0	73	257	0	353	405	1613	720	293	2506	99
Arrive On Green	0.08	0.00	0.08	0.14	0.00	0.14	0.03	0.45	0.45	0.08	0.50	0.50
Sat Flow, veh/h	774	0	896	1781	0	1585	1781	3554	1585	1781	5040	198
Grp Volume(v), veh/h	41	0	0	115	0	212	31	1160	128	187	530	287
Grp Sat Flow(s),veh/h/ln	1670	0	0	1781	0	1585	1781	1777	1585	1781	1702	1835
Q Serve(g_s), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Prop In Lane	0.46		0.54	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	137	0	0	257	0	353	405	1613	720	293	1692	912
V/C Ratio(X)	0.30	0.00	0.00	0.45	0.00	0.60	0.08	0.72	0.18	0.64	0.31	0.31
Avail Cap(c_a), veh/h	202	0	0	305	0	395	450	2541	1133	441	2777	1497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	0.0	38.8	0.0	34.6	13.3	22.0	16.1	18.3	14.9	14.9
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.2	0.0	2.1	0.1	0.6	0.1	2.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.7	0.0	4.8	0.3	9.7	1.6	2.0	3.1	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	0.0	40.1	0.0	36.7	13.4	22.6	16.2	20.6	15.0	15.1
LnGrp LOS	D	A	A	D	A	D	B	C	B	C	B	B
Approach Vol, veh/h		41			327			1319			1004	
Approach Delay, s/veh		44.1			37.9			21.8			16.1	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	55.4		14.1	13.7	51.1		20.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	81.0		12.0	16.0	71.0		17.0				
Max Q Clear Time (g_c+I1), s	2.9	11.3		4.3	7.4	28.3		13.9				
Green Ext Time (p_c), s	0.0	9.7		0.0	0.4	16.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		21.9	
HCM 6th LOS		C	

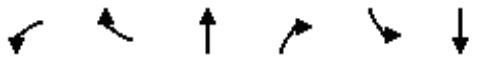


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	391	396	1054	1045	198	677
v/c Ratio	1.08	0.69	0.40	0.78	0.61	0.20
Control Delay	125.3	42.5	28.9	21.4	18.4	9.6
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	125.3	42.5	28.9	22.0	18.4	9.6
Queue Length 50th (ft)	~439	281	317	671	69	88
Queue Length 95th (ft)	#653	409	405	907	104	106
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	363	581	2658	1336	332	3308
Starvation Cap Reductn	0	0	0	77	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.68	0.40	0.83	0.60	0.20

Intersection Summary

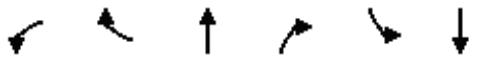
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	364	970	961	182	623
Future Volume (vph)	360	364	970	961	182	623
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	1612	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.23	1.00
Satd. Flow (perm)	1719	1583	4940	1568	391	4893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	396	1054	1045	198	677
RTOR Reduction (vph)	0	57	0	78	0	0
Lane Group Flow (vph)	391	339	1054	967	198	677
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	32.8	44.0	83.4	116.2	94.6	104.8
Effective Green, g (s)	32.8	44.0	83.4	116.2	94.6	104.8
Actuated g/C Ratio	0.21	0.28	0.54	0.75	0.61	0.68
Clearance Time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	3.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	363	449	2658	1175	326	3308
v/s Ratio Prot	c0.23	c0.05	0.21	c0.17	0.04	0.14
v/s Ratio Perm		0.16		0.44	0.33	
v/c Ratio	1.08	0.76	0.40	0.82	0.61	0.20
Uniform Delay, d1	61.1	50.6	21.0	12.7	13.9	9.4
Progression Factor	1.00	1.00	1.35	3.38	1.00	1.00
Incremental Delay, d2	69.4	7.1	0.4	4.9	3.2	0.1
Delay (s)	130.5	57.7	28.7	47.7	17.1	9.6
Level of Service	F	E	C	D	B	A
Approach Delay (s)	93.9		38.2			11.3
Approach LOS	F		D			B

Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	360	364	970	961	182	623
Future Volume (veh/h)	360	364	970	961	182	623
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	391	396	1054	1045	198	677
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	368	442	2708	1187	254	3343
Arrive On Green	0.21	0.21	1.00	1.00	0.07	0.68
Sat Flow, veh/h	1739	1585	5149	1572	1640	5107
Grp Volume(v), veh/h	391	396	1054	1045	198	677
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1640	1648
Q Serve(g_s), s	32.8	32.8	0.0	84.2	8.3	8.0
Cycle Q Clear(g_c), s	32.8	32.8	0.0	84.2	8.3	8.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	368	442	2708	1187	254	3343
V/C Ratio(X)	1.06	0.90	0.39	0.88	0.78	0.20
Avail Cap(c_a), veh/h	368	442	2708	1187	269	3343
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	61.1	53.8	0.0	9.4	15.5	9.4
Incr Delay (d2), s/veh	64.4	22.7	0.4	8.0	13.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	17.1	0.1	13.2	3.9	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	125.5	76.5	0.4	17.4	28.5	9.6
LnGrp LOS	F	E	A	B	C	A
Approach Vol, veh/h	787		2099			875
Approach Delay, s/veh	100.9		8.9			13.8
Approach LOS	F		A			B

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		115.0			20.6	94.4	40.0
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		104.8			11.8	82.8	32.8
Max Q Clear Time (g_c+I1), s		10.0			10.3	86.2	34.8
Green Ext Time (p_c), s		7.6			0.1	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		29.3
HCM 6th LOS		C



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	138	414	421	772
v/c Ratio	0.65	0.55	0.84	0.96
Control Delay	36.6	27.5	52.8	50.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.6	27.5	52.8	50.9
Queue Length 50th (ft)	62	219	280	465
Queue Length 95th (ft)	103	310	397	#871
Internal Link Dist (ft)		2439	275	2104
Turn Bay Length (ft)	275			
Base Capacity (vph)	211	1038	776	804
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.40	0.54	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.94				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1759			1656				
Flt Permitted	0.20	1.00			1.00			0.97				
Satd. Flow (perm)	329	1827			1759			1656				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	138	414	0	0	421	0	424	0	348	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	55	0	0	0	0
Lane Group Flow (vph)	138	414	0	0	421	0	0	717	0	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	45.5	45.5			31.5			50.1				
Effective Green, g (s)	45.5	45.5			31.5			50.1				
Actuated g/C Ratio	0.41	0.41			0.28			0.45				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	211	751			500			750				
v/s Ratio Prot	0.04	c0.23			c0.24							
v/s Ratio Perm	0.23							0.43				
v/c Ratio	0.65	0.55			0.84			0.96				
Uniform Delay, d1	24.1	24.8			37.2			29.2				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	7.1	0.9			12.2			22.4				
Delay (s)	31.2	25.7			49.4			51.6				
Level of Service	C	C			D			D				
Approach Delay (s)		27.0			49.4			51.6			0.0	
Approach LOS		C			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.6	Sum of lost time (s)	22.4
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	138	414	0	0	421	0	424	0	348			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	203	733	0	0	477	0	435	0	357			
Arrive On Green	0.06	0.40	0.00	0.00	0.27	0.00	0.46	0.00	0.46			
Sat Flow, veh/h	1626	1841	0	0	1781	0	941	0	773			
Grp Volume(v), veh/h	138	414	0	0	421	0	772	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1714	0	0			
Q Serve(g_s), s	6.5	18.7	0.0	0.0	24.3	0.0	47.3	0.0	0.0			
Cycle Q Clear(g_c), s	6.5	18.7	0.0	0.0	24.3	0.0	47.3	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.55		0.45			
Lane Grp Cap(c), veh/h	203	733	0	0	477	0	791	0	0			
V/C Ratio(X)	0.68	0.56	0.00	0.00	0.88	0.00	0.98	0.00	0.00			
Avail Cap(c_a), veh/h	203	1075	0	0	808	0	796	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	28.7	25.0	0.0	0.0	37.6	0.0	28.3	0.0	0.0			
Incr Delay (d2), s/veh	8.7	0.7	0.0	0.0	6.3	0.0	25.8	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.9	7.8	0.0	0.0	10.9	0.0	23.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	25.7	0.0	0.0	44.0	0.0	54.0	0.0	0.0			
LnGrp LOS	D	C	A	A	D	A	D	A	A			
Approach Vol, veh/h		552			421			772				
Approach Delay, s/veh		28.7			44.0			54.0				
Approach LOS		C			D			D				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		50.1		57.1	14.0	36.1			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 63		* 50	* 6.6	* 49			
Max Q Clear Time (g_c+I1), s		20.7		49.3	8.5	26.3			
Green Ext Time (p_c), s		2.6		0.2	0.0	2.4			

Intersection Summary		
HCM 6th Ctrl Delay		43.6
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	296	388	205	668	277
v/c Ratio	0.62	0.57	0.41	0.66	0.63
Control Delay	33.0	6.4	12.1	16.5	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	6.4	12.1	16.5	36.0
Queue Length 50th (ft)	126	0	46	208	121
Queue Length 95th (ft)	255	68	104	410	252
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	882	943	581	1535	1154
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.41	0.35	0.44	0.24

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1774	
Flt Permitted		1.00	1.00	0.37	1.00						0.95	
Satd. Flow (perm)		1696	1455	598	1810						1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	388	205	668	0	0	0	0	276	1	0
RTOR Reduction (vph)	0	0	277	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	111	205	668	0	0	0	0	0	277	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		22.9	22.9	45.2	45.2						19.9	
Effective Green, g (s)		22.9	22.9	45.2	45.2						19.9	
Actuated g/C Ratio		0.29	0.29	0.57	0.57						0.25	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		486	417	508	1023						441	
v/s Ratio Prot		0.17		0.07	c0.37							
v/s Ratio Perm			0.08	0.16							0.16	
v/c Ratio		0.61	0.27	0.40	0.65						0.63	
Uniform Delay, d1		24.6	22.0	9.7	11.9						26.7	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		2.5	0.5	0.5	1.7						3.2	
Delay (s)		27.1	22.5	10.2	13.6						29.9	
Level of Service		C	C	B	B						C	
Approach Delay (s)		24.5			12.8			0.0			29.9	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	22.7
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	296	0	205	668	0				276	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	415		416	944	0				374	1	0
Arrive On Green	0.00	0.24	0.00	0.13	0.52	0.00				0.21	0.21	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1803	7	0
Grp Volume(v), veh/h	0	296	0	205	668	0				277	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	8.5	0.0	4.8	15.0	0.0				7.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.5	0.0	4.8	15.0	0.0				7.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h	0	415		416	944	0				375	0	0
V/C Ratio(X)	0.00	0.71		0.49	0.71	0.00				0.74	0.00	0.00
Avail Cap(c_a), veh/h	0	1282		798	2308	0				1685	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.7	0.0	12.1	9.9	0.0				19.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.3	0.0	0.9	1.4	0.0				4.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.0	1.3	4.2	0.0				3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.9	0.0	13.1	11.3	0.0				24.0	0.0	0.0
LnGrp LOS	A	C		B	B	A				C	A	A
Approach Vol, veh/h		296			873						277	
Approach Delay, s/veh		21.9			11.7						24.0	
Approach LOS		C			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		35.7		18.0	14.8	20.8						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		17.0		9.7	6.8	10.5						
Green Ext Time (p_c), s		7.7		1.6	0.5	2.5						

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Future Volume (Veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	74	61	8	63	1	248	2	9	1	1	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked												
vC, conflicting volume	64			135			320	252	104	262	282	64
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			135			320	252	104	262	282	64
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			56	100	99	100	100	92
cM capacity (veh/h)	1431			1201			563	634	911	671	611	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	169	72	259	70
Volume Left	34	8	248	1
Volume Right	61	1	9	68
cSH	1431	1201	571	852
Volume to Capacity	0.02	0.01	0.45	0.08
Queue Length 95th (ft)	2	1	59	7
Control Delay (s)	1.7	0.9	16.4	9.6
Lane LOS	A	A	C	A
Approach Delay (s)	1.7	0.9	16.4	9.6
Approach LOS			C	A

Intersection Summary				
Average Delay	9.3			
Intersection Capacity Utilization	41.3%	ICU Level of Service	A	
Analysis Period (min)	15			

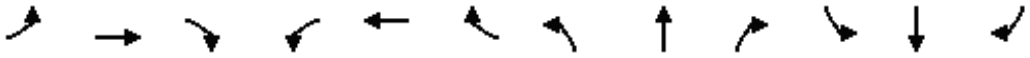
Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Future Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	34	74	61	8	63	1	248	2	9	1	1	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	135	0	0	287	253	105	258	283	64
Stage 1	-	-	-	-	-	-	173	173	-	80	80	-
Stage 2	-	-	-	-	-	-	114	80	-	178	203	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1431	-	-	1201	-	-	659	654	910	699	629	859
Stage 1	-	-	-	-	-	-	822	760	-	934	832	-
Stage 2	-	-	-	-	-	-	884	832	-	828	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1201	-	-	590	632	910	673	608	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	632	-	673	608	-
Stage 1	-	-	-	-	-	-	801	740	-	910	826	-
Stage 2	-	-	-	-	-	-	807	826	-	796	718	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.9	15.6	9.6
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1431	-	-	1201	-	-	850
HCM Lane V/C Ratio	0.433	0.024	-	-	0.006	-	-	0.083
HCM Control Delay (s)	15.6	7.6	0	-	8	0	-	9.6
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Future Volume (Veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	249	1	11	23	58	10	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	400	163	11	152	152	22	12			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	400	163	11	152	152	22	12			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	76	100			96		
cM capacity (veh/h)	418	702	1076	791	712	1054	1620			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	261	35	70
Volume Left	1	12	1	58
Volume Right	1	249	23	2
cSH	602	1039	1620	1578
Volume to Capacity	0.00	0.25	0.00	0.04
Queue Length 95th (ft)	0	25	0	3
Control Delay (s)	11.0	9.6	0.2	6.2
Lane LOS	B	A	A	A
Approach Delay (s)	11.0	9.6	0.2	6.2
Approach LOS	B	A		

Intersection Summary				
Average Delay	8.1			
Intersection Capacity Utilization	31.6%	ICU Level of Service	A	
Analysis Period (min)	15			

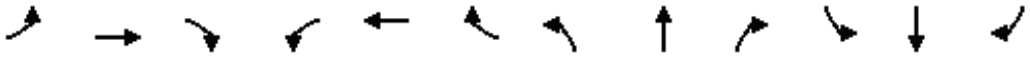
Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Future Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	25	2	2	0	0
Mvmt Flow	1	0	1	12	0	249	1	11	23	58	10	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	276	163	11	153	153	23	12	0	0	34	0	0
Stage 1	127	127	-	25	25	-	-	-	-	-	-	-
Stage 2	149	36	-	128	128	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	729	1076	814	739	1054	1620	-	-	1578	-	-
Stage 1	882	791	-	993	874	-	-	-	-	-	-	-
Stage 2	858	865	-	876	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	505	701	1076	790	711	1054	1620	-	-	1578	-	-
Mov Cap-2 Maneuver	505	701	-	790	711	-	-	-	-	-	-	-
Stage 1	881	762	-	992	873	-	-	-	-	-	-	-
Stage 2	655	864	-	843	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9.6	0.2	6.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	687	1038	1578	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.251	0.037	-	-
HCM Control Delay (s)	7.2	0	-	10.3	9.6	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Future Volume (Veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	247	60	3	271	1	49	0	2	1	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	272			307			580	573	277	574	602	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272			307			580	573	277	574	602	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			88	100	100	100	100	99
cM capacity (veh/h)	1291			1254			418	426	762	425	409	767

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	316	275	51	9
Volume Left	9	3	49	1
Volume Right	60	1	2	8
cSH	1291	1254	425	704
Volume to Capacity	0.01	0.00	0.12	0.01
Queue Length 95th (ft)	1	0	10	1
Control Delay (s)	0.3	0.1	14.6	10.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	0.1	14.6	10.2
Approach LOS			B	B

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	36.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Future Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	247	60	3	271	1	49	0	2	1	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	272	0	0	307	0	0	577	573	277	574	603	272
Stage 1	-	-	-	-	-	-	295	295	-	278	278	-
Stage 2	-	-	-	-	-	-	282	278	-	296	325	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1291	-	-	1254	-	-	428	430	762	430	413	767
Stage 1	-	-	-	-	-	-	713	669	-	728	680	-
Stage 2	-	-	-	-	-	-	725	680	-	712	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1291	-	-	1254	-	-	420	425	762	425	408	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	425	-	425	408	-
Stage 1	-	-	-	-	-	-	707	664	-	722	678	-
Stage 2	-	-	-	-	-	-	716	678	-	704	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	14.5	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	428	1291	-	-	1254	-	-	697
HCM Lane V/C Ratio	0.119	0.007	-	-	0.003	-	-	0.012
HCM Control Delay (s)	14.5	7.8	0	-	7.9	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	27	1	231	22	1
Future Volume (Veh/h)	203	27	1	231	22	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	29	1	251	24	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			250		488	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		488	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1316		538	804

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	250	252	25
Volume Left	0	1	24
Volume Right	29	0	1
cSH	1700	1316	545
Volume to Capacity	0.15	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	11.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

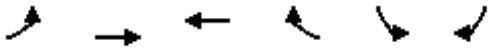
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	27	1	231	22	1
Future Vol, veh/h	203	27	1	231	22	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	221	29	1	251	24	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	250	0	489	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1316	-	538	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1316	-	537	803
Mov Cap-2 Maneuver	-	-	-	-	537	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	1316	-
HCM Lane V/C Ratio	0.046	-	-	0.001	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	160	196	2	1	36
Future Volume (Veh/h)	44	160	196	2	1	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	174	213	2	1	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	215				484	214
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215				484	214
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	95
cM capacity (veh/h)	1355				523	826

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	222	215	40
Volume Left	48	0	1
Volume Right	0	2	39
cSH	1355	1700	814
Volume to Capacity	0.04	0.13	0.05
Queue Length 95th (ft)	3	0	4
Control Delay (s)	1.9	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	1.9	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

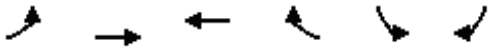
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	160	196	2	1	36
Future Vol, veh/h	44	160	196	2	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	174	213	2	1	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	215	0	-	0	484	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1355	-	-	-	542	826
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1355	-	-	-	521	826
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	813
HCM Lane V/C Ratio	0.035	-	-	-	0.049
HCM Control Delay (s)	7.8	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	161	198	158	35	1
Future Volume (Veh/h)	1	161	198	158	35	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	175	215	172	38	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	387				392	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387				392	215
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	100
cM capacity (veh/h)	1171				612	825

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	176	215	172	39
Volume Left	1	0	0	38
Volume Right	0	0	172	1
cSH	1171	1700	1700	616
Volume to Capacity	0.00	0.13	0.10	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.1	0.0	0.0	11.2
Lane LOS	A			B
Approach Delay (s)	0.1	0.0		11.2
Approach LOS				B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	161	198	158	35	1
Future Vol, veh/h	1	161	198	158	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	300	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	175	215	172	38	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	387	0	-	0	392	215
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1171	-	-	-	612	825
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	854	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1171	-	-	-	611	825
Mov Cap-2 Maneuver	-	-	-	-	611	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	854	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1171	-	-	-	615
HCM Lane V/C Ratio	0.001	-	-	-	0.064
HCM Control Delay (s)	8.1	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	41	2	323	33	2
Future Volume (Veh/h)	155	41	2	323	33	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	168	45	2	351	36	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			213		546	190
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		546	190
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1357		498	851

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	353	38
Volume Left	0	2	36
Volume Right	45	0	2
cSH	1700	1357	509
Volume to Capacity	0.13	0.00	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.1	12.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.6
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

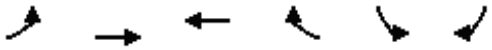
Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	155	41	2	323	33	2
Future Vol, veh/h	155	41	2	323	33	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	45	2	351	36	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	213	0	546	191
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	355	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1357	-	499	851
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1357	-	498	851
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	510	-	-	1357	-
HCM Lane V/C Ratio	0.075	-	-	0.002	-
HCM Control Delay (s)	12.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	67	252	5	4	73
Future Volume (Veh/h)	90	67	252	5	4	73
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	73	274	5	4	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	279				546	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				546	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	90
cM capacity (veh/h)	1284				461	762

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	171	279	83
Volume Left	98	0	4
Volume Right	0	5	79
cSH	1284	1700	739
Volume to Capacity	0.08	0.16	0.11
Queue Length 95th (ft)	6	0	9
Control Delay (s)	4.9	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	4.9	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	67	252	5	4	73
Future Vol, veh/h	90	67	252	5	4	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	73	274	5	4	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	279	0	-	0	546	277
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1284	-	-	-	499	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	776	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	459	762
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	776	-

Approach	EB	WB	SB
HCM Control Delay, s	4.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	737
HCM Lane V/C Ratio	0.076	-	-	-	0.114
HCM Control Delay (s)	8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	8	1	250	7	1
Future Volume (Veh/h)	63	8	1	250	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	9	1	272	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			77		346	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		346	72
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1522		650	990

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	273	9
Volume Left	0	1	8
Volume Right	9	0	1
cSH	1700	1522	676
Volume to Capacity	0.05	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	10.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

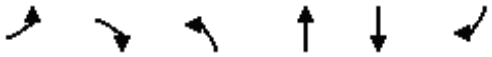
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	8	1	250	7	1
Future Vol, veh/h	63	8	1	250	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	9	1	272	8	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	347	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1522	-	650	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1522	-	649	989
Mov Cap-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	678	-	-	1522	-
HCM Lane V/C Ratio	0.013	-	-	0.001	-
HCM Control Delay (s)	10.4	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	1	1	1	1	9
Future Volume (Veh/h)	8	1	1	1	1	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	1	1	1	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	9	6	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9	6	11			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	1011	1077	1608			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	2	11
Volume Left	9	1	0
Volume Right	1	0	10
cSH	1017	1608	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	1	1	1	1	9
Future Vol, veh/h	8	1	1	1	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	1	1	1	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	9	6	11	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1011	1077	1608	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1010	1077	1608	-	-	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1017	-	-
HCM Lane V/C Ratio	0.001	-	0.01	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	134	364	913	155	274	544	449	82	32	1443	74
v/c Ratio	0.57	1.25	0.88	1.06	0.46	0.94	0.21	0.07	0.38	0.87	0.08
Control Delay	88.5	192.9	60.6	163.8	67.6	95.0	16.2	1.6	91.9	48.2	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.5	192.9	60.6	163.8	67.6	95.0	16.2	1.6	91.9	48.2	2.9
Queue Length 50th (ft)	78	~517	535	~194	148	322	121	0	36	771	0
Queue Length 95th (ft)	115	#734	643	#356	203	#435	159	18	76	876	23
Internal Link Dist (ft)		2739			953		8663			2894	
Turn Bay Length (ft)	500		500	300		400		700	550		700
Base Capacity (vph)	284	292	1032	146	595	581	2176	1155	233	1666	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	1.25	0.88	1.06	0.46	0.94	0.21	0.07	0.14	0.87	0.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	349	876	149	236	27	522	431	79	31	1385	71
Future Volume (vph)	129	349	876	149	236	27	522	431	79	31	1385	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.8	4.5	4.5	6.2		4.5	5.3	4.5	4.5	5.6	4.5
Lane Util. Factor	0.97	1.00	0.88	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1881	2760	1770	3523		3335	3574	1568	1736	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1881	2760	1770	3523		3335	3574	1568	1736	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	364	912	155	246	28	544	449	82	32	1443	74
RTOR Reduction (vph)	0	0	33	0	5	0	0	0	26	0	0	34
Lane Group Flow (vph)	134	364	880	155	269	0	544	449	56	32	1443	40
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	12.0	27.2	57.7	14.5	29.3		30.5	105.7	120.2	7.5	82.4	94.4
Effective Green, g (s)	12.0	27.2	57.7	14.5	29.3		30.5	105.7	120.2	7.5	82.4	94.4
Actuated g/C Ratio	0.07	0.16	0.33	0.08	0.17		0.17	0.60	0.69	0.04	0.47	0.54
Clearance Time (s)	4.5	5.8	4.5	4.5	6.2		4.5	5.3	4.5	4.5	5.6	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	235	292	910	146	589		581	2158	1076	74	1666	853
v/s Ratio Prot	0.04	c0.19	c0.17	c0.09	0.08		0.16	0.13	0.00	0.02	c0.41	0.00
v/s Ratio Perm			0.15						0.03			0.02
v/c Ratio	0.57	1.25	0.97	1.06	0.46		0.94	0.21	0.05	0.43	0.87	0.05
Uniform Delay, d1	79.0	73.9	57.7	80.2	65.7		71.3	15.7	8.9	81.7	41.4	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	136.3	22.0	91.9	0.6		22.6	0.2	0.0	4.0	6.3	0.0
Delay (s)	82.3	210.2	79.7	172.1	66.2		93.9	15.9	8.9	85.7	47.7	19.1
Level of Service	F	F	E	F	E		F	B	A	F	D	B
Approach Delay (s)		113.6			104.5			54.8			47.1	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	75.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



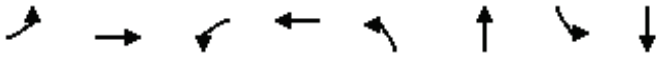
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	349	876	149	236	27	522	431	79	31	1385	71
Future Volume (veh/h)	129	349	876	149	236	27	522	431	79	31	1385	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1870	1885	1900	1826	1885	1856	1841	1870	1870
Adj Flow Rate, veh/h	134	364	912	155	246	28	544	449	82	32	1443	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	176	293	906	148	608	69	579	2218	1104	41	1674	827
Arrive On Green	0.05	0.16	0.16	0.08	0.19	0.19	0.17	0.62	0.62	0.02	0.47	0.47
Sat Flow, veh/h	3456	1885	2768	1781	3245	366	3374	3582	1572	1753	3554	1585
Grp Volume(v), veh/h	134	364	912	155	135	139	544	449	82	32	1443	74
Grp Sat Flow(s),veh/h/ln	1728	1885	1384	1781	1791	1819	1687	1791	1572	1753	1777	1585
Q Serve(g_s), s	6.7	27.2	27.2	14.5	11.6	11.8	27.9	9.5	2.9	3.2	63.3	4.1
Cycle Q Clear(g_c), s	6.7	27.2	27.2	14.5	11.6	11.8	27.9	9.5	2.9	3.2	63.3	4.1
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	176	293	906	148	336	341	579	2218	1104	41	1674	827
V/C Ratio(X)	0.76	1.24	1.01	1.05	0.40	0.41	0.94	0.20	0.07	0.77	0.86	0.09
Avail Cap(c_a), veh/h	286	293	906	148	336	341	588	2218	1104	235	1674	827
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.0	73.9	58.9	80.3	62.5	62.6	71.6	14.5	8.2	85.0	41.2	21.0
Incr Delay (d2), s/veh	6.7	134.5	31.7	88.0	0.8	0.8	20.7	0.2	0.1	25.8	6.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	24.0	23.7	10.3	5.4	5.6	13.7	4.0	1.0	1.7	28.9	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.7	208.4	90.5	168.3	63.2	63.3	92.2	14.7	8.3	110.7	47.3	21.2
LnGrp LOS	F	F	F	F	E	E	F	B	A	F	D	C
Approach Vol, veh/h		1410			429			1075			1549	
Approach Delay, s/veh		120.8			101.2			53.4			47.4	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	114.0	13.4	39.0	34.6	88.0	19.0	33.4
Change Period (Y+Rc), s	4.5	* 5.6	4.5	* 6.2	4.5	* 5.6	4.5	* 6.2
Max Green Setting (Gmax), s	23.5	* 90	14.5	* 27	30.5	* 82	14.5	* 27
Max Q Clear Time (g_c+I1), s	5.2	11.5	8.7	13.8	29.9	65.3	16.5	29.2
Green Ext Time (p_c), s	0.1	23.5	0.2	0.8	0.2	16.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	77.2
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	259	69	177	91	927	235	2302
v/c Ratio	0.37	0.98	0.41	0.71	0.75	0.50	0.60	1.12
Control Delay	45.3	99.6	47.5	48.9	59.1	22.5	15.8	88.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	99.6	47.5	48.9	59.1	22.5	15.8	88.1
Queue Length 50th (ft)	57	~197	48	86	30	274	76	~1263
Queue Length 95th (ft)	102	#391	90	171	#136	371	119	#1434
Internal Link Dist (ft)		2701		420		3738		8663
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	241	263	200	278	122	1848	450	2061
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.98	0.34	0.64	0.75	0.50	0.52	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1686		1583	1622		1770	3467		1752	3513	
Flt Permitted	0.37	1.00		0.25	1.00		0.06	1.00		0.21	1.00	
Satd. Flow (perm)	656	1686		417	1622		103	3467		396	3513	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	99	160	69	49	128	91	876	51	235	2216	86
RTOR Reduction (vph)	0	42	0	0	68	0	0	3	0	0	2	0
Lane Group Flow (vph)	81	217	0	69	109	0	91	924	0	235	2300	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	28.0	17.8		24.4	16.0		77.3	72.1		91.4	79.4	
Effective Green, g (s)	28.0	17.8		24.4	16.0		77.3	72.1		91.4	79.4	
Actuated g/C Ratio	0.21	0.13		0.18	0.12		0.57	0.53		0.67	0.58	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	210	220		146	190		122	1833		389	2046	
v/s Ratio Prot	0.03	c0.13		c0.03	0.07		0.03	0.27		c0.06	c0.65	
v/s Ratio Perm	0.05			0.06			0.39			0.35		
v/c Ratio	0.39	0.99		0.47	0.57		0.75	0.50		0.60	1.12	
Uniform Delay, d1	45.4	59.1		48.5	56.9		31.3	20.6		12.1	28.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	56.6		2.4	4.1		21.7	0.5		2.6	62.9	
Delay (s)	46.6	115.7		50.9	61.1		53.0	21.1		14.7	91.4	
Level of Service	D	F		D	E		D	C		B	F	
Approach Delay (s)		99.3			58.2			23.9			84.3	
Approach LOS		F			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	69.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	136.3	Sum of lost time (s)	25.5
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	81	99	160	69	49	128	91	876	51	235	2216	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	169	85	138	132	57	150	118	1876	109	425	2068	80
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.04	0.55	0.55	0.07	0.59	0.59
Sat Flow, veh/h	1697	648	1048	1612	455	1187	1781	3386	197	1767	3489	134
Grp Volume(v), veh/h	81	0	259	69	0	177	91	456	471	235	1121	1181
Grp Sat Flow(s),veh/h/ln	1697	0	1697	1612	0	1642	1781	1763	1820	1767	1777	1846
Q Serve(g_s), s	5.5	0.0	17.6	4.9	0.0	14.1	2.9	20.8	20.8	7.5	79.2	79.2
Cycle Q Clear(g_c), s	5.5	0.0	17.6	4.9	0.0	14.1	2.9	20.8	20.8	7.5	79.2	79.2
Prop In Lane	1.00		0.62	1.00		0.72	1.00		0.11	1.00		0.07
Lane Grp Cap(c), veh/h	169	0	224	132	0	207	118	977	1009	425	1054	1095
V/C Ratio(X)	0.48	0.00	1.16	0.52	0.00	0.85	0.77	0.47	0.47	0.55	1.06	1.08
Avail Cap(c_a), veh/h	236	0	224	205	0	216	123	977	1009	533	1054	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	58.0	48.6	0.0	57.1	32.3	17.9	17.9	13.2	27.2	27.2
Incr Delay (d2), s/veh	2.1	0.0	109.7	3.2	0.0	26.0	24.2	0.7	0.7	1.1	46.6	51.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	14.2	2.1	0.0	7.4	2.3	7.9	8.2	2.8	42.9	45.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	0.0	167.7	51.8	0.0	83.1	56.6	18.6	18.6	14.3	73.8	78.2
LnGrp LOS	D	A	F	D	A	F	E	B	B	B	F	F
Approach Vol, veh/h		340			246			1018			2537	
Approach Delay, s/veh		139.6			74.3			22.0			70.3	
Approach LOS		F			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	86.0	10.9	25.0	16.8	80.8	11.7	24.3
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 5.2	* 79	12.5	17.6	* 18	* 66	12.5	17.6
Max Q Clear Time (g_c+I1), s	4.9	81.2	6.9	19.6	9.5	22.8	7.5	16.1
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.5	13.4	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	64.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	57	100	29	909	35	104	2367
v/c Ratio	0.21	0.26	0.28	0.17	0.44	0.04	0.26	0.69
Control Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Length 50th (ft)	0	45	0	7	214	0	28	541
Queue Length 95th (ft)	4	91	49	18	263	0	48	606
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		500	300	
Base Capacity (vph)	479	216	360	172	2396	1109	396	3436
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.28	0.17	0.38	0.03	0.26	0.69

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.90			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1661			1770	1583	1770	3539	1583	1770	5077	
Flt Permitted		0.99			0.95	1.00	0.06	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1661			1770	1583	108	3539	1583	464	5077	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	0	46	57	0	100	29	909	35	104	2340	27
RTOR Reduction (vph)	0	60	0	0	0	87	0	0	14	0	1	0
Lane Group Flow (vph)	0	5	0	0	57	13	29	909	21	104	2366	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Effective Green, g (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Actuated g/C Ratio		0.07			0.07	0.13	0.62	0.59	0.59	0.68	0.62	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		120			128	288	110	2090	935	391	3160	
v/s Ratio Prot		c0.00			c0.03	0.00	0.01	0.26		c0.02	c0.47	
v/s Ratio Perm						0.01	0.15		0.01	0.17		
v/c Ratio		0.04			0.45	0.05	0.26	0.43	0.02	0.27	0.75	
Uniform Delay, d1		50.4			51.9	44.4	13.6	13.2	9.9	7.5	15.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			2.5	0.1	1.3	0.1	0.0	0.4	1.0	
Delay (s)		50.5			54.4	44.4	14.9	13.3	9.9	7.9	16.6	
Level of Service		D			D	D	B	B	A	A	B	
Approach Delay (s)		50.5			48.0			13.2			16.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

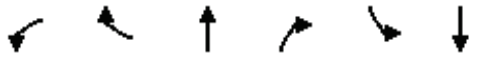
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	46	57	0	100	29	909	35	104	2340	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	0	102	175	0	232	151	2017	900	402	3043	35
Arrive On Green	0.09	0.00	0.09	0.10	0.00	0.10	0.03	0.57	0.57	0.05	0.58	0.58
Sat Flow, veh/h	479	0	1159	1781	0	1585	1781	3554	1585	1781	5204	60
Grp Volume(v), veh/h	65	0	0	57	0	100	29	909	35	104	1530	837
Grp Sat Flow(s),veh/h/ln	1638	0	0	1781	0	1585	1781	1777	1585	1781	1702	1860
Q Serve(g_s), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Cycle Q Clear(g_c), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Prop In Lane	0.29		0.71	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	144	0	0	175	0	232	151	2017	900	402	1991	1088
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.43	0.19	0.45	0.04	0.26	0.77	0.77
Avail Cap(c_a), veh/h	311	0	0	176	0	233	184	2198	981	405	2106	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	0.0	50.9	0.0	47.1	17.8	15.2	11.6	11.1	19.0	19.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	1.3	0.6	0.2	0.0	0.3	1.7	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	1.7	0.0	2.9	0.3	6.5	0.4	1.0	14.3	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	0.0	52.0	0.0	48.4	18.4	15.4	11.6	11.5	20.7	22.1
LnGrp LOS	D	A	A	D	A	D	B	B	B	B	C	C
Approach Vol, veh/h		65			157			973			2471	
Approach Delay, s/veh		54.7			49.7			15.3			20.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	76.9		16.7	11.8	74.8		17.9				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	75.0		23.0	6.0	75.0		12.0				
Max Q Clear Time (g_c+I1), s	2.8	43.2		6.6	4.9	20.0		9.0				
Green Ext Time (p_c), s	0.0	27.7		0.2	0.0	12.2		0.2				

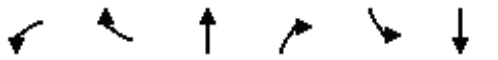
Intersection Summary			
HCM 6th Ctrl Delay		21.2	
HCM 6th LOS		C	



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	608	174	729	680	378	2117
v/c Ratio	0.92	0.20	0.50	0.56	0.87	0.83
Control Delay	66.2	13.0	64.0	9.8	48.2	37.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3
Total Delay	66.2	13.0	64.0	9.8	48.2	38.0
Queue Length 50th (ft)	596	65	235	140	246	689
Queue Length 95th (ft)	#829	105	344	267	#390	754
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	674	866	1464	1225	448	2542
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	76
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.20	0.50	0.56	0.84	0.86

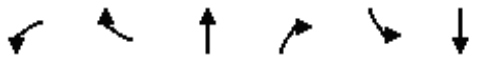
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	584	167	700	653	363	2032
Future Volume (vph)	584	167	700	653	363	2032
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	1805	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.29	1.00
Satd. Flow (perm)	1719	1442	5085	1599	546	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	608	174	729	680	378	2117
RTOR Reduction (vph)	0	14	0	46	0	0
Lane Group Flow (vph)	608	160	729	634	378	2117
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	61.8	86.3	46.1	107.9	70.6	80.8
Effective Green, g (s)	61.8	86.3	46.1	107.9	70.6	80.8
Actuated g/C Ratio	0.39	0.54	0.29	0.67	0.44	0.50
Clearance Time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	3.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	663	777	1465	1078	433	2543
v/s Ratio Prot	c0.35	0.03	0.14	0.23	0.13	c0.42
v/s Ratio Perm		0.08		0.17	0.25	
v/c Ratio	0.92	0.21	0.50	0.59	0.87	0.83
Uniform Delay, d1	46.7	19.1	47.3	14.1	32.2	33.8
Progression Factor	1.00	1.00	1.31	1.09	1.00	1.00
Incremental Delay, d2	18.9	0.1	1.1	1.5	17.4	3.4
Delay (s)	65.5	19.2	63.0	16.8	49.6	37.2
Level of Service	E	B	E	B	D	D
Approach Delay (s)	55.2		40.7			39.1
Approach LOS	E		D			D

Intersection Summary			
HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	584	167	700	653	363	2032
Future Volume (veh/h)	584	167	700	653	363	2032
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	608	174	729	680	378	2117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	650	780	1497	1066	396	2620
Arrive On Green	0.37	0.37	0.10	0.10	0.16	0.52
Sat Flow, veh/h	1739	1459	5274	1598	1810	5233
Grp Volume(v), veh/h	608	174	729	680	378	2117
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1810	1689
Q Serve(g_s), s	53.8	10.1	21.7	33.7	23.6	55.5
Cycle Q Clear(g_c), s	53.8	10.1	21.7	33.7	23.6	55.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	650	780	1497	1066	396	2620
V/C Ratio(X)	0.93	0.22	0.49	0.64	0.95	0.81
Avail Cap(c_a), veh/h	683	807	1497	1066	398	2620
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	48.2	19.7	60.8	18.5	36.4	32.0
Incr Delay (d2), s/veh	21.7	0.5	1.1	2.7	33.3	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.2	3.4	10.1	14.7	13.8	22.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.9	20.2	61.9	21.2	69.7	34.8
LnGrp LOS	E	C	E	C	E	C
Approach Vol, veh/h	782		1409			2495
Approach Delay, s/veh	58.9		42.3			40.1
Approach LOS	E		D			D

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		93.0			35.8	57.1	67.0
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		79.8			25.8	43.8	62.8
Max Q Clear Time (g_c+I1), s		57.5			25.6	35.7	55.8
Green Ext Time (p_c), s		18.9			0.0	5.7	4.0

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	190	632	575	503
v/c Ratio	0.61	0.62	0.92	1.02
Control Delay	25.8	19.7	56.6	85.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.8	19.7	56.6	85.5
Queue Length 50th (ft)	66	296	397	~409
Queue Length 95th (ft)	141	405	#651	#684
Internal Link Dist (ft)		2439	275	2104
Turn Bay Length (ft)	275			
Base Capacity (vph)	419	1252	721	492
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.50	0.80	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1810			1540				
Flt Permitted	0.12	1.00			1.00			0.97				
Satd. Flow (perm)	195	1827			1810			1540				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	190	632	0	0	575	0	327	1	175	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	190	632	0	0	575	0	0	489	0	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	63.5	63.5			39.6			35.3				
Effective Green, g (s)	63.5	63.5			39.6			35.3				
Actuated g/C Ratio	0.56	0.56			0.35			0.31				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	312	1019			629			477				
v/s Ratio Prot	0.09	c0.35			c0.32							
v/s Ratio Perm	0.25							0.32				
v/c Ratio	0.61	0.62			0.91			1.02				
Uniform Delay, d1	19.7	17.0			35.5			39.2				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	3.4	1.2			17.8			47.5				
Delay (s)	23.1	18.2			53.3			86.7				
Level of Service	C	B			D			F				
Approach Delay (s)		19.3			53.3			86.7			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	113.8	Sum of lost time (s)	22.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	190	632	0	0	575	0	327	1	175			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	274	970	0	0	643	0	354	1	189			
Arrive On Green	0.10	0.53	0.00	0.00	0.35	0.00	0.31	0.31	0.31			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1128	3	604			
Grp Volume(v), veh/h	190	632	0	0	575	0	503	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1735	0	0			
Q Serve(g_s), s	6.6	23.3	0.0	0.0	28.0	0.0	26.4	0.0	0.0			
Cycle Q Clear(g_c), s	6.6	23.3	0.0	0.0	28.0	0.0	26.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.65		0.35			
Lane Grp Cap(c), veh/h	274	970	0	0	643	0	544	0	0			
V/C Ratio(X)	0.69	0.65	0.00	0.00	0.89	0.00	0.92	0.00	0.00			
Avail Cap(c_a), veh/h	550	1514	0	0	873	0	645	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	21.0	16.0	0.0	0.0	28.8	0.0	31.2	0.0	0.0			
Incr Delay (d2), s/veh	3.1	0.7	0.0	0.0	9.2	0.0	17.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.4	8.7	0.0	0.0	12.9	0.0	13.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.1	16.8	0.0	0.0	38.1	0.0	48.6	0.0	0.0			
LnGrp LOS	C	B	A	A	D	A	D	A	A			
Approach Vol, veh/h		822			575			503				
Approach Delay, s/veh		18.5			38.1			48.6				
Approach LOS		B			D			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		57.0		37.1	16.4	40.5						
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4						
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45						
Max Q Clear Time (g_c+I1), s		25.3		28.4	8.6	30.0						
Green Ext Time (p_c), s		4.6		1.2	0.5	3.1						

Intersection Summary												
HCM 6th Ctrl Delay			32.4									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	519	683	380	595	382
v/c Ratio	0.84	0.69	0.87	0.59	0.81
Control Delay	48.2	6.4	40.8	18.4	52.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	6.4	40.8	18.4	52.1
Queue Length 50th (ft)	341	0	161	250	260
Queue Length 95th (ft)	#555	60	#361	417	350
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	641	1005	439	1030	781
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.68	0.87	0.58	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.17	1.00						0.95	
Satd. Flow (perm)		1792	1583	314	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	519	683	380	595	0	0	0	0	370	12	0
RTOR Reduction (vph)	0	0	445	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	519	238	380	595	0	0	0	0	0	382	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		39.1	39.1	67.1	67.1						30.5	
Effective Green, g (s)		39.1	39.1	67.1	67.1						30.5	
Actuated g/C Ratio		0.35	0.35	0.60	0.60						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		623	550	438	1012						474	
v/s Ratio Prot		0.29		c0.15	0.35							
v/s Ratio Perm			0.15	c0.36							0.22	
v/c Ratio		0.83	0.43	0.87	0.59						0.81	
Uniform Delay, d1		33.7	28.1	22.8	14.1						38.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		9.7	0.7	16.4	1.0						10.2	
Delay (s)		43.4	28.9	39.2	15.1						48.4	
Level of Service		D	C	D	B						D	
Approach Delay (s)		35.1			24.5			0.0			48.4	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	112.4	Sum of lost time (s)	22.7
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	519	0	380	595	0				370	12	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	578		410	978	0				412	13	0
Arrive On Green	0.00	0.32	0.00	0.17	0.57	0.00				0.29	0.29	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1413	46	0
Grp Volume(v), veh/h	0	519	0	380	595	0				382	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	28.8	0.0	15.9	24.0	0.0				26.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	28.8	0.0	15.9	24.0	0.0				26.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	578		410	978	0				425	0	0
V/C Ratio(X)	0.00	0.90		0.93	0.61	0.00				0.90	0.00	0.00
Avail Cap(c_a), veh/h	0	689		439	1112	0				694	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.2	0.0	25.4	15.0	0.0				35.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	13.8	0.0	25.1	1.0	0.0				11.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.1	0.0	8.8	8.5	0.0				10.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	48.0	0.0	50.5	16.0	0.0				47.2	0.0	0.0
LnGrp LOS	A	D		D	B	A				D	A	A
Approach Vol, veh/h		519			975						382	
Approach Delay, s/veh		48.0			29.5						47.2	
Approach LOS		D			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		67.6		37.5	26.1	41.5						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		26.0		28.4	17.9	30.8						
Green Ext Time (p_c), s		6.4		2.2	0.3	2.8						

Intersection Summary												
HCM 6th Ctrl Delay			38.2									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Future Volume (Veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	79	249	2	102	1	107	4	2	1	2	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	103			328			494	446	204	450	570	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	103			261			436	386	129	390	517	102
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	94			100			76	99	100	100	100	94
cM capacity (veh/h)	1049			847			442	486	876	381	410	801

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	396	105	113	50
Volume Left	68	2	107	1
Volume Right	249	1	2	47
cSH	1049	847	447	756
Volume to Capacity	0.06	0.00	0.25	0.07
Queue Length 95th (ft)	5	0	25	5
Control Delay (s)	2.1	0.2	15.7	10.1
Lane LOS	A	A	C	B
Approach Delay (s)	2.1	0.2	15.7	10.1
Approach LOS			C	B

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

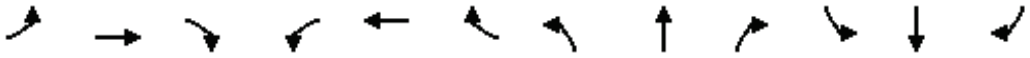
Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Future Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	68	79	249	2	102	1	107	4	2	1	2	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	328	0	0	471	447	204	450	571	103
Stage 1	-	-	-	-	-	-	340	340	-	107	107	-
Stage 2	-	-	-	-	-	-	131	107	-	343	464	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1049	-	-	838	-	-	498	509	842	386	434	801
Stage 1	-	-	-	-	-	-	669	643	-	707	811	-
Stage 2	-	-	-	-	-	-	865	811	-	509	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	838	-	-	437	466	842	357	397	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	437	466	-	357	397	-
Stage 1	-	-	-	-	-	-	614	590	-	649	809	-
Stage 2	-	-	-	-	-	-	810	809	-	463	521	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.2	15.9	10.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	442	1049	-	-	838	-	-	748
HCM Lane V/C Ratio	0.256	0.065	-	-	0.003	-	-	0.067
HCM Control Delay (s)	15.9	8.7	0	-	9.3	0	-	10.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Future Volume (Veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	109	1	4	32	246	8	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	632	538	8	524	523	20	9			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	632	538	8	524	523	20	9			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	90	100			84		
cM capacity (veh/h)	313	379	1079	408	387	1058	1624			1575		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	121	37	255
Volume Left	1	12	1	246
Volume Right	1	109	32	1
cSH	485	914	1624	1575
Volume to Capacity	0.00	0.13	0.00	0.16
Queue Length 95th (ft)	0	11	0	14
Control Delay (s)	12.5	9.5	0.2	7.5
Lane LOS	B	A	A	A
Approach Delay (s)	12.5	9.5	0.2	7.5
Approach LOS	B	A		

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			

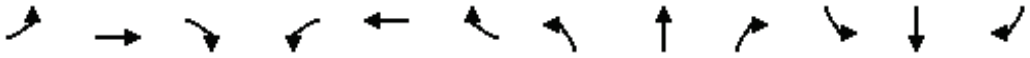
Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Future Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	33	0
Mvmt Flow	1	0	1	12	0	109	1	4	32	246	8	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	578	539	9	523	523	20	9	0	0	36	0	0
Stage 1	501	501	-	22	22	-	-	-	-	-	-	-
Stage 2	77	38	-	501	501	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	430	449	1079	465	459	1058	1624	-	-	1575	-	-
Stage 1	556	543	-	996	877	-	-	-	-	-	-	-
Stage 2	937	863	-	552	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	378	1079	408	386	1058	1624	-	-	1575	-	-
Mov Cap-2 Maneuver	339	378	-	408	386	-	-	-	-	-	-	-
Stage 1	555	458	-	995	876	-	-	-	-	-	-	-
Stage 2	840	862	-	465	458	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	9.5	0.2	7.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1624	-	-	516	914	1575	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.132	0.156	-	-
HCM Control Delay (s)	7.2	0	-	12	9.5	7.7	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.6	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Future Volume (Veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	130	11	1	132	1	25	0	1	1	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	133			141			278	274	136	275	280	132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	133			141			278	274	136	275	280	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	100	100	100	100
cM capacity (veh/h)	1452			1442			670	631	913	676	627	917

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	143	134	26	5
Volume Left	2	1	25	1
Volume Right	11	1	1	4
cSH	1452	1442	677	856
Volume to Capacity	0.00	0.00	0.04	0.01
Queue Length 95th (ft)	0	0	3	0
Control Delay (s)	0.1	0.1	10.5	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	0.1	0.1	10.5	9.2
Approach LOS			B	A

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	19.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Future Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	130	11	1	132	1	25	0	1	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	141	0	0	277	275	136	275	280	133
Stage 1	-	-	-	-	-	-	140	140	-	135	135	-
Stage 2	-	-	-	-	-	-	137	135	-	140	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1442	-	-	675	632	913	677	628	916
Stage 1	-	-	-	-	-	-	863	781	-	868	785	-
Stage 2	-	-	-	-	-	-	866	785	-	863	777	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1442	-	-	671	631	913	675	627	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	671	631	-	675	627	-
Stage 1	-	-	-	-	-	-	862	780	-	867	784	-
Stage 2	-	-	-	-	-	-	861	784	-	861	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.5	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	678	1452	-	-	1442	-	-	855
HCM Lane V/C Ratio	0.038	0.001	-	-	0.001	-	-	0.006
HCM Control Delay (s)	10.5	7.5	0	-	7.5	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	115	5	1	110	12	1
Future Volume (Veh/h)	115	5	1	110	12	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	125	5	1	120	13	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			130		250	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		250	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1455		738	923

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	130	121	14
Volume Left	0	1	13
Volume Right	5	0	1
cSH	1700	1455	749
Volume to Capacity	0.08	0.00	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.1	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		16.6%	ICU Level of Service
Analysis Period (min)		15	

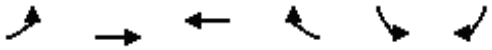
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	5	1	110	12	1
Future Vol, veh/h	115	5	1	110	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	5	1	120	13	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	250	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	739	922
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	738	922
Mov Cap-2 Maneuver	-	-	-	-	738	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	750	-	-	1455	-
HCM Lane V/C Ratio	0.019	-	-	0.001	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	108	91	1	1	19
Future Volume (Veh/h)	8	108	91	1	1	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	117	99	1	1	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	100				234	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				234	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1493				749	956

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	126	100	22
Volume Left	9	0	1
Volume Right	0	1	21
cSH	1493	1700	944
Volume to Capacity	0.01	0.06	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.6	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

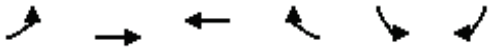
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	108	91	1	1	19
Future Vol, veh/h	8	108	91	1	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	117	99	1	1	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	235	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1493	-	-	-	753	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	748	956
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	943
HCM Lane V/C Ratio	0.006	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	109	92	65	165	1
Future Volume (Veh/h)	1	109	92	65	165	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	118	100	71	179	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171				220	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171				220	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				77	100
cM capacity (veh/h)	1406				768	956

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	119	100	71	180
Volume Left	1	0	0	179
Volume Right	0	0	71	1
cSH	1406	1700	1700	768
Volume to Capacity	0.00	0.06	0.04	0.23
Queue Length 95th (ft)	0	0	0	23
Control Delay (s)	0.1	0.0	0.0	11.1
Lane LOS	A			B
Approach Delay (s)	0.1	0.0		11.1
Approach LOS				B

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	109	92	65	165	1
Future Vol, veh/h	1	109	92	65	165	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	300	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	118	100	71	179	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	171	0	-	0	220	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1406	-	-	-	768	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	767	956
Mov Cap-2 Maneuver	-	-	-	-	767	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	768
HCM Lane V/C Ratio	0.001	-	-	-	0.235
HCM Control Delay (s)	7.6	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	267	7	1	140	17	1
Future Volume (Veh/h)	267	7	1	140	17	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	290	8	1	152	18	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			298		448	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		448	294
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1263		568	745

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	298	153	19
Volume Left	0	1	18
Volume Right	8	0	1
cSH	1700	1263	575
Volume to Capacity	0.18	0.00	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.1	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

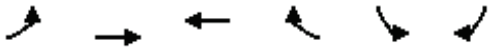
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	267	7	1	140	17	1
Future Vol, veh/h	267	7	1	140	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	290	8	1	152	18	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	298	0	448	294
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1263	-	568	745
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1263	-	567	745
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	873	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	1263	-
HCM Lane V/C Ratio	0.034	-	-	0.001	-
HCM Control Delay (s)	11.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	251	102	1	2	38
Future Volume (Veh/h)	17	251	102	1	2	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	273	111	1	2	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	112				420	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				420	112
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	96
cM capacity (veh/h)	1478				582	942

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	291	112	43
Volume Left	18	0	2
Volume Right	0	1	41
cSH	1478	1700	915
Volume to Capacity	0.01	0.07	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	251	102	1	2	38
Future Vol, veh/h	17	251	102	1	2	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	273	111	1	2	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	421	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	309	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1478	-	-	-	589	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1478	-	-	-	581	941
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1478	-	-	-	913
HCM Lane V/C Ratio	0.013	-	-	-	0.048
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	252	1	1	100	3	1
Future Volume (Veh/h)	252	1	1	100	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	274	1	1	109	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		386	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		386	274
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1288		617	764

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	275	110	4
Volume Left	0	1	3
Volume Right	1	0	1
cSH	1700	1288	648
Volume to Capacity	0.16	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.6
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

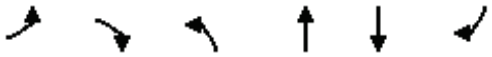
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	252	1	1	100	3	1
Future Vol, veh/h	252	1	1	100	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	1	1	109	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	386	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	617	764
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1288	-	616	764
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	647	-	-	1288	-
HCM Lane V/C Ratio	0.007	-	-	0.001	-
HCM Control Delay (s)	10.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	1	1	1	1	1
Future Volume (Veh/h)	3	1	1	1	1	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	1	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1017	1083	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	2	2
Volume Left	3	1	0
Volume Right	1	0	1
cSH	1033	1620	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	1	1	1	1
Future Vol, veh/h	3	1	1	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	1	1	1	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	5	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1017	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1016	1082	1620	-	-	-
Mov Cap-2 Maneuver	1016	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1032	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBT	EBR	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	266	684	1054	727	127	315	83
v/c Ratio	0.41	0.52	0.88	0.38	0.14	0.17	0.10
Control Delay	30.6	3.3	44.7	16.5	2.8	14.4	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	3.3	44.7	16.5	2.8	14.4	7.5
Queue Length 50th (ft)	152	0	387	164	0	62	13
Queue Length 95th (ft)	219	40	462	219	30	92	40
Internal Link Dist (ft)	2772		953	7002		1803	
Turn Bay Length (ft)		500			700		500
Base Capacity (vph)	710	1372	1304	1899	922	1805	843
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.50	0.81	0.38	0.14	0.17	0.10

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	245	629	0	829	141	0	669	117	0	290	76
Future Volume (vph)	0	245	629	0	829	141	0	669	117	0	290	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		6.2			5.3	5.3		5.6	5.6
Lane Util. Factor		1.00	0.88		0.95			0.95	1.00		0.95	1.00
Frt		1.00	0.85		0.98			1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Satd. Flow (prot)		1845	2472		3391			3438	1568		3282	1495
Flt Permitted		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Satd. Flow (perm)		1845	2472		3391			3438	1568		3282	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	266	684	0	901	153	0	727	127	0	315	83
RTOR Reduction (vph)	0	0	441	0	12	0	0	0	57	0	0	21
Lane Group Flow (vph)	0	266	243	0	1042	0	0	727	70	0	315	62
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type		NA	Perm		NA			NA	Perm		NA	Perm
Protected Phases		8			4			2			6	
Permitted Phases			8						2			6
Actuated Green, G (s)		42.6	42.6		42.2			66.3	66.3		66.0	66.0
Effective Green, g (s)		42.6	42.6		42.2			66.3	66.3		66.0	66.0
Actuated g/C Ratio		0.36	0.36		0.35			0.55	0.55		0.55	0.55
Clearance Time (s)		5.8	5.8		6.2			5.3	5.3		5.6	5.6
Vehicle Extension (s)		3.0	3.0		3.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)		654	877		1192			1899	866		1805	822
v/s Ratio Prot		0.14			c0.31			c0.21			0.10	
v/s Ratio Perm			0.10						0.04			0.04
v/c Ratio		0.41	0.28		0.87			0.38	0.08		0.17	0.08
Uniform Delay, d1		29.2	27.7		36.4			15.2	12.6		13.4	12.7
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	0.2		7.4			0.6	0.2		0.2	0.2
Delay (s)		29.6	27.9		43.8			15.8	12.8		13.7	12.9
Level of Service		C	C		D			B	B		B	B
Approach Delay (s)		28.3			43.8			15.4			13.5	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



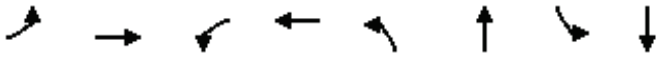
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	245	629	0	829	141	0	669	117	0	290	76
Future Volume (veh/h)	0	245	629	0	829	141	0	669	117	0	290	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1678	0	1841	1826	0	1826	1856	0	1752	1781
Adj Flow Rate, veh/h	0	266	684	0	901	153	0	727	127	0	315	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	15	0	4	5	0	5	3	0	10	8
Cap, veh/h	0	616	831	0	993	169	0	1976	896	0	1896	860
Arrive On Green	0.00	0.33	0.33	0.00	0.33	0.33	0.00	0.57	0.57	0.00	0.57	0.57
Sat Flow, veh/h	0	1856	2502	0	3082	508	0	3561	1572	0	3416	1510
Grp Volume(v), veh/h	0	266	684	0	527	527	0	727	127	0	315	83
Grp Sat Flow(s),veh/h/ln	0	1856	1251	0	1749	1749	0	1735	1572	0	1664	1510
Q Serve(g_s), s	0.0	13.4	30.1	0.0	34.6	34.6	0.0	13.7	4.5	0.0	5.4	3.0
Cycle Q Clear(g_c), s	0.0	13.4	30.1	0.0	34.6	34.6	0.0	13.7	4.5	0.0	5.4	3.0
Prop In Lane	0.00		1.00	0.00		0.29	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	616	831	0	581	581	0	1976	896	0	1896	860
V/C Ratio(X)	0.00	0.43	0.82	0.00	0.91	0.91	0.00	0.37	0.14	0.00	0.17	0.10
Avail Cap(c_a), veh/h	0	714	963	0	667	668	0	1976	896	0	1896	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	31.2	36.8	0.0	38.3	38.3	0.0	14.1	12.1	0.0	12.3	11.8
Incr Delay (d2), s/veh	0.0	0.5	5.2	0.0	14.9	15.0	0.0	0.5	0.3	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	9.5	0.0	16.9	16.9	0.0	5.3	1.6	0.0	2.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.7	42.0	0.0	53.2	53.3	0.0	14.6	12.4	0.0	12.5	12.0
LnGrp LOS	A	C	D	A	D	D	A	B	B	A	B	B
Approach Vol, veh/h		950			1054			854			398	
Approach Delay, s/veh		39.1			53.2			14.3			12.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		73.9		46.1		73.9		46.1				
Change Period (Y+Rc), s		* 5.6		* 6.2		* 5.6		* 6.2				
Max Green Setting (Gmax), s		* 63		* 46		* 62		* 46				
Max Q Clear Time (g_c+I1), s		15.7		36.6		7.4		32.1				
Green Ext Time (p_c), s		31.7		3.3		14.1		4.0				

Intersection Summary		
HCM 6th Ctrl Delay		33.9
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	160	117	262	124	1281	85	853
v/c Ratio	0.30	0.49	0.33	0.66	0.35	0.59	0.33	0.45
Control Delay	29.6	21.1	29.5	33.7	14.3	23.9	14.8	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	21.1	29.5	33.7	14.3	23.9	14.8	22.0
Queue Length 50th (ft)	40	30	56	101	35	234	23	138
Queue Length 95th (ft)	84	97	110	204	76	333	55	202
Internal Link Dist (ft)		2965		420		3738		1572
Turn Bay Length (ft)	500		300		300		200	
Base Capacity (vph)	297	631	368	670	367	3252	292	3175
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.25	0.32	0.39	0.34	0.39	0.29	0.27

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.89		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1606		1703	1638		1736	4955		1719	4756	
Flt Permitted	0.47	1.00		0.52	1.00		0.26	1.00		0.15	1.00	
Satd. Flow (perm)	826	1606		924	1638		482	4955		264	4756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	38	122	117	66	196	124	1236	45	85	774	79
RTOR Reduction (vph)	0	91	0	0	82	0	0	3	0	0	9	0
Lane Group Flow (vph)	85	69	0	117	180	0	124	1278	0	85	844	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.1	15.8		28.5	19.0		51.4	42.8		47.8	41.0	
Effective Green, g (s)	22.1	15.8		28.5	19.0		51.4	42.8		47.8	41.0	
Actuated g/C Ratio	0.22	0.16		0.28	0.19		0.51	0.43		0.48	0.41	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	233	252		336	309		354	2112		224	1942	
v/s Ratio Prot	0.02	0.04		c0.03	c0.11		c0.03	c0.26		0.03	0.18	
v/s Ratio Perm	0.06			0.07			0.15			0.15		
v/c Ratio	0.36	0.27		0.35	0.58		0.35	0.61		0.38	0.43	
Uniform Delay, d1	32.2	37.2		27.7	37.1		13.2	22.3		15.4	21.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.6		0.6	2.8		0.6	0.7		1.1	0.3	
Delay (s)	33.2	37.8		28.4	39.9		13.8	23.0		16.5	21.7	
Level of Service	C	D		C	D		B	C		B	C	
Approach Delay (s)		36.2			36.3			22.2			21.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	25.5
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	85	38	122	117	66	196	124	1236	45	85	774	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	207	64	204	295	77	230	375	2152	78	266	1905	193
Arrive On Green	0.06	0.17	0.17	0.07	0.18	0.18	0.06	0.43	0.43	0.05	0.42	0.42
Sat Flow, veh/h	1682	384	1234	1725	422	1253	1753	4977	181	1739	4524	459
Grp Volume(v), veh/h	85	0	160	117	0	262	124	832	449	85	558	295
Grp Sat Flow(s),veh/h/ln	1682	0	1619	1725	0	1675	1753	1675	1808	1739	1635	1714
Q Serve(g_s), s	3.8	0.0	8.4	5.0	0.0	13.8	3.6	17.1	17.1	2.5	10.9	11.0
Cycle Q Clear(g_c), s	3.8	0.0	8.4	5.0	0.0	13.8	3.6	17.1	17.1	2.5	10.9	11.0
Prop In Lane	1.00		0.76	1.00		0.75	1.00		0.10	1.00		0.27
Lane Grp Cap(c), veh/h	207	0	268	295	0	307	375	1449	782	266	1377	722
V/C Ratio(X)	0.41	0.00	0.60	0.40	0.00	0.85	0.33	0.57	0.57	0.32	0.41	0.41
Avail Cap(c_a), veh/h	269	0	578	365	0	635	447	2247	1213	376	2228	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	35.3	28.7	0.0	36.1	14.1	19.6	19.6	15.3	18.4	18.5
Incr Delay (d2), s/veh	1.3	0.0	2.1	0.9	0.0	6.7	0.5	0.8	1.4	0.7	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	3.3	2.1	0.0	6.2	1.3	5.9	6.5	0.9	3.7	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	37.4	29.6	0.0	42.8	14.6	20.3	21.0	16.0	18.8	19.3
LnGrp LOS	C	A	D	C	A	D	B	C	C	B	B	B
Approach Vol, veh/h		245			379			1405			938	
Approach Delay, s/veh		35.3			38.7			20.0			18.7	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	45.2	11.3	22.5	11.2	46.3	9.6	24.1
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 62	10.5	32.6	* 10	* 61	8.5	34.6
Max Q Clear Time (g_c+I1), s	5.6	13.0	7.0	10.4	4.5	19.1	5.8	15.8
Green Ext Time (p_c), s	0.1	12.8	0.1	0.5	0.1	20.3	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	115	212	31	1160	128	187	817
v/c Ratio	0.11	0.47	0.33	0.08	0.74	0.16	0.54	0.28
Control Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Length 50th (ft)	0	77	25	8	360	0	53	118
Queue Length 95th (ft)	0	161	100	21	475	17	132	157
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		500	300	
Base Capacity (vph)	357	317	689	385	2573	1195	395	4052
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.31	0.08	0.45	0.11	0.47	0.20

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1689			1770	1583	1770	3539	1583	1770	5056	
Flt Permitted		0.98			0.95	1.00	0.33	1.00	1.00	0.11	1.00	
Satd. Flow (perm)		1689			1770	1583	618	3539	1583	204	5056	
Peak-hour factor, PHF	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Adj. Flow (vph)	19	0	22	115	0	212	31	1160	128	187	786	31
RTOR Reduction (vph)	0	39	0	0	0	119	0	0	70	0	3	0
Lane Group Flow (vph)	0	2	0	0	115	93	31	1160	58	187	814	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Effective Green, g (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Actuated g/C Ratio		0.06			0.13	0.27	0.48	0.45	0.45	0.64	0.56	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		96			234	508	331	1604	717	338	2816	
v/s Ratio Prot		c0.00			c0.06	0.02	0.00	c0.33		c0.07	0.16	
v/s Ratio Perm						0.03	0.04		0.04	0.28		
v/c Ratio		0.02			0.49	0.18	0.09	0.72	0.08	0.55	0.29	
Uniform Delay, d1		47.6			43.1	30.3	14.6	23.8	16.6	14.8	12.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			1.6	0.2	0.1	1.6	0.0	2.0	0.1	
Delay (s)		47.7			44.7	30.5	14.7	25.4	16.6	16.8	12.6	
Level of Service		D			D	C	B	C	B	B	B	
Approach Delay (s)		47.7			35.5			24.3			13.4	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

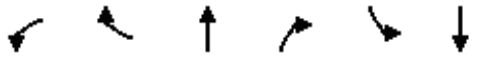
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	22	115	0	212	31	1160	128	187	786	31
Peak Hour Factor	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	0	73	257	0	353	405	1613	720	293	2506	99
Arrive On Green	0.08	0.00	0.08	0.14	0.00	0.14	0.03	0.45	0.45	0.08	0.50	0.50
Sat Flow, veh/h	774	0	896	1781	0	1585	1781	3554	1585	1781	5040	198
Grp Volume(v), veh/h	41	0	0	115	0	212	31	1160	128	187	530	287
Grp Sat Flow(s),veh/h/ln	1670	0	0	1781	0	1585	1781	1777	1585	1781	1702	1835
Q Serve(g_s), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Prop In Lane	0.46		0.54	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	137	0	0	257	0	353	405	1613	720	293	1692	912
V/C Ratio(X)	0.30	0.00	0.00	0.45	0.00	0.60	0.08	0.72	0.18	0.64	0.31	0.31
Avail Cap(c_a), veh/h	202	0	0	305	0	395	450	2541	1133	441	2777	1497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	0.0	38.8	0.0	34.6	13.3	22.0	16.1	18.3	14.9	14.9
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.2	0.0	2.1	0.1	0.6	0.1	2.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.7	0.0	4.8	0.3	9.7	1.6	2.0	3.1	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	0.0	40.1	0.0	36.7	13.4	22.6	16.2	20.6	15.0	15.1
LnGrp LOS	D	A	A	D	A	D	B	C	B	C	B	B
Approach Vol, veh/h		41			327			1319			1004	
Approach Delay, s/veh		44.1			37.9			21.8			16.1	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	55.4		14.1	13.7	51.1		20.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	81.0		12.0	16.0	71.0		17.0				
Max Q Clear Time (g_c+I1), s	2.9	11.3		4.3	7.4	28.3		13.9				
Green Ext Time (p_c), s	0.0	9.7		0.0	0.4	16.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		21.9	
HCM 6th LOS		C	



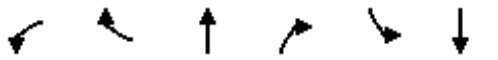
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	391	396	1054	1045	198	677
v/c Ratio	0.60	0.50	0.57	0.79	0.44	0.27
Control Delay	42.0	26.8	53.7	18.3	25.3	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	26.8	53.7	18.3	25.3	23.2
Queue Length 50th (ft)	293	232	403	349	58	154
Queue Length 95th (ft)	399	304	458	600	84	186
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)	500	1000		800	800	
Base Capacity (vph)	729	838	1835	1381	546	2491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.47	0.57	0.76	0.36	0.27

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	364	970	961	182	623
Future Volume (vph)	360	364	970	961	182	623
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	0.97	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	3127	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.19	1.00
Satd. Flow (perm)	1719	1583	4940	1568	611	4893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	396	1054	1045	198	677
RTOR Reduction (vph)	0	4	0	54	0	0
Lane Group Flow (vph)	391	392	1054	991	198	677
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	58.7	69.8	57.6	116.3	68.7	78.9
Effective Green, g (s)	58.7	69.8	57.6	116.3	68.7	78.9
Actuated g/C Ratio	0.38	0.45	0.37	0.75	0.44	0.51
Clearance Time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	3.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	651	712	1835	1176	450	2490
v/s Ratio Prot	0.23	c0.04	0.21	c0.32	0.03	0.14
v/s Ratio Perm		0.21		0.31	0.16	
v/c Ratio	0.60	0.55	0.57	0.84	0.44	0.27
Uniform Delay, d1	38.7	31.1	38.9	13.1	26.8	21.7
Progression Factor	1.00	1.00	1.28	2.12	1.00	1.00
Incremental Delay, d2	2.8	0.9	1.1	5.7	0.7	0.3
Delay (s)	41.5	32.0	51.0	33.6	27.5	22.0
Level of Service	D	C	D	C	C	C
Approach Delay (s)	36.7		42.3			23.2
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	360	364	970	961	182	623
Future Volume (veh/h)	360	364	970	961	182	623
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	391	396	1054	1045	198	677
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	515	544	2386	1218	343	2925
Arrive On Green	0.30	0.30	0.16	0.16	0.05	0.59
Sat Flow, veh/h	1739	1585	5149	1572	3182	5107
Grp Volume(v), veh/h	391	396	1054	1045	198	677
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1591	1648
Q Serve(g_s), s	31.7	33.9	29.7	52.3	4.9	10.0
Cycle Q Clear(g_c), s	31.7	33.9	29.7	52.3	4.9	10.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	515	544	2386	1218	343	2925
V/C Ratio(X)	0.76	0.73	0.44	0.86	0.58	0.23
Avail Cap(c_a), veh/h	738	748	2386	1218	517	2925
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	49.5	44.6	46.5	18.6	25.1	15.0
Incr Delay (d2), s/veh	8.2	6.7	0.5	6.7	1.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	13.8	13.4	23.3	1.8	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.7	51.3	47.0	25.3	26.7	15.2
LnGrp LOS	E	D	D	C	C	B
Approach Vol, veh/h	787		2099			875
Approach Delay, s/veh	54.5		36.2			17.8
Approach LOS	D		D			B

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		101.9			17.5	84.4	53.1
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		71.8			15.8	45.8	65.8
Max Q Clear Time (g_c+I1), s		12.0			6.9	54.3	35.9
Green Ext Time (p_c), s		7.5			0.4	0.0	10.0

Intersection Summary	
HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	138	414	421	424	348
v/c Ratio	0.46	0.47	0.76	0.76	0.46
Control Delay	19.9	18.1	37.5	36.4	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	18.1	37.5	36.4	4.6
Queue Length 50th (ft)	39	137	195	194	0
Queue Length 95th (ft)	98	293	380	381	59
Internal Link Dist (ft)		2439	275	2104	
Turn Bay Length (ft)	275				300
Base Capacity (vph)	301	1386	1043	1015	1108
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.30	0.40	0.42	0.31

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6	7.6			
Lane Util. Factor	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	1597	1827			1759			1671	1599			
Flt Permitted	0.25	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	428	1827			1759			1671	1599			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	138	414	0	0	421	0	424	0	348	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	231	0	0	0
Lane Group Flow (vph)	138	414	0	0	421	0	0	424	117	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)	41.8	41.8			27.5			28.7	28.7			
Effective Green, g (s)	41.8	41.8			27.5			28.7	28.7			
Actuated g/C Ratio	0.49	0.49			0.32			0.34	0.34			
Clearance Time (s)	7.4	7.4			7.4			7.6	7.6			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	303	893			565			560	536			
v/s Ratio Prot	0.04	c0.23			c0.24							
v/s Ratio Perm	0.19							0.25	0.07			
v/c Ratio	0.46	0.46			0.75			0.76	0.22			
Uniform Delay, d1	14.4	14.4			25.9			25.3	20.4			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	1.1	0.4			5.3			5.8	0.2			
Delay (s)	15.5	14.8			31.2			31.1	20.6			
Level of Service	B	B			C			C	C			
Approach Delay (s)		15.0			31.2			26.3			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	22.4
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	138	414	0	0	421	0	424	0	348			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	300	886	0	0	516	0	528	0	466			
Arrive On Green	0.08	0.48	0.00	0.00	0.29	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	1626	1841	0	0	1781	0	1810	0	1598			
Grp Volume(v), veh/h	138	414	0	0	421	0	424	0	348			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1810	0	1598			
Q Serve(g_s), s	3.7	9.9	0.0	0.0	14.5	0.0	14.3	0.0	13.0			
Cycle Q Clear(g_c), s	3.7	9.9	0.0	0.0	14.5	0.0	14.3	0.0	13.0			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	300	886	0	0	516	0	528	0	466			
V/C Ratio(X)	0.46	0.47	0.00	0.00	0.82	0.00	0.80	0.00	0.75			
Avail Cap(c_a), veh/h	333	1746	0	0	1312	0	1365	0	1205			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	15.5	11.5	0.0	0.0	21.8	0.0	21.6	0.0	21.2			
Incr Delay (d2), s/veh	1.1	0.4	0.0	0.0	3.2	0.0	2.9	0.0	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	3.3	0.0	0.0	5.7	0.0	5.9	0.0	0.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	11.8	0.0	0.0	25.1	0.0	24.5	0.0	23.6			
LnGrp LOS	B	B	A	A	C	A	C	A	C			
Approach Vol, veh/h		552			421			772				
Approach Delay, s/veh		13.0			25.1			24.1				
Approach LOS		B			C			C				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		39.2		26.8	12.7	26.5			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 63		* 50	* 6.6	* 49			
Max Q Clear Time (g_c+I1), s		11.9		16.3	5.7	16.5			
Green Ext Time (p_c), s		2.6		2.9	0.0	2.6			

Intersection Summary		
HCM 6th Ctrl Delay		20.8
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	296	388	205	668	277
v/c Ratio	0.62	0.57	0.41	0.66	0.63
Control Delay	33.0	6.4	12.1	16.5	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	6.4	12.1	16.5	36.0
Queue Length 50th (ft)	126	0	46	208	121
Queue Length 95th (ft)	255	68	104	410	252
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	882	943	581	1535	1154
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.41	0.35	0.44	0.24

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1774	
Flt Permitted		1.00	1.00	0.37	1.00						0.95	
Satd. Flow (perm)		1696	1455	598	1810						1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	388	205	668	0	0	0	0	276	1	0
RTOR Reduction (vph)	0	0	277	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	111	205	668	0	0	0	0	0	277	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		22.9	22.9	45.2	45.2						19.9	
Effective Green, g (s)		22.9	22.9	45.2	45.2						19.9	
Actuated g/C Ratio		0.29	0.29	0.57	0.57						0.25	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		486	417	508	1023						441	
v/s Ratio Prot		0.17		0.07	c0.37							
v/s Ratio Perm			0.08	0.16							0.16	
v/c Ratio		0.61	0.27	0.40	0.65						0.63	
Uniform Delay, d1		24.6	22.0	9.7	11.9						26.7	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		2.5	0.5	0.5	1.7						3.2	
Delay (s)		27.1	22.5	10.2	13.6						29.9	
Level of Service		C	C	B	B						C	
Approach Delay (s)		24.5			12.8			0.0			29.9	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	22.7
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	296	0	205	668	0				276	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	415		416	944	0				374	1	0
Arrive On Green	0.00	0.24	0.00	0.13	0.52	0.00				0.21	0.21	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1803	7	0
Grp Volume(v), veh/h	0	296	0	205	668	0				277	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	8.5	0.0	4.8	15.0	0.0				7.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.5	0.0	4.8	15.0	0.0				7.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h	0	415		416	944	0				375	0	0
V/C Ratio(X)	0.00	0.71		0.49	0.71	0.00				0.74	0.00	0.00
Avail Cap(c_a), veh/h	0	1282		798	2308	0				1685	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.7	0.0	12.1	9.9	0.0				19.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.3	0.0	0.9	1.4	0.0				4.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.0	1.3	4.2	0.0				3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.9	0.0	13.1	11.3	0.0				24.0	0.0	0.0
LnGrp LOS	A	C		B	B	A				C	A	A
Approach Vol, veh/h		296			873						277	
Approach Delay, s/veh		21.9			11.7						24.0	
Approach LOS		C			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		35.7		18.0	14.8	20.8						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		17.0		9.7	6.8	10.5						
Green Ext Time (p_c), s		7.7		1.6	0.5	2.5						

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Future Volume (Veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	74	61	8	63	1	248	2	9	1	1	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked												
vC, conflicting volume	64			135			320	252	104	262	282	64
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			135			320	252	104	262	282	64
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			56	100	99	100	100	92
cM capacity (veh/h)	1431			1201			563	634	911	671	611	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	169	72	259	70
Volume Left	34	8	248	1
Volume Right	61	1	9	68
cSH	1431	1201	571	852
Volume to Capacity	0.02	0.01	0.45	0.08
Queue Length 95th (ft)	2	1	59	7
Control Delay (s)	1.7	0.9	16.4	9.6
Lane LOS	A	A	C	A
Approach Delay (s)	1.7	0.9	16.4	9.6
Approach LOS			C	A

Intersection Summary				
Average Delay	9.3			
Intersection Capacity Utilization	41.3%	ICU Level of Service	A	
Analysis Period (min)	15			

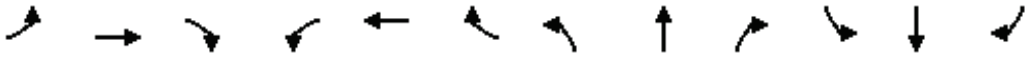
Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Future Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	34	74	61	8	63	1	248	2	9	1	1	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	135	0	0	287	253	105	258	283	64
Stage 1	-	-	-	-	-	-	173	173	-	80	80	-
Stage 2	-	-	-	-	-	-	114	80	-	178	203	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1431	-	-	1201	-	-	659	654	910	699	629	859
Stage 1	-	-	-	-	-	-	822	760	-	934	832	-
Stage 2	-	-	-	-	-	-	884	832	-	828	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1201	-	-	590	632	910	673	608	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	632	-	673	608	-
Stage 1	-	-	-	-	-	-	801	740	-	910	826	-
Stage 2	-	-	-	-	-	-	807	826	-	796	718	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.9	15.6	9.6
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1431	-	-	1201	-	-	850
HCM Lane V/C Ratio	0.433	0.024	-	-	0.006	-	-	0.083
HCM Control Delay (s)	15.6	7.6	0	-	8	0	-	9.6
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Future Volume (Veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	249	1	11	23	58	10	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	400	163	11	152	152	22	12			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	400	163	11	152	152	22	12			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	76	100			96		
cM capacity (veh/h)	418	702	1076	791	712	1054	1620			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	261	35	70
Volume Left	1	12	1	58
Volume Right	1	249	23	2
cSH	602	1039	1620	1578
Volume to Capacity	0.00	0.25	0.00	0.04
Queue Length 95th (ft)	0	25	0	3
Control Delay (s)	11.0	9.6	0.2	6.2
Lane LOS	B	A	A	A
Approach Delay (s)	11.0	9.6	0.2	6.2
Approach LOS	B	A		

Intersection Summary				
Average Delay	8.1			
Intersection Capacity Utilization	31.6%	ICU Level of Service	A	
Analysis Period (min)	15			

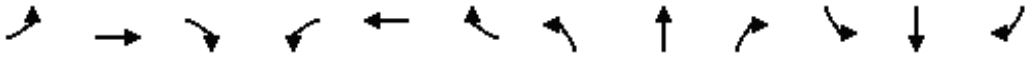
Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Future Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	25	2	2	0	0
Mvmt Flow	1	0	1	12	0	249	1	11	23	58	10	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	276	163	11	153	153	23	12	0	0	34	0	0
Stage 1	127	127	-	25	25	-	-	-	-	-	-	-
Stage 2	149	36	-	128	128	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	729	1076	814	739	1054	1620	-	-	1578	-	-
Stage 1	882	791	-	993	874	-	-	-	-	-	-	-
Stage 2	858	865	-	876	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	505	701	1076	790	711	1054	1620	-	-	1578	-	-
Mov Cap-2 Maneuver	505	701	-	790	711	-	-	-	-	-	-	-
Stage 1	881	762	-	992	873	-	-	-	-	-	-	-
Stage 2	655	864	-	843	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9.6	0.2	6.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	687	1038	1578	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.251	0.037	-	-
HCM Control Delay (s)	7.2	0	-	10.3	9.6	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Future Volume (Veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	247	60	3	271	1	49	0	2	1	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	272			307			580	573	277	574	602	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272			307			580	573	277	574	602	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			88	100	100	100	100	99
cM capacity (veh/h)	1291			1254			418	426	762	425	409	767

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	316	275	51	9
Volume Left	9	3	49	1
Volume Right	60	1	2	8
cSH	1291	1254	425	704
Volume to Capacity	0.01	0.00	0.12	0.01
Queue Length 95th (ft)	1	0	10	1
Control Delay (s)	0.3	0.1	14.6	10.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	0.1	14.6	10.2
Approach LOS			B	B

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	36.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Future Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	247	60	3	271	1	49	0	2	1	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	272	0	0	307	0	0	577	573	277	574	603	272
Stage 1	-	-	-	-	-	-	295	295	-	278	278	-
Stage 2	-	-	-	-	-	-	282	278	-	296	325	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1291	-	-	1254	-	-	428	430	762	430	413	767
Stage 1	-	-	-	-	-	-	713	669	-	728	680	-
Stage 2	-	-	-	-	-	-	725	680	-	712	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1291	-	-	1254	-	-	420	425	762	425	408	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	425	-	425	408	-
Stage 1	-	-	-	-	-	-	707	664	-	722	678	-
Stage 2	-	-	-	-	-	-	716	678	-	704	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	14.5	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	428	1291	-	-	1254	-	-	697
HCM Lane V/C Ratio	0.119	0.007	-	-	0.003	-	-	0.012
HCM Control Delay (s)	14.5	7.8	0	-	7.9	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	27	1	231	22	1
Future Volume (Veh/h)	203	27	1	231	22	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	29	1	251	24	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			250		488	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		488	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1316		538	804

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	250	252	25
Volume Left	0	1	24
Volume Right	29	0	1
cSH	1700	1316	545
Volume to Capacity	0.15	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	11.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

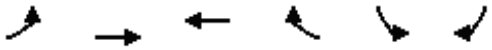
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	27	1	231	22	1
Future Vol, veh/h	203	27	1	231	22	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	221	29	1	251	24	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	250	0	489	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1316	-	538	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1316	-	537	803
Mov Cap-2 Maneuver	-	-	-	-	537	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	1316	-
HCM Lane V/C Ratio	0.046	-	-	0.001	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	160	196	2	1	36
Future Volume (Veh/h)	44	160	196	2	1	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	174	213	2	1	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	215				484	214
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215				484	214
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	95
cM capacity (veh/h)	1355				523	826

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	222	215	40
Volume Left	48	0	1
Volume Right	0	2	39
cSH	1355	1700	814
Volume to Capacity	0.04	0.13	0.05
Queue Length 95th (ft)	3	0	4
Control Delay (s)	1.9	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	1.9	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

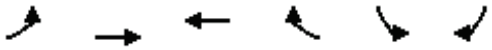
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	160	196	2	1	36
Future Vol, veh/h	44	160	196	2	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	174	213	2	1	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	215	0	-	0	484	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1355	-	-	-	542	826
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1355	-	-	-	521	826
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	813
HCM Lane V/C Ratio	0.035	-	-	-	0.049
HCM Control Delay (s)	7.8	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	161	198	158	35	1
Future Volume (Veh/h)	1	161	198	158	35	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	175	215	172	38	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	387				392	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387				392	215
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	100
cM capacity (veh/h)	1171				612	825

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	176	215	172	39
Volume Left	1	0	0	38
Volume Right	0	0	172	1
cSH	1171	1700	1700	616
Volume to Capacity	0.00	0.13	0.10	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.1	0.0	0.0	11.2
Lane LOS	A			B
Approach Delay (s)	0.1	0.0		11.2
Approach LOS				B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	161	198	158	35	1
Future Vol, veh/h	1	161	198	158	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	300	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	175	215	172	38	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	387	0	-	0	392	215
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1171	-	-	-	612	825
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	854	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1171	-	-	-	611	825
Mov Cap-2 Maneuver	-	-	-	-	611	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	854	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1171	-	-	-	615
HCM Lane V/C Ratio	0.001	-	-	-	0.064
HCM Control Delay (s)	8.1	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	41	2	323	33	2
Future Volume (Veh/h)	155	41	2	323	33	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	168	45	2	351	36	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			213		546	190
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		546	190
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1357		498	851

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	353	38
Volume Left	0	2	36
Volume Right	45	0	2
cSH	1700	1357	509
Volume to Capacity	0.13	0.00	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.1	12.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.6
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

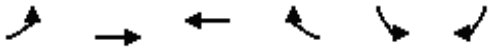
Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	155	41	2	323	33	2
Future Vol, veh/h	155	41	2	323	33	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	45	2	351	36	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	213	0	546	191
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	355	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1357	-	499	851
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1357	-	498	851
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	510	-	-	1357	-
HCM Lane V/C Ratio	0.075	-	-	0.002	-
HCM Control Delay (s)	12.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	67	252	5	4	73
Future Volume (Veh/h)	90	67	252	5	4	73
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	73	274	5	4	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	279				546	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				546	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	90
cM capacity (veh/h)	1284				461	762

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	171	279	83
Volume Left	98	0	4
Volume Right	0	5	79
cSH	1284	1700	739
Volume to Capacity	0.08	0.16	0.11
Queue Length 95th (ft)	6	0	9
Control Delay (s)	4.9	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	4.9	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	67	252	5	4	73
Future Vol, veh/h	90	67	252	5	4	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	73	274	5	4	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	279	0	-	0	546	277
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1284	-	-	-	499	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	776	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	459	762
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	776	-

Approach	EB	WB	SB
HCM Control Delay, s	4.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	737
HCM Lane V/C Ratio	0.076	-	-	-	0.114
HCM Control Delay (s)	8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	8	1	250	7	1
Future Volume (Veh/h)	63	8	1	250	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	9	1	272	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			77		346	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		346	72
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1522		650	990

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	273	9
Volume Left	0	1	8
Volume Right	9	0	1
cSH	1700	1522	676
Volume to Capacity	0.05	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	10.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

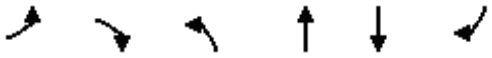
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	8	1	250	7	1
Future Vol, veh/h	63	8	1	250	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	9	1	272	8	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	347	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1522	-	650	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1522	-	649	989
Mov Cap-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	678	-	-	1522	-
HCM Lane V/C Ratio	0.013	-	-	0.001	-
HCM Control Delay (s)	10.4	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	1	1	1	1	9
Future Volume (Veh/h)	8	1	1	1	1	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	1	1	1	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	9	6	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9	6	11			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	1011	1077	1608			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	2	11
Volume Left	9	1	0
Volume Right	1	0	10
cSH	1017	1608	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	1	1	1	1	9
Future Vol, veh/h	8	1	1	1	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	1	1	1	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	9	6	11	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1011	1077	1608	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1010	1077	1608	-	-	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1017	-	-
HCM Lane V/C Ratio	0.001	-	0.01	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Lane Group	EBT	EBR	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	364	1046	952	449	82	1475	74
v/c Ratio	0.46	0.88	0.64	0.24	0.10	0.82	0.09
Control Delay	37.4	54.6	41.1	25.0	4.8	41.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	54.6	41.1	25.0	4.8	41.4	4.9
Queue Length 50th (ft)	294	605	441	151	0	746	0
Queue Length 95th (ft)	366	674	484	203	33	909	31
Internal Link Dist (ft)	2772		953	7002		1803	
Turn Bay Length (ft)		500			700		500
Base Capacity (vph)	872	1295	1619	1833	844	1809	845
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.81	0.59	0.24	0.10	0.82	0.09

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	349	1004	0	757	156	0	431	79	0	1416	71
Future Volume (vph)	0	349	1004	0	757	156	0	431	79	0	1416	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		6.2			5.3	5.3		5.6	5.6
Lane Util. Factor		1.00	0.88		0.95			0.95	1.00		0.95	1.00
Frt		1.00	0.85		0.97			1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Satd. Flow (prot)		1881	2760		3488			3574	1568		3539	1583
Flt Permitted		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Satd. Flow (perm)		1881	2760		3488			3574	1568		3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	364	1046	0	789	162	0	449	82	0	1475	74
RTOR Reduction (vph)	0	0	16	0	10	0	0	0	40	0	0	36
Lane Group Flow (vph)	0	364	1030	0	942	0	0	449	42	0	1475	38
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type		NA	Perm		NA			NA	Perm		NA	Perm
Protected Phases		8			4			2			6	
Permitted Phases			8						2			6
Actuated Green, G (s)		74.1	74.1		73.7			89.8	89.8		89.5	89.5
Effective Green, g (s)		74.1	74.1		73.7			89.8	89.8		89.5	89.5
Actuated g/C Ratio		0.42	0.42		0.42			0.51	0.51		0.51	0.51
Clearance Time (s)		5.8	5.8		6.2			5.3	5.3		5.6	5.6
Vehicle Extension (s)		3.0	3.0		3.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)		796	1168		1468			1833	804		1809	809
v/s Ratio Prot		0.19			0.27			0.13			c0.42	
v/s Ratio Perm			c0.37						0.03			0.02
v/c Ratio		0.46	0.88		0.64			0.24	0.05		0.82	0.05
Uniform Delay, d1		36.1	46.4		40.2			23.7	21.3		35.8	21.4
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	8.1		1.0			0.3	0.1		4.2	0.1
Delay (s)		36.5	54.5		41.1			24.0	21.4		40.0	21.5
Level of Service		D	D		D			C	C		D	C
Approach Delay (s)		49.9			41.1			23.6			39.1	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



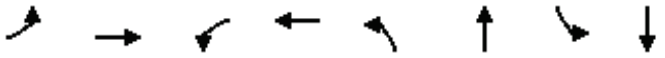
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	349	1004	0	757	156	0	431	79	0	1416	71
Future Volume (veh/h)	0	349	1004	0	757	156	0	431	79	0	1416	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1885	1856	0	1885	1900	0	1885	1856	0	1870	1870
Adj Flow Rate, veh/h	0	364	1046	0	789	162	0	449	82	0	1475	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	3	0	1	0	0	1	3	0	2	2
Cap, veh/h	0	771	1132	0	1211	249	0	1875	823	0	1860	830
Arrive On Green	0.00	0.41	0.41	0.00	0.41	0.41	0.00	0.52	0.52	0.00	0.52	0.52
Sat Flow, veh/h	0	1885	2768	0	3053	608	0	3676	1572	0	3647	1585
Grp Volume(v), veh/h	0	364	1046	0	478	473	0	449	82	0	1475	74
Grp Sat Flow(s),veh/h/ln	0	1885	1384	0	1791	1776	0	1791	1572	0	1777	1585
Q Serve(g_s), s	0.0	24.7	62.8	0.0	37.6	37.6	0.0	12.0	4.6	0.0	59.2	4.1
Cycle Q Clear(g_c), s	0.0	24.7	62.8	0.0	37.6	37.6	0.0	12.0	4.6	0.0	59.2	4.1
Prop In Lane	0.00		1.00	0.00		0.34	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	771	1132	0	733	727	0	1875	823	0	1860	830
V/C Ratio(X)	0.00	0.47	0.92	0.00	0.65	0.65	0.00	0.24	0.10	0.00	0.79	0.09
Avail Cap(c_a), veh/h	0	875	1284	0	827	820	0	1875	823	0	1860	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	37.9	49.1	0.0	41.7	41.7	0.0	22.7	21.0	0.0	34.0	20.8
Incr Delay (d2), s/veh	0.0	0.4	10.5	0.0	1.5	1.5	0.0	0.3	0.2	0.0	3.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.5	23.0	0.0	17.0	16.9	0.0	5.2	1.8	0.0	26.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.3	59.6	0.0	43.2	43.2	0.0	23.0	21.2	0.0	37.5	21.1
LnGrp LOS	A	D	E	A	D	D	A	C	C	A	D	C
Approach Vol, veh/h		1410			951			531			1549	
Approach Delay, s/veh		54.1			43.2			22.7			36.8	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	97.2	77.8	97.2	77.8
Change Period (Y+Rc), s	* 5.6	* 6.2	* 5.6	* 6.2
Max Green Setting (Gmax), s	* 83	* 81	* 82	* 81
Max Q Clear Time (g_c+I1), s	14.0	39.6	61.2	64.8
Green Ext Time (p_c), s	22.6	4.4	20.9	6.8

Intersection Summary	
HCM 6th Ctrl Delay	42.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	259	69	177	91	927	235	2302
v/c Ratio	0.28	0.78	0.34	0.54	0.51	0.40	0.59	0.90
Control Delay	34.1	55.0	36.0	32.1	30.7	24.5	18.0	35.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	55.0	36.0	32.1	30.7	24.5	18.0	35.4
Queue Length 50th (ft)	48	159	40	69	29	179	81	621
Queue Length 95th (ft)	87	257	78	148	90	270	148	#874
Internal Link Dist (ft)		2965		420		3738		1572
Turn Bay Length (ft)	500		300		300		200	
Base Capacity (vph)	387	541	216	405	198	2300	501	2544
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.48	0.32	0.44	0.46	0.40	0.47	0.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1686		1583	1622		1770	4981		1752	5048	
Flt Permitted	0.49	1.00		0.33	1.00		0.07	1.00		0.23	1.00	
Satd. Flow (perm)	857	1686		557	1622		134	4981		424	5048	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	99	160	69	49	128	91	876	51	235	2216	86
RTOR Reduction (vph)	0	47	0	0	69	0	0	4	0	0	2	0
Lane Group Flow (vph)	81	212	0	69	108	0	91	923	0	235	2300	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	28.5	20.3		26.1	19.1		63.8	55.8		74.0	60.9	
Effective Green, g (s)	28.5	20.3		26.1	19.1		63.8	55.8		74.0	60.9	
Actuated g/C Ratio	0.23	0.17		0.21	0.16		0.52	0.46		0.61	0.50	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	255	281		178	254		177	2283		400	2526	
v/s Ratio Prot	0.02	c0.13		c0.02	0.07		0.03	0.19		c0.06	c0.46	
v/s Ratio Perm	0.05			0.06			0.24			0.29		
v/c Ratio	0.32	0.76		0.39	0.42		0.51	0.40		0.59	0.91	
Uniform Delay, d1	37.6	48.3		39.6	46.3		23.1	21.9		12.1	27.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	11.0		1.4	1.1		2.5	0.2		2.2	5.8	
Delay (s)	38.3	59.3		41.0	47.5		25.7	22.1		14.3	33.7	
Level of Service	D	E		D	D		C	C		B	C	
Approach Delay (s)		54.3			45.7			22.5			31.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	121.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	81	99	160	69	49	128	91	876	51	235	2216	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	229	112	181	163	76	198	159	2300	134	431	2606	101
Arrive On Green	0.05	0.17	0.17	0.05	0.17	0.17	0.04	0.47	0.47	0.09	0.52	0.52
Sat Flow, veh/h	1697	648	1048	1612	455	1187	1781	4897	284	1767	5044	195
Grp Volume(v), veh/h	81	0	259	69	0	177	91	603	324	235	1492	810
Grp Sat Flow(s),veh/h/ln	1697	0	1697	1612	0	1642	1781	1689	1804	1767	1702	1835
Q Serve(g_s), s	4.5	0.0	17.2	4.1	0.0	11.6	3.0	13.3	13.4	7.7	43.5	44.0
Cycle Q Clear(g_c), s	4.5	0.0	17.2	4.1	0.0	11.6	3.0	13.3	13.4	7.7	43.5	44.0
Prop In Lane	1.00		0.62	1.00		0.72	1.00		0.16	1.00		0.11
Lane Grp Cap(c), veh/h	229	0	294	163	0	274	159	1586	847	431	1759	948
V/C Ratio(X)	0.35	0.00	0.88	0.42	0.00	0.65	0.57	0.38	0.38	0.54	0.85	0.85
Avail Cap(c_a), veh/h	438	0	524	220	0	353	226	1586	847	599	1779	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	46.5	38.4	0.0	44.8	25.3	19.7	19.7	14.0	24.0	24.1
Incr Delay (d2), s/veh	0.9	0.0	8.5	1.7	0.0	2.6	3.2	0.3	0.6	1.1	4.4	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	7.8	1.7	0.0	5.0	1.3	4.8	5.2	2.9	16.6	19.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	0.0	55.0	40.2	0.0	47.4	28.6	20.0	20.3	15.1	28.4	32.3
LnGrp LOS	D	A	D	D	A	D	C	C	C	B	C	C
Approach Vol, veh/h		340			246			1018			2537	
Approach Delay, s/veh		51.0			45.4			20.9			28.4	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	66.3	9.9	27.3	17.0	60.9	10.6	26.6
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 60	9.5	35.6	* 21	* 48	20.3	24.8
Max Q Clear Time (g_c+I1), s	5.0	46.0	6.1	19.2	9.7	15.4	6.5	13.6
Green Ext Time (p_c), s	0.1	13.6	0.0	0.8	0.5	12.2	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	57	100	29	909	35	104	2367
v/c Ratio	0.21	0.26	0.28	0.17	0.44	0.04	0.26	0.69
Control Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Length 50th (ft)	0	45	0	7	214	0	28	541
Queue Length 95th (ft)	4	91	49	18	263	0	48	606
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		500	300	
Base Capacity (vph)	479	216	360	172	2396	1109	396	3436
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.28	0.17	0.38	0.03	0.26	0.69

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.90			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1661			1770	1583	1770	3539	1583	1770	5077	
Flt Permitted		0.99			0.95	1.00	0.06	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1661			1770	1583	108	3539	1583	464	5077	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	0	46	57	0	100	29	909	35	104	2340	27
RTOR Reduction (vph)	0	60	0	0	0	87	0	0	14	0	1	0
Lane Group Flow (vph)	0	5	0	0	57	13	29	909	21	104	2366	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Effective Green, g (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Actuated g/C Ratio		0.07			0.07	0.13	0.62	0.59	0.59	0.68	0.62	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		120			128	288	110	2090	935	391	3160	
v/s Ratio Prot		c0.00			c0.03	0.00	0.01	0.26		c0.02	c0.47	
v/s Ratio Perm						0.01	0.15		0.01	0.17		
v/c Ratio		0.04			0.45	0.05	0.26	0.43	0.02	0.27	0.75	
Uniform Delay, d1		50.4			51.9	44.4	13.6	13.2	9.9	7.5	15.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			2.5	0.1	1.3	0.1	0.0	0.4	1.0	
Delay (s)		50.5			54.4	44.4	14.9	13.3	9.9	7.9	16.6	
Level of Service		D			D	D	B	B	A	A	B	
Approach Delay (s)		50.5			48.0			13.2			16.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

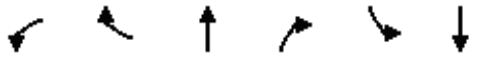
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	46	57	0	100	29	909	35	104	2340	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	0	102	175	0	232	151	2017	900	402	3043	35
Arrive On Green	0.09	0.00	0.09	0.10	0.00	0.10	0.03	0.57	0.57	0.05	0.58	0.58
Sat Flow, veh/h	479	0	1159	1781	0	1585	1781	3554	1585	1781	5204	60
Grp Volume(v), veh/h	65	0	0	57	0	100	29	909	35	104	1530	837
Grp Sat Flow(s),veh/h/ln	1638	0	0	1781	0	1585	1781	1777	1585	1781	1702	1860
Q Serve(g_s), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Cycle Q Clear(g_c), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Prop In Lane	0.29		0.71	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	144	0	0	175	0	232	151	2017	900	402	1991	1088
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.43	0.19	0.45	0.04	0.26	0.77	0.77
Avail Cap(c_a), veh/h	311	0	0	176	0	233	184	2198	981	405	2106	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	0.0	50.9	0.0	47.1	17.8	15.2	11.6	11.1	19.0	19.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	1.3	0.6	0.2	0.0	0.3	1.7	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	1.7	0.0	2.9	0.3	6.5	0.4	1.0	14.3	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	0.0	52.0	0.0	48.4	18.4	15.4	11.6	11.5	20.7	22.1
LnGrp LOS	D	A	A	D	A	D	B	B	B	B	C	C
Approach Vol, veh/h		65			157			973			2471	
Approach Delay, s/veh		54.7			49.7			15.3			20.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	76.9		16.7	11.8	74.8		17.9				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	75.0		23.0	6.0	75.0		12.0				
Max Q Clear Time (g_c+I1), s	2.8	43.2		6.6	4.9	20.0		9.0				
Green Ext Time (p_c), s	0.0	27.7		0.2	0.0	12.2		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		21.2	
HCM 6th LOS		C	



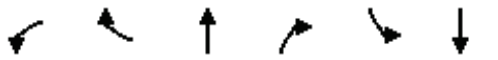
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	608	174	729	680	378	2117
v/c Ratio	0.85	0.21	0.46	0.53	0.55	0.88
Control Delay	54.6	14.2	61.1	7.6	29.1	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.6
Total Delay	54.6	14.2	61.1	7.6	29.1	44.6
Queue Length 50th (ft)	550	68	231	118	123	754
Queue Length 95th (ft)	725	105	344	267	160	825
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)	500	1000		800	800	
Base Capacity (vph)	749	846	1597	1319	757	2395
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	69
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.21	0.46	0.52	0.50	0.91

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	584	167	700	653	363	2032
Future Volume (vph)	584	167	700	653	363	2032
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	0.97	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	3502	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.30	1.00
Satd. Flow (perm)	1719	1442	5085	1599	1101	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	608	174	729	680	378	2117
RTOR Reduction (vph)	0	15	0	25	0	0
Lane Group Flow (vph)	608	159	729	655	378	2117
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	66.5	82.1	50.3	116.8	65.9	76.1
Effective Green, g (s)	66.5	82.1	50.3	116.8	65.9	76.1
Actuated g/C Ratio	0.42	0.51	0.31	0.73	0.41	0.48
Clearance Time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	3.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	714	739	1598	1167	687	2395
v/s Ratio Prot	c0.35	0.02	0.14	0.23	0.05	c0.42
v/s Ratio Perm		0.09		0.18	0.17	
v/c Ratio	0.85	0.22	0.46	0.56	0.55	0.88
Uniform Delay, d1	42.3	21.3	43.9	9.9	31.4	38.0
Progression Factor	1.00	1.00	1.33	1.18	1.00	1.00
Incremental Delay, d2	10.9	0.1	0.9	1.2	1.0	5.2
Delay (s)	53.2	21.5	59.3	12.8	32.3	43.2
Level of Service	D	C	E	B	C	D
Approach Delay (s)	46.2		36.9			41.5
Approach LOS	D		D			D

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	584	167	700	653	363	2032
Future Volume (veh/h)	584	167	700	653	363	2032
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	608	174	729	680	378	2117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	672	688	1818	1187	556	2556
Arrive On Green	0.39	0.39	0.12	0.12	0.08	0.50
Sat Flow, veh/h	1739	1459	5274	1598	3510	5233
Grp Volume(v), veh/h	608	174	729	680	378	2117
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1755	1689
Q Serve(g_s), s	52.8	11.4	21.2	27.9	10.8	56.9
Cycle Q Clear(g_c), s	52.8	11.4	21.2	27.9	10.8	56.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	672	688	1818	1187	556	2556
V/C Ratio(X)	0.90	0.25	0.40	0.57	0.68	0.83
Avail Cap(c_a), veh/h	759	760	1818	1187	671	2556
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	46.3	25.4	54.8	12.2	30.8	33.7
Incr Delay (d2), s/veh	16.7	0.7	0.6	1.9	2.1	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.9	4.0	9.8	12.0	4.7	23.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.9	26.1	55.4	14.1	33.0	37.0
LnGrp LOS	E	C	E	B	C	D
Approach Vol, veh/h	782		1409			2495
Approach Delay, s/veh	54.7		35.5			36.4
Approach LOS	D		D			D

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		90.9			23.8	67.2	69.1
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		72.8			18.8	43.8	69.8
Max Q Clear Time (g_c+I1), s		58.9			12.8	29.9	54.8
Green Ext Time (p_c), s		12.3			0.8	8.6	7.1

Intersection Summary	
HCM 6th Ctrl Delay	39.2
HCM 6th LOS	D



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	190	632	575	328	175
v/c Ratio	0.54	0.58	0.88	0.82	0.35
Control Delay	17.7	16.3	47.9	55.4	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	16.3	47.9	55.4	7.1
Queue Length 50th (ft)	56	249	355	215	0
Queue Length 95th (ft)	119	405	#651	#364	55
Internal Link Dist (ft)		2439	275	2104	
Turn Bay Length (ft)	275				300
Base Capacity (vph)	483	1393	815	547	628
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.45	0.71	0.60	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6	7.6			
Lane Util. Factor	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	1597	1827			1810			1561	1468			
Flt Permitted	0.15	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	245	1827			1810			1561	1468			
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	190	632	0	0	575	0	327	1	175	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	130	0	0	0
Lane Group Flow (vph)	190	632	0	0	575	0	0	328	45	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)	61.6	61.6			38.0			26.7	26.7			
Effective Green, g (s)	61.6	61.6			38.0			26.7	26.7			
Actuated g/C Ratio	0.60	0.60			0.37			0.26	0.26			
Clearance Time (s)	7.4	7.4			7.4			7.6	7.6			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	358	1089			665			403	379			
v/s Ratio Prot	0.08	c0.35			c0.32							
v/s Ratio Perm	0.23							0.21	0.03			
v/c Ratio	0.53	0.58			0.86			0.81	0.12			
Uniform Delay, d1	15.6	12.9			30.3			36.0	29.3			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	1.5	0.8			11.3			11.9	0.1			
Delay (s)	17.1	13.7			41.6			47.9	29.4			
Level of Service	B	B			D			D	C			
Approach Delay (s)		14.5			41.6			41.5			0.0	
Approach LOS		B			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	22.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	190	632	0	0	575	0	327	1	175			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	320	1048	0	0	671	0	403	1	331			
Arrive On Green	0.10	0.57	0.00	0.00	0.37	0.00	0.22	0.22	0.22			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1804	6	1485			
Grp Volume(v), veh/h	190	632	0	0	575	0	328	0	175			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1810	0	1485			
Q Serve(g_s), s	4.8	16.3	0.0	0.0	21.0	0.0	12.4	0.0	7.5			
Cycle Q Clear(g_c), s	4.8	16.3	0.0	0.0	21.0	0.0	12.4	0.0	7.5			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	320	1048	0	0	671	0	404	0	331			
V/C Ratio(X)	0.59	0.60	0.00	0.00	0.86	0.00	0.81	0.00	0.53			
Avail Cap(c_a), veh/h	721	1971	0	0	1136	0	876	0	719			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	15.2	10.2	0.0	0.0	21.1	0.0	26.6	0.0	24.7			
Incr Delay (d2), s/veh	1.8	0.6	0.0	0.0	3.4	0.0	4.0	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	5.1	0.0	0.0	8.3	0.0	5.4	0.0	0.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	10.8	0.0	0.0	24.5	0.0	30.6	0.0	26.0			
LnGrp LOS	B	B	A	A	C	A	C	A	C			
Approach Vol, veh/h		822			575			503				
Approach Delay, s/veh		12.2			24.5			29.0				
Approach LOS		B			C			C				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		48.6		23.7	14.6	34.0			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		18.3		14.4	6.8	23.0			
Green Ext Time (p_c), s		4.6		1.7	0.5	3.6			

Intersection Summary		
HCM 6th Ctrl Delay	20.4	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	519	683	380	595	382
v/c Ratio	0.78	0.67	0.89	0.59	0.82
Control Delay	41.2	5.6	40.1	17.8	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	5.6	40.1	17.8	54.8
Queue Length 50th (ft)	329	0	141	254	258
Queue Length 95th (ft)	477	53	#338	394	390
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	865	1117	429	1236	633
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.61	0.89	0.48	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.20	1.00						0.95	
Satd. Flow (perm)		1792	1583	367	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	519	683	380	595	0	0	0	0	370	12	0
RTOR Reduction (vph)	0	0	427	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	519	256	380	595	0	0	0	0	0	382	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		42.1	42.1	67.5	67.5						30.1	
Effective Green, g (s)		42.1	42.1	67.5	67.5						30.1	
Actuated g/C Ratio		0.37	0.37	0.60	0.60						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		671	592	430	1018						468	
v/s Ratio Prot		0.29		c0.14	0.35							
v/s Ratio Perm			0.16	c0.39							0.22	
v/c Ratio		0.77	0.43	0.88	0.58						0.82	
Uniform Delay, d1		31.0	26.2	18.9	13.8						38.6	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		5.9	0.7	18.9	1.0						11.1	
Delay (s)		36.8	26.9	37.7	14.8						49.6	
Level of Service		D	C	D	B						D	
Approach Delay (s)		31.2			23.8			0.0			49.6	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	112.4	Sum of lost time (s)	22.7
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	519	0	380	595	0				370	12	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	600		406	982	0				407	13	0
Arrive On Green	0.00	0.33	0.00	0.16	0.57	0.00				0.29	0.29	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1413	46	0
Grp Volume(v), veh/h	0	519	0	380	595	0				382	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	28.0	0.0	14.9	23.7	0.0				26.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	28.0	0.0	14.9	23.7	0.0				26.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	600		406	982	0				420	0	0
V/C Ratio(X)	0.00	0.86		0.94	0.61	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	922		409	1290	0				557	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.6	0.0	23.4	14.7	0.0				35.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.8	0.0	28.7	0.9	0.0				17.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.6	0.0	8.7	8.3	0.0				11.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	39.4	0.0	52.1	15.6	0.0				52.9	0.0	0.0
LnGrp LOS	A	D		D	B	A				D	A	A
Approach Vol, veh/h		519			975						382	
Approach Delay, s/veh		39.4			29.8						52.9	
Approach LOS		D			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		67.3		36.9	24.9	42.5						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		78.1		39.8	17.1	53.1						
Max Q Clear Time (g_c+I1), s		25.7		28.3	16.9	30.0						
Green Ext Time (p_c), s		6.5		1.7	0.0	4.6						

Intersection Summary												
HCM 6th Ctrl Delay			37.2									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Future Volume (Veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	79	249	2	102	1	107	4	2	1	2	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	
vC, conflicting volume	103			328			494	446	204	450	570	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	103			245			422	372	111	375	504	102
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	94			100			76	99	100	100	100	94
cM capacity (veh/h)	1049			850			446	489	884	385	412	801

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	396	105	113	50
Volume Left	68	2	107	1
Volume Right	249	1	2	47
cSH	1049	850	451	756
Volume to Capacity	0.06	0.00	0.25	0.07
Queue Length 95th (ft)	5	0	25	5
Control Delay (s)	2.1	0.2	15.6	10.1
Lane LOS	A	A	C	B
Approach Delay (s)	2.1	0.2	15.6	10.1
Approach LOS			C	B

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

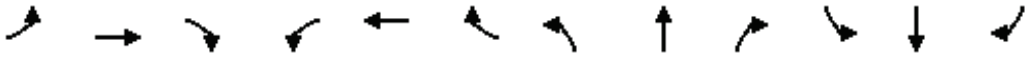
Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Future Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	68	79	249	2	102	1	107	4	2	1	2	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	328	0	0	471	447	204	450	571	103
Stage 1	-	-	-	-	-	-	340	340	-	107	107	-
Stage 2	-	-	-	-	-	-	131	107	-	343	464	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1049	-	-	838	-	-	498	509	842	386	434	801
Stage 1	-	-	-	-	-	-	669	643	-	707	811	-
Stage 2	-	-	-	-	-	-	865	811	-	509	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	838	-	-	437	466	842	357	397	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	437	466	-	357	397	-
Stage 1	-	-	-	-	-	-	614	590	-	649	809	-
Stage 2	-	-	-	-	-	-	810	809	-	463	521	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.2	15.9	10.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	442	1049	-	-	838	-	-	748
HCM Lane V/C Ratio	0.256	0.065	-	-	0.003	-	-	0.067
HCM Control Delay (s)	15.9	8.7	0	-	9.3	0	-	10.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Future Volume (Veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	109	1	4	32	246	8	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	632	538	8	524	523	20	9			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	632	538	8	524	523	20	9			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	90	100			84		
cM capacity (veh/h)	313	379	1079	408	387	1058	1624			1575		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	121	37	255
Volume Left	1	12	1	246
Volume Right	1	109	32	1
cSH	485	914	1624	1575
Volume to Capacity	0.00	0.13	0.00	0.16
Queue Length 95th (ft)	0	11	0	14
Control Delay (s)	12.5	9.5	0.2	7.5
Lane LOS	B	A	A	A
Approach Delay (s)	12.5	9.5	0.2	7.5
Approach LOS	B	A		

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			

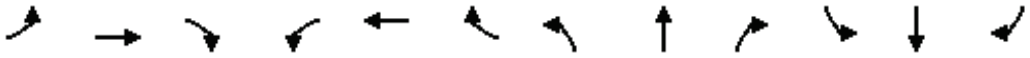
Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Future Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	33	0
Mvmt Flow	1	0	1	12	0	109	1	4	32	246	8	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	578	539	9	523	523	20	9	0	0	36	0	0
Stage 1	501	501	-	22	22	-	-	-	-	-	-	-
Stage 2	77	38	-	501	501	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	430	449	1079	465	459	1058	1624	-	-	1575	-	-
Stage 1	556	543	-	996	877	-	-	-	-	-	-	-
Stage 2	937	863	-	552	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	378	1079	408	386	1058	1624	-	-	1575	-	-
Mov Cap-2 Maneuver	339	378	-	408	386	-	-	-	-	-	-	-
Stage 1	555	458	-	995	876	-	-	-	-	-	-	-
Stage 2	840	862	-	465	458	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	9.5	0.2	7.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1624	-	-	516	914	1575	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.132	0.156	-	-
HCM Control Delay (s)	7.2	0	-	12	9.5	7.7	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.6	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Future Volume (Veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	130	11	1	132	1	25	0	1	1	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	133			141			278	274	136	275	280	132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	133			141			278	274	136	275	280	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	100	100	100	100
cM capacity (veh/h)	1452			1442			670	631	913	676	627	917

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	143	134	26	5
Volume Left	2	1	25	1
Volume Right	11	1	1	4
cSH	1452	1442	677	856
Volume to Capacity	0.00	0.00	0.04	0.01
Queue Length 95th (ft)	0	0	3	0
Control Delay (s)	0.1	0.1	10.5	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	0.1	0.1	10.5	9.2
Approach LOS			B	A

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	19.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Future Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	130	11	1	132	1	25	0	1	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	141	0	0	277	275	136	275	280	133
Stage 1	-	-	-	-	-	-	140	140	-	135	135	-
Stage 2	-	-	-	-	-	-	137	135	-	140	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1442	-	-	675	632	913	677	628	916
Stage 1	-	-	-	-	-	-	863	781	-	868	785	-
Stage 2	-	-	-	-	-	-	866	785	-	863	777	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1442	-	-	671	631	913	675	627	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	671	631	-	675	627	-
Stage 1	-	-	-	-	-	-	862	780	-	867	784	-
Stage 2	-	-	-	-	-	-	861	784	-	861	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.5	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	678	1452	-	-	1442	-	-	855
HCM Lane V/C Ratio	0.038	0.001	-	-	0.001	-	-	0.006
HCM Control Delay (s)	10.5	7.5	0	-	7.5	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	115	5	1	110	12	1
Future Volume (Veh/h)	115	5	1	110	12	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	125	5	1	120	13	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			130		250	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		250	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1455		738	923

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	130	121	14
Volume Left	0	1	13
Volume Right	5	0	1
cSH	1700	1455	749
Volume to Capacity	0.08	0.00	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.1	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		16.6%	ICU Level of Service
Analysis Period (min)		15	

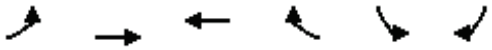
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	5	1	110	12	1
Future Vol, veh/h	115	5	1	110	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	5	1	120	13	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	250	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	739	922
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	738	922
Mov Cap-2 Maneuver	-	-	-	-	738	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	750	-	-	1455	-
HCM Lane V/C Ratio	0.019	-	-	0.001	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	108	91	1	1	19
Future Volume (Veh/h)	8	108	91	1	1	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	117	99	1	1	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	100				234	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				234	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1493				749	956

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	126	100	22
Volume Left	9	0	1
Volume Right	0	1	21
cSH	1493	1700	944
Volume to Capacity	0.01	0.06	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.6	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

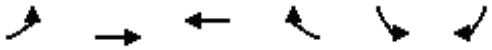
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	108	91	1	1	19
Future Vol, veh/h	8	108	91	1	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	117	99	1	1	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	235	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1493	-	-	-	753	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	748	956
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	943
HCM Lane V/C Ratio	0.006	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	109	92	65	165	1
Future Volume (Veh/h)	1	109	92	65	165	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	118	100	71	179	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171				220	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171				220	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				77	100
cM capacity (veh/h)	1406				768	956

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	119	100	71	180
Volume Left	1	0	0	179
Volume Right	0	0	71	1
cSH	1406	1700	1700	768
Volume to Capacity	0.00	0.06	0.04	0.23
Queue Length 95th (ft)	0	0	0	23
Control Delay (s)	0.1	0.0	0.0	11.1
Lane LOS	A			B
Approach Delay (s)	0.1	0.0		11.1
Approach LOS				B

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	109	92	65	165	1
Future Vol, veh/h	1	109	92	65	165	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	300	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	118	100	71	179	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	171	0	-	0	220	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1406	-	-	-	768	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	767	956
Mov Cap-2 Maneuver	-	-	-	-	767	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	768
HCM Lane V/C Ratio	0.001	-	-	-	0.235
HCM Control Delay (s)	7.6	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	267	7	1	140	17	1
Future Volume (Veh/h)	267	7	1	140	17	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	290	8	1	152	18	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			298		448	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		448	294
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1263		568	745

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	298	153	19
Volume Left	0	1	18
Volume Right	8	0	1
cSH	1700	1263	575
Volume to Capacity	0.18	0.00	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.1	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

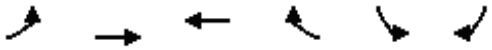
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	267	7	1	140	17	1
Future Vol, veh/h	267	7	1	140	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	290	8	1	152	18	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	298	0	448	294
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1263	-	568	745
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1263	-	567	745
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	873	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	1263	-
HCM Lane V/C Ratio	0.034	-	-	0.001	-
HCM Control Delay (s)	11.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	251	102	1	2	38
Future Volume (Veh/h)	17	251	102	1	2	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	273	111	1	2	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	112				420	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				420	112
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	96
cM capacity (veh/h)	1478				582	942

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	291	112	43
Volume Left	18	0	2
Volume Right	0	1	41
cSH	1478	1700	915
Volume to Capacity	0.01	0.07	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	251	102	1	2	38
Future Vol, veh/h	17	251	102	1	2	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	273	111	1	2	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	421	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	309	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1478	-	-	-	589	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1478	-	-	-	581	941
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1478	-	-	-	913
HCM Lane V/C Ratio	0.013	-	-	-	0.048
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	252	1	1	100	3	1
Future Volume (Veh/h)	252	1	1	100	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	274	1	1	109	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		386	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		386	274
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1288		617	764

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	275	110	4
Volume Left	0	1	3
Volume Right	1	0	1
cSH	1700	1288	648
Volume to Capacity	0.16	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.6
Approach LOS			B

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		23.3%	ICU Level of Service
Analysis Period (min)		15	

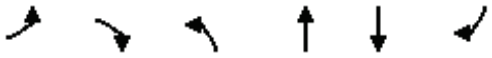
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	252	1	1	100	3	1
Future Vol, veh/h	252	1	1	100	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	1	1	109	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	386	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	617	764
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1288	-	616	764
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	647	-	-	1288	-
HCM Lane V/C Ratio	0.007	-	-	0.001	-
HCM Control Delay (s)	10.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	1	1	1	1	1
Future Volume (Veh/h)	3	1	1	1	1	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	1	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1017	1083	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	2	2
Volume Left	3	1	0
Volume Right	1	0	1
cSH	1033	1620	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	1	1	1	1
Future Vol, veh/h	3	1	1	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	1	1	1	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	5	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1017	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1016	1082	1620	-	-	-
Mov Cap-2 Maneuver	1016	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1032	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

L. 2030 Future Conditions with Development – Simulation Analysis Worksheets

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	94	119	158	166	318	138	190	158	393	399	729	480
Average Queue (ft)	36	56	84	84	133	60	109	77	243	264	153	103
95th Queue (ft)	77	97	137	142	252	114	167	142	401	411	493	279
Link Distance (ft)			2775	2775	2775		966	966			8601	8601
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)									0	2	1	0
Queuing Penalty (veh)									1	6	7	0

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	43	45	155	162	70
Average Queue (ft)	6	9	79	79	19
95th Queue (ft)	27	30	133	137	51
Link Distance (ft)			2908	2908	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			700
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	141	176	179	276	120	406	400	89	238	268
Average Queue (ft)	51	75	59	134	37	174	182	25	111	121
95th Queue (ft)	110	142	130	240	90	351	365	67	215	233
Link Distance (ft)		1286		390		3720	3720		8601	8601
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)			0	0		0				
Queuing Penalty (veh)			0	0		0				

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	82	143	171	55	351	362	299	184	196	203	136
Average Queue (ft)	31	67	69	14	149	151	44	78	57	66	17
95th Queue (ft)	65	120	135	42	298	306	162	148	147	156	77
Link Distance (ft)	591	941			709	709			3720	3720	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			300	300			290
Storage Blk Time (%)						1	0	0	0	0	
Queuing Penalty (veh)						1	0	0	0	0	

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B41	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	610	329	2	306	308	468	639	762	910	843	134
Average Queue (ft)	384	99	0	191	204	189	279	460	313	172	49
95th Queue (ft)	634	222	2	285	294	371	521	898	1015	653	108
Link Distance (ft)	964		704	1012	1012	1012			2882	2882	2882
Upstream Blk Time (%)	0	0									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)		1000					800	800			
Storage Blk Time (%)	0	0				0	0	19	15		
Queuing Penalty (veh)	0	0				2	1	38	26		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	183	243	263	2014
Average Queue (ft)	67	126	181	1332
95th Queue (ft)	138	219	272	2479
Link Distance (ft)		2475	252	2141
Upstream Blk Time (%)			2	22
Queuing Penalty (veh)			7	0
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	241	166	169	298	222
Average Queue (ft)	108	74	76	132	129
95th Queue (ft)	195	134	137	237	206
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)					1
Queuing Penalty (veh)					2
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	34	115	104
Average Queue (ft)	3	2	54	44
95th Queue (ft)	24	18	92	84
Link Distance (ft)	390	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	24	85	23
Average Queue (ft)	2	50	1
95th Queue (ft)	13	75	12
Link Distance (ft)	150	1579	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	39	3	64	32
Average Queue (ft)	2	0	28	6
95th Queue (ft)	21	0	54	25
Link Distance (ft)	941	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	25
Average Queue (ft)	0	13
95th Queue (ft)	5	33
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	62	57
Average Queue (ft)	7	24
95th Queue (ft)	36	49
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	5	54
Average Queue (ft)	0	19
95th Queue (ft)	5	42
Link Distance (ft)	618	1561
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	2	8	58
Average Queue (ft)	0	0	22
95th Queue (ft)	2	4	50
Link Distance (ft)	618	496	728
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	71	2	53
Average Queue (ft)	20	0	27
95th Queue (ft)	55	2	46
Link Distance (ft)	496	717	526
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	26
Average Queue (ft)	4
95th Queue (ft)	19
Link Distance (ft)	196
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	7
95th Queue (ft)	27
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 91

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	97	121	2804	2817	2818	288	518	473	395	400	5197	5069
Average Queue (ft)	30	49	2272	2423	2596	222	254	214	350	364	2461	1899
95th Queue (ft)	76	103	3780	3652	3325	344	585	520	496	505	5269	4755
Link Distance (ft)			2775	2775	2775		966	966			8601	8601
Upstream Blk Time (%)			35	71	78							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)						21	14		4	59	63	0
Queuing Penalty (veh)						25	21		9	127	328	0

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	98	140	507	515	118
Average Queue (ft)	5	30	287	306	12
95th Queue (ft)	75	96	453	467	83
Link Distance (ft)			2908	2908	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			700
Storage Blk Time (%)			0	0	0
Queuing Penalty (veh)			0	0	0

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	305	467	184	284	127	366	399	373	556	579
Average Queue (ft)	78	240	49	115	43	136	146	75	329	341
95th Queue (ft)	238	457	126	234	103	299	317	235	528	542
Link Distance (ft)		1286		390		3720	3720		8601	8601
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)	0	2	0	1		0		0	1	
Queuing Penalty (veh)	0	2	0	0		0		0	2	

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	93	95	93	117	326	326	137	195	365	372	277
Average Queue (ft)	38	41	33	21	93	101	11	38	138	150	69
95th Queue (ft)	73	83	67	56	229	239	78	120	305	309	217
Link Distance (ft)	591	941			709	709			3720	3720	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			300	300			290
Storage Blk Time (%)					0	1	0	0	1	1	0
Queuing Penalty (veh)					0	0	0	0	1	7	1

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	660	109	351	360	345	462	636	660	599	448
Average Queue (ft)	429	41	175	180	157	151	372	340	321	256
95th Queue (ft)	641	86	299	309	287	345	731	689	579	425
Link Distance (ft)	964		1012	1012	1012			2882	2882	2882
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		1000				800	800			
Storage Blk Time (%)							4	2		
Queuing Penalty (veh)							24	9		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	259	397	267	592
Average Queue (ft)	98	183	205	318
95th Queue (ft)	204	343	301	614
Link Distance (ft)		2475	252	2141
Upstream Blk Time (%)			5	
Queuing Penalty (veh)			27	
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	2		
Queuing Penalty (veh)	0	4		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	444	409	331	315	230
Average Queue (ft)	248	182	156	141	178
95th Queue (ft)	435	371	279	267	259
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)	2	0			6
Queuing Penalty (veh)	19	0			21
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)	2	0			
Queuing Penalty (veh)	11	2			

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	91	43	88	96
Average Queue (ft)	15	2	39	40
95th Queue (ft)	59	20	68	84
Link Distance (ft)	390	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	25	70	4	58
Average Queue (ft)	2	37	0	8
95th Queue (ft)	15	58	2	34
Link Distance (ft)	150	1579	998	213
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	7	5	39	32
Average Queue (ft)	0	0	17	5
95th Queue (ft)	4	6	43	24
Link Distance (ft)	941	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	36
Average Queue (ft)	9
95th Queue (ft)	30
Link Distance (ft)	472
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	14	34
Average Queue (ft)	1	13
95th Queue (ft)	8	38
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	3	79
Average Queue (ft)	0	38
95th Queue (ft)	3	64
Link Distance (ft)	849	1561
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	36
Average Queue (ft)	0	15
95th Queue (ft)	3	40
Link Distance (ft)	496	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	32	50
Average Queue (ft)	2	20
95th Queue (ft)	14	41
Link Distance (ft)	496	526
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	20
Average Queue (ft)	0	3
95th Queue (ft)	3	16
Link Distance (ft)	1268	196
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	4
95th Queue (ft)	21
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 640

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	81	104	294	97	116	136	174	151	383	387	483	237
Average Queue (ft)	33	52	164	46	57	61	99	66	214	232	99	83
95th Queue (ft)	71	90	261	82	98	115	161	136	360	373	295	181
Link Distance (ft)			2757	2757	2757		969	969			8606	8606
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)									0	0	0	
Queuing Penalty (veh)									0	1	2	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	55	56	152	160	84
Average Queue (ft)	9	13	80	84	27
95th Queue (ft)	33	40	136	143	61
Link Distance (ft)			2909	2909	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			700
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	138	210	166	275	136	425	424	80	249	266
Average Queue (ft)	52	76	58	127	38	167	173	25	103	115
95th Queue (ft)	111	157	125	231	92	340	345	65	204	217
Link Distance (ft)		2712		390		3720	3720		8606	8606
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)				0		0				
Queuing Penalty (veh)				0		0				

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	70	145	179	48	327	329	60	169	191	194	121
Average Queue (ft)	25	64	69	14	138	141	22	73	52	62	15
95th Queue (ft)	57	119	136	39	269	273	49	136	133	144	70
Link Distance (ft)	591	941			709	709			3720	3720	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			500	300			290
Storage Blk Time (%)									0	0	0
Queuing Penalty (veh)									0	0	0

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B41	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	748	399	16	319	391	569	764	707	458	360	136
Average Queue (ft)	454	118	1	197	215	224	378	433	173	110	48
95th Queue (ft)	772	377	20	287	333	526	678	827	700	444	112
Link Distance (ft)	964		704	1012	1012	1012			2882	2882	2882
Upstream Blk Time (%)	0	0				0					
Queuing Penalty (veh)	3	0				0					
Storage Bay Dist (ft)		1000					800	800			
Storage Blk Time (%)	0	0				1	1	7	5		
Queuing Penalty (veh)	1	0				6	3	13	10		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	238	310	266	1253
Average Queue (ft)	85	163	205	748
95th Queue (ft)	179	272	288	1545
Link Distance (ft)		2475	252	2141
Upstream Blk Time (%)			4	1
Queuing Penalty (veh)			16	0
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	1		
Queuing Penalty (veh)	0	1		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	250	205	190	266	218
Average Queue (ft)	111	55	76	133	118
95th Queue (ft)	202	142	142	229	194
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)					1
Queuing Penalty (veh)					2
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	33	26	125	95
Average Queue (ft)	2	1	56	45
95th Queue (ft)	16	14	95	82
Link Distance (ft)	390	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	19	86	26
Average Queue (ft)	1	50	2
95th Queue (ft)	9	74	13
Link Distance (ft)	150	1579	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	39	13	57	30
Average Queue (ft)	2	0	28	8
95th Queue (ft)	17	8	52	29
Link Distance (ft)	941	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	36
Average Queue (ft)	0	13
95th Queue (ft)	0	34
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	54	50
Average Queue (ft)	8	23
95th Queue (ft)	35	49
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	EB	WB	SB
Directions Served	LT	T	LR
Maximum Queue (ft)	6	4	50
Average Queue (ft)	0	0	18
95th Queue (ft)	6	4	39
Link Distance (ft)	849	615	1548
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	55
Average Queue (ft)	0	24
95th Queue (ft)	3	50
Link Distance (ft)	496	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	73	3	64
Average Queue (ft)	18	0	28
95th Queue (ft)	53	3	47
Link Distance (ft)	496	717	526
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	24
Average Queue (ft)	4
95th Queue (ft)	20
Link Distance (ft)	196
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	7
95th Queue (ft)	27
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 59

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	126	500	2524	2401	1976	293	418	387	389	395	564	202
Average Queue (ft)	47	338	1469	988	689	212	177	142	244	259	117	67
95th Queue (ft)	101	683	2767	2586	1851	332	379	326	405	415	399	146
Link Distance (ft)			2757	2757	2757		969	969			8606	8606
Upstream Blk Time (%)			7	3	0							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)		0	67			12	4		0	2	1	
Queuing Penalty (veh)		1	85			14	5		1	4	4	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	44	320	696	702	252
Average Queue (ft)	6	43	459	477	30
95th Queue (ft)	27	173	651	666	166
Link Distance (ft)			2909	2909	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			700
Storage Blk Time (%)		0	3	1	0
Queuing Penalty (veh)		0	1	1	0

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	282	584	159	262	150	353	377	500	3626	3665
Average Queue (ft)	105	322	52	109	54	143	153	324	1918	1943
95th Queue (ft)	342	675	115	219	123	296	317	674	4143	4187
Link Distance (ft)		2712		390		3720	3720		8606	8606
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)	0	10	0	0				0	30	
Queuing Penalty (veh)	0	7	0	0				4	67	

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	103	96	101	71	344	359	81	216	432	426	289
Average Queue (ft)	38	41	34	21	99	108	9	38	165	177	84
95th Queue (ft)	78	83	71	55	256	268	61	116	343	347	241
Link Distance (ft)	591	941			709	709			3720	3720	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			500	300			290
Storage Blk Time (%)					0	0	0	0	1	2	0
Queuing Penalty (veh)					0	0	0	0	1	14	1

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	766	158	340	352	327	496	659	546	504	474
Average Queue (ft)	460	40	181	187	166	152	313	316	331	286
95th Queue (ft)	718	109	298	307	288	358	583	487	495	457
Link Distance (ft)	964		1012	1012	1012			2882	2882	2882
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		1000				800	800			
Storage Blk Time (%)							0	0		
Queuing Penalty (veh)							1	0		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	274	414	266	625
Average Queue (ft)	108	185	207	333
95th Queue (ft)	223	335	300	597
Link Distance (ft)		2475	252	2141
Upstream Blk Time (%)			6	
Queuing Penalty (veh)			33	
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	2		
Queuing Penalty (veh)	0	4		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	429	396	269	300	230
Average Queue (ft)	225	152	137	135	171
95th Queue (ft)	383	319	240	252	254
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)	1	0			5
Queuing Penalty (veh)	6	0			17
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)	1	0			
Queuing Penalty (veh)	4	0			

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	116	37	82	90
Average Queue (ft)	16	2	39	43
95th Queue (ft)	70	18	64	82
Link Distance (ft)	390	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	28	73	60
Average Queue (ft)	3	36	8
95th Queue (ft)	16	59	35
Link Distance (ft)	150	1579	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	6	42	32
Average Queue (ft)	0	17	5
95th Queue (ft)	4	43	24
Link Distance (ft)	1310	553	572
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	5	27
Average Queue (ft)	0	10
95th Queue (ft)	6	30
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	19	31
Average Queue (ft)	1	15
95th Queue (ft)	11	40
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	82
Average Queue (ft)	38
95th Queue (ft)	66
Link Distance (ft)	1548
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	41
Average Queue (ft)	0	15
95th Queue (ft)	3	41
Link Distance (ft)	496	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	28	50
Average Queue (ft)	2	20
95th Queue (ft)	14	42
Link Distance (ft)	496	526
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	20
Average Queue (ft)	0	3
95th Queue (ft)	3	16
Link Distance (ft)	1268	196
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	27
Average Queue (ft)	4
95th Queue (ft)	20
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 276

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	WB	WB	NB	NB	NB	B25	B25	SB	SB
Directions Served	T	R	R	T	TR	T	T	R	T		T	T
Maximum Queue (ft)	257	137	173	542	513	238	244	65	4	5	152	143
Average Queue (ft)	124	67	82	282	261	99	109	19	0	0	70	52
95th Queue (ft)	219	111	135	440	428	199	212	46	4	5	129	115
Link Distance (ft)	2799	2799	2799	985	985	6976	6976		1557	1557	1828	1828
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)								700				
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	SB
Directions Served	R
Maximum Queue (ft)	84
Average Queue (ft)	25
95th Queue (ft)	63
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	500
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	136	173	166	246	132	277	322	261	101	144	163	180
Average Queue (ft)	43	69	57	106	35	101	122	78	28	52	58	65
95th Queue (ft)	102	136	122	194	91	224	259	195	72	113	127	147
Link Distance (ft)		2968		386		3715	3715	3715		1557	1557	1557
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500		300		300				200			
Storage Blk Time (%)				0		0				0		
Queuing Penalty (veh)				0		0				0		

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	79	152	128	47	356	395	60	180	186	184	139
Average Queue (ft)	29	75	57	16	137	153	23	71	57	71	18
95th Queue (ft)	65	136	99	42	272	297	53	139	144	153	74
Link Distance (ft)	591	940			709	709			3715	3715	3715
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			500	300			
Storage Blk Time (%)					0			0	0		
Queuing Penalty (veh)					0			0	0		

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	L	T	T	T
Maximum Queue (ft)	414	222	392	406	382	576	192	160	214	231	204
Average Queue (ft)	204	86	269	278	253	322	98	55	110	124	96
95th Queue (ft)	334	170	361	373	351	560	170	131	193	200	177
Link Distance (ft)	966		1000	1000	1000				2882	2882	2882
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		1000				800	800	800			
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB	NB
Directions Served	L	T	T	LT	R
Maximum Queue (ft)	215	276	251	388	288
Average Queue (ft)	65	122	163	181	96
95th Queue (ft)	138	219	259	313	205
Link Distance (ft)		2475	239	2140	
Upstream Blk Time (%)			3		
Queuing Penalty (veh)			10		
Storage Bay Dist (ft)	275				300
Storage Blk Time (%)	0	0		1	0
Queuing Penalty (veh)	0	0		3	0

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	224	195	164	283	212
Average Queue (ft)	102	51	73	134	115
95th Queue (ft)	184	137	132	244	186
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)					0
Queuing Penalty (veh)					1
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	25	123	99
Average Queue (ft)	3	1	54	46
95th Queue (ft)	22	13	94	83
Link Distance (ft)	386	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	24	81	26
Average Queue (ft)	1	49	2
95th Queue (ft)	11	72	13
Link Distance (ft)	150	1579	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	28	20	60	30
Average Queue (ft)	2	1	27	8
95th Queue (ft)	16	9	53	29
Link Distance (ft)	940	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	38
Average Queue (ft)	0	14
95th Queue (ft)	4	36
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	59	53
Average Queue (ft)	8	22
95th Queue (ft)	37	49
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	54
Average Queue (ft)	0	19
95th Queue (ft)	5	42
Link Distance (ft)	849	1548
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	56
Average Queue (ft)	0	23
95th Queue (ft)	3	49
Link Distance (ft)	496	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	60	53
Average Queue (ft)	16	28
95th Queue (ft)	48	46
Link Distance (ft)	496	526
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	27
Average Queue (ft)	5
95th Queue (ft)	21
Link Distance (ft)	196
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	7
95th Queue (ft)	27
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 15

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	T	R	R	T	TR	T	T	R	T	T	R
Maximum Queue (ft)	372	466	483	487	486	208	217	61	677	671	500
Average Queue (ft)	209	302	319	298	275	85	95	15	429	424	64
95th Queue (ft)	338	436	456	434	418	175	186	42	646	638	286
Link Distance (ft)	2799	2799	2799	985	985	6976	6976		1828	1828	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)								700			500
Storage Blk Time (%)										5	0
Queuing Penalty (veh)										3	1

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	117	284	147	224	122	236	261	221	200	438	449	467
Average Queue (ft)	43	143	45	91	43	80	97	74	118	251	276	298
95th Queue (ft)	93	240	106	177	97	185	210	176	235	416	439	460
Link Distance (ft)		2968		386		3715	3715	3715		1557	1557	1557
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	500		300		300				200			
Storage Blk Time (%)				0		0			1	12		
Queuing Penalty (veh)				0		0			5	27		

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	B25
Directions Served	T
Maximum Queue (ft)	338
Average Queue (ft)	12
95th Queue (ft)	335
Link Distance (ft)	6976
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	102	103	81	76	348	360	41	299	540	610	514
Average Queue (ft)	41	46	36	21	92	108	6	53	242	273	175
95th Queue (ft)	85	90	68	55	241	261	27	179	483	531	443
Link Distance (ft)	591	940			709	709			3715	3715	3715
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			500	300			
Storage Blk Time (%)					0			0	5		
Queuing Penalty (veh)					0			0	5		

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	L	T	T	T
Maximum Queue (ft)	668	101	315	321	314	350	238	523	752	750	694
Average Queue (ft)	365	33	175	180	159	100	137	167	454	473	426
95th Queue (ft)	569	77	279	286	268	249	223	497	775	794	734
Link Distance (ft)	966		1000	1000	1000				2882	2882	2882
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		1000				800	800	800			
Storage Blk Time (%)								0	1		
Queuing Penalty (veh)								0	2		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB	NB
Directions Served	L	T	T	LT	R
Maximum Queue (ft)	245	374	250	374	269
Average Queue (ft)	86	161	182	173	75
95th Queue (ft)	178	299	275	300	175
Link Distance (ft)		2475	239	2140	
Upstream Blk Time (%)			4		
Queuing Penalty (veh)			23		
Storage Bay Dist (ft)	275				300
Storage Blk Time (%)	0	1		1	0
Queuing Penalty (veh)	0	2		1	0

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	417	386	300	332	230
Average Queue (ft)	212	151	141	142	167
95th Queue (ft)	367	307	267	272	252
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)	0	0			5
Queuing Penalty (veh)	2	0			17
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	1	0			

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	101	31	84	99
Average Queue (ft)	13	1	39	39
95th Queue (ft)	61	14	66	83
Link Distance (ft)	386	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	64	10	58
Average Queue (ft)	2	36	0	10
95th Queue (ft)	16	55	6	38
Link Distance (ft)	150	1579	998	213
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	2	6	51	30
Average Queue (ft)	0	0	18	5
95th Queue (ft)	2	6	46	22
Link Distance (ft)	940	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	25
Average Queue (ft)	0	8
95th Queue (ft)	3	27
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	15	36
Average Queue (ft)	1	15
95th Queue (ft)	7	41
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	EB	WB	SB
Directions Served	LT	T	LR
Maximum Queue (ft)	6	2	80
Average Queue (ft)	0	0	38
95th Queue (ft)	5	0	65
Link Distance (ft)	849	615	1548
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	39
Average Queue (ft)	14
95th Queue (ft)	40
Link Distance (ft)	728
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	36	49
Average Queue (ft)	3	21
95th Queue (ft)	20	42
Link Distance (ft)	496	526
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	9	27
Average Queue (ft)	0	3
95th Queue (ft)	5	17
Link Distance (ft)	1268	196
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	33
Average Queue (ft)	4
95th Queue (ft)	21
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 91

M. Turn Lane Warrant Tables and Graphics

Left Turn Lane Warrant Assessment

Two-Lane Highways

Based on AASHTO / VDOT RDM Appendix F

Background:

Warrants for left-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-4 to Figure 3-21 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figures provide a graphical representation for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes and are differentiated by design speed and percent left turning volume.

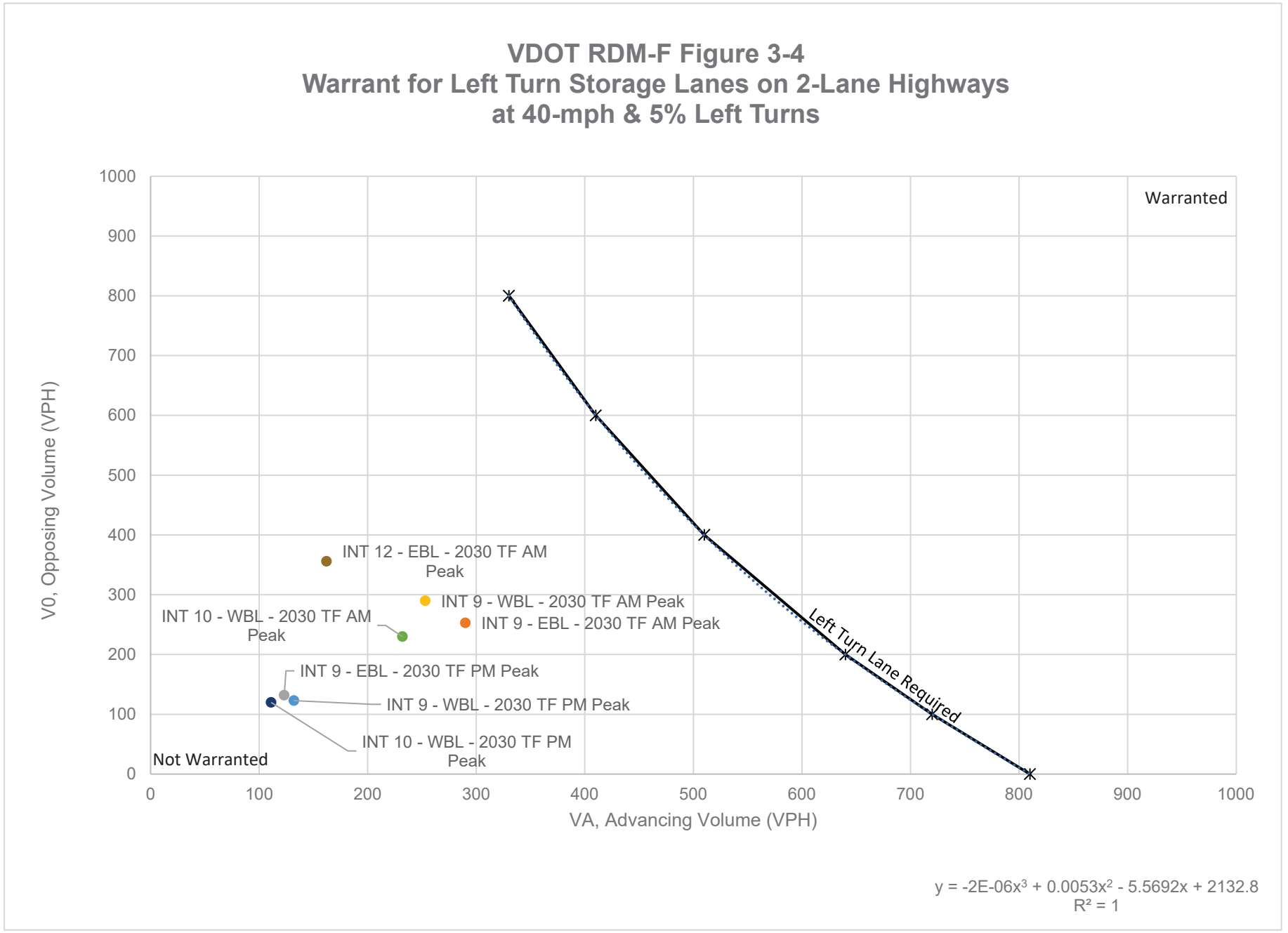
Project Information:

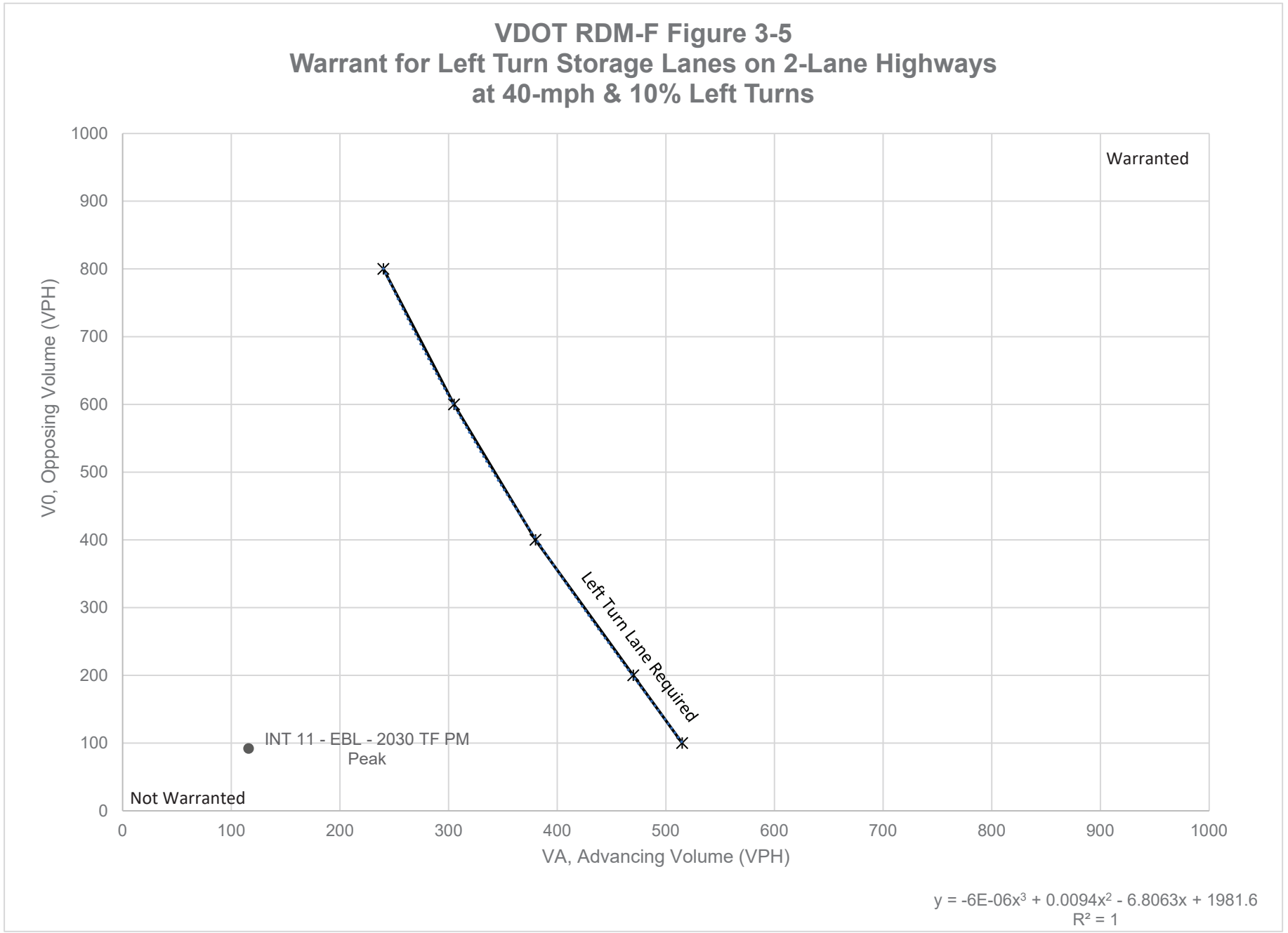
Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	Part 1
Scenario:	2030 Total Future
Analysis:	Gorove Slade

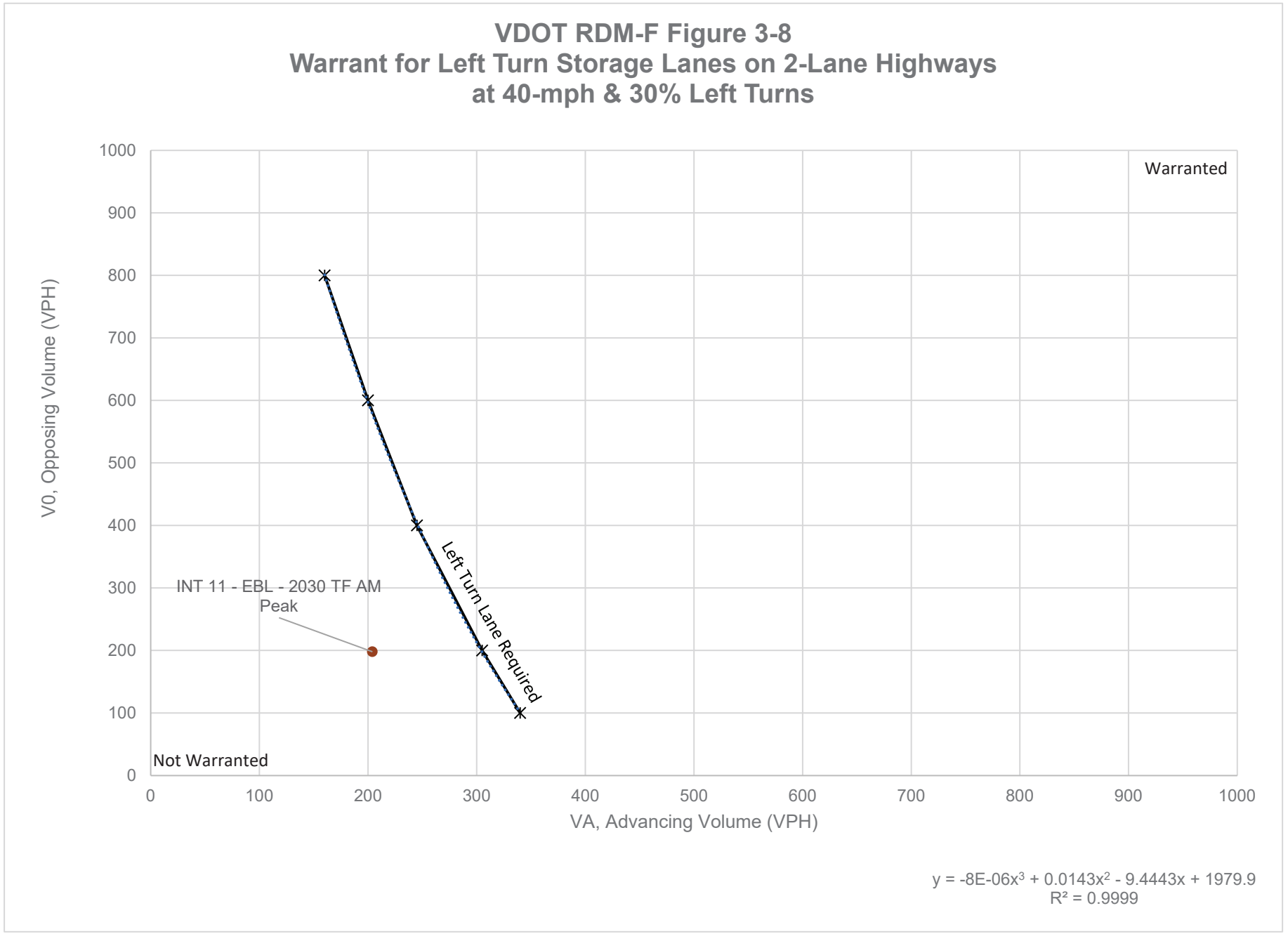
Design Speed (mph):	**40**	**(40, 50, or 60?)**

Assessment Summary:

Input				VDOT Calculated Thesholds			
Study Scenario	**Opposing Vol. (VPH)**	**Advancing Vol. (VPH)**	**Left Turn Vol. (VPH)**	**Left Turn %**	**Minimum Opposing Threshold (VPH)**	**VDOT RDM F Figure**	**Treatment**
INT 9 - EBL - 2030 TF AM Peak	253	290	8	2.76%	914	Fig. 3-4	Not Warranted
INT 9 - EBL - 2030 TF PM Peak	132	123	1	0.81%	1,524	Fig. 3-4	Not Warranted
INT 9 - WBL - 2030 TF AM Peak	290	253	3	1.19%	1,031	Fig. 3-4	Not Warranted
INT 9 - WBL - 2030 TF PM Peak	123	132	1	0.76%	1,485	Fig. 3-4	Not Warranted
INT 10 - WBL - 2030 TF AM Peak	230	232	1	0.43%	1,101	Fig. 3-4	Not Warranted
INT 10 - WBL - 2030 TF PM Peak	120	111	1	0.90%	1,577	Fig. 3-4	Not Warranted
INT 11 - EBL - 2030 TF AM Peak	198	204	44	21.57%	578	Fig. 3-8	Not Warranted
INT 11 - EBL - 2030 TF PM Peak	92	116	8	6.90%	1,308	Fig. 3-5	Not Warranted
INT 12 - EBL - 2030 TF AM Peak	356	162	1	0.62%	1,361	Fig. 3-4	Not Warranted


VDOT RDM-F Figure 3-4
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 5% Left Turns
V0, Opposing Volume (VPH)
VA, Advancing Volume (VPH)
Warranted
Not Warranted
Left Turn Lane Required
INT 12 - EBL - 2030 TF AM Peak
INT 9 - WBL - 2030 TF AM Peak
INT 9 - EBL - 2030 TF AM Peak
INT 10 - WBL - 2030 TF AM Peak
INT 9 - EBL - 2030 TF PM Peak
INT 9 - WBL - 2030 TF PM Peak
INT 10 - WBL - 2030 TF PM Peak
y = -2E-06x³ + 0.0053x² - 5.5692x + 2132.8
R² = 1


VDOT RDM-F Figure 3-5
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 10% Left Turns
Warranted
Left Turn Lane Required
INT 11 - EBL - 2030 TF PM Peak
Not Warranted
V0, Opposing Volume (VPH)
VA, Advancing Volume (VPH)
0
100
200
300
400
500
600
700
800
900
1000
y = -6E-06x³ + 0.0094x² - 6.8063x + 1981.6
R² = 1


VDOT RDM-F Figure 3-8
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 30% Left Turns
V0, Opposing Volume (VPH)
VA, Advancing Volume (VPH)
Warranted
Not Warranted
Left Turn Lane Required
INT 11 - EBL - 2030 TF AM Peak
y = -8E-06x³ + 0.0143x² - 9.4443x + 1979.9
R² = 0.9999

Left Turn Lane Warrant Assessment

Two-Lane Highways

Based on AASHTO / VDOT RDM Appendix F

Background:

Warrants for left-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-4 to Figure 3-21 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figures provide a graphical representation for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes and are differentiated by design speed and percent left turning volume.

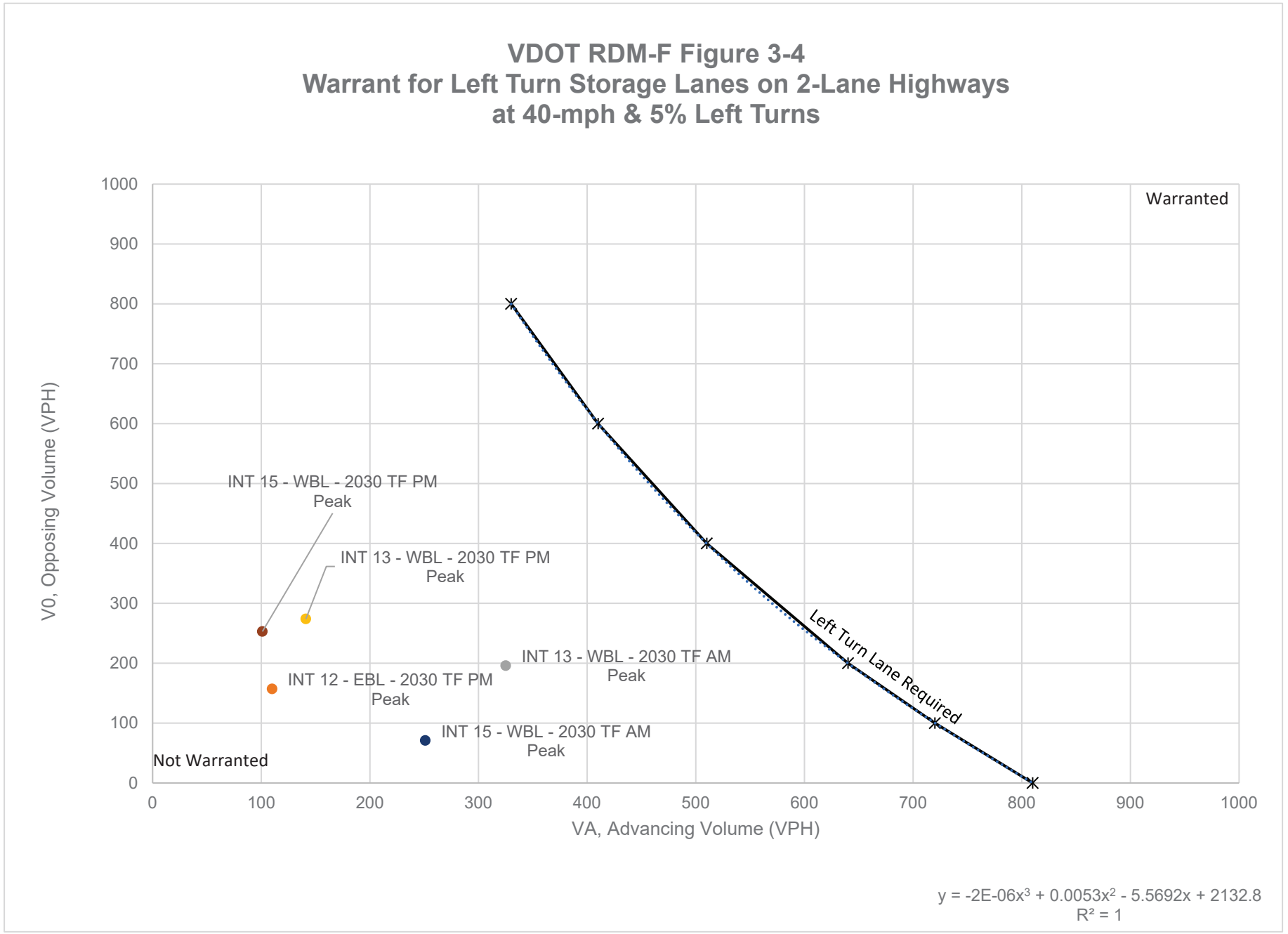
Project Information:

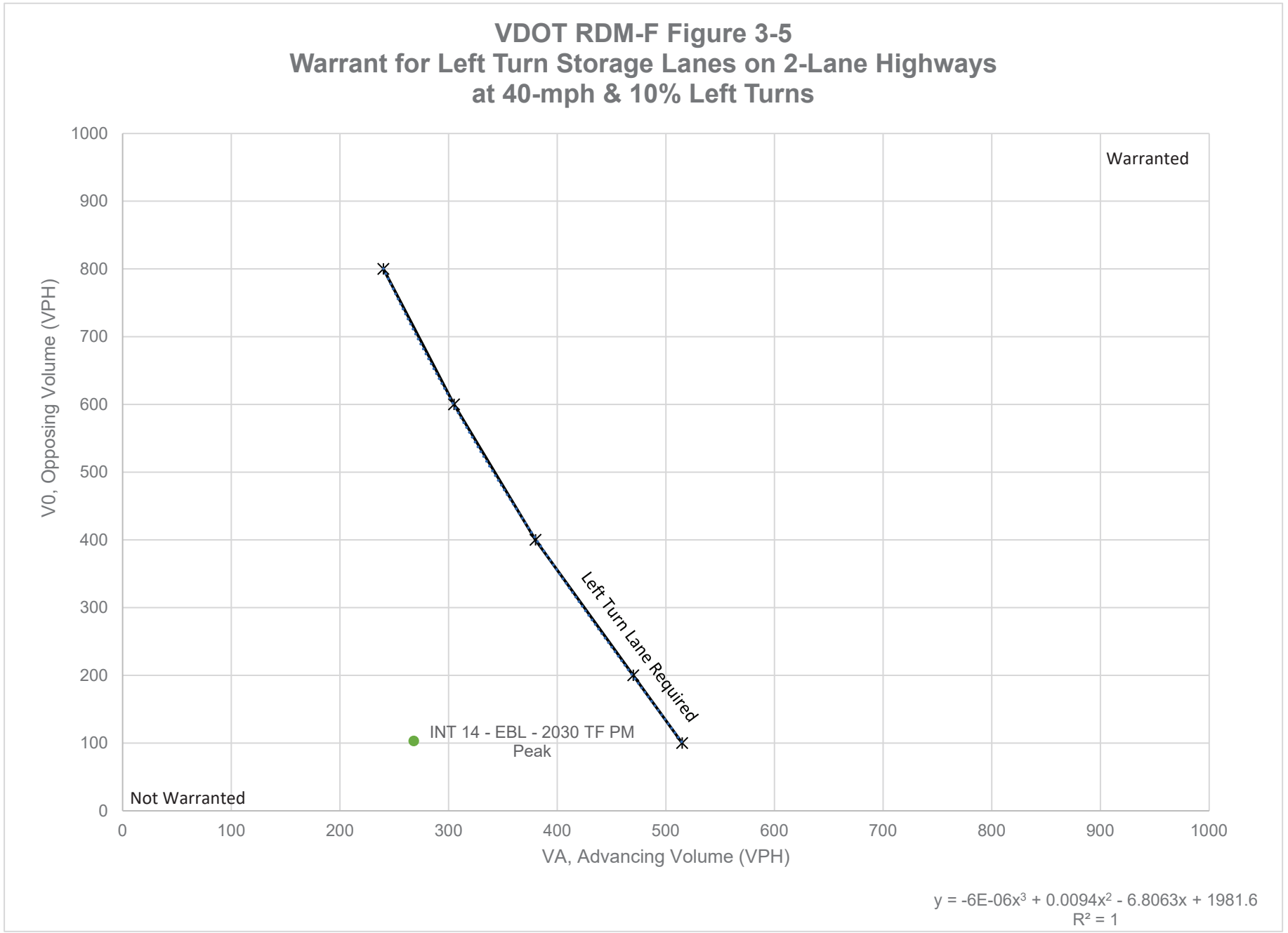
Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	Part 2
Scenario:	2030 Total Future
Analysis:	Gorove Slade

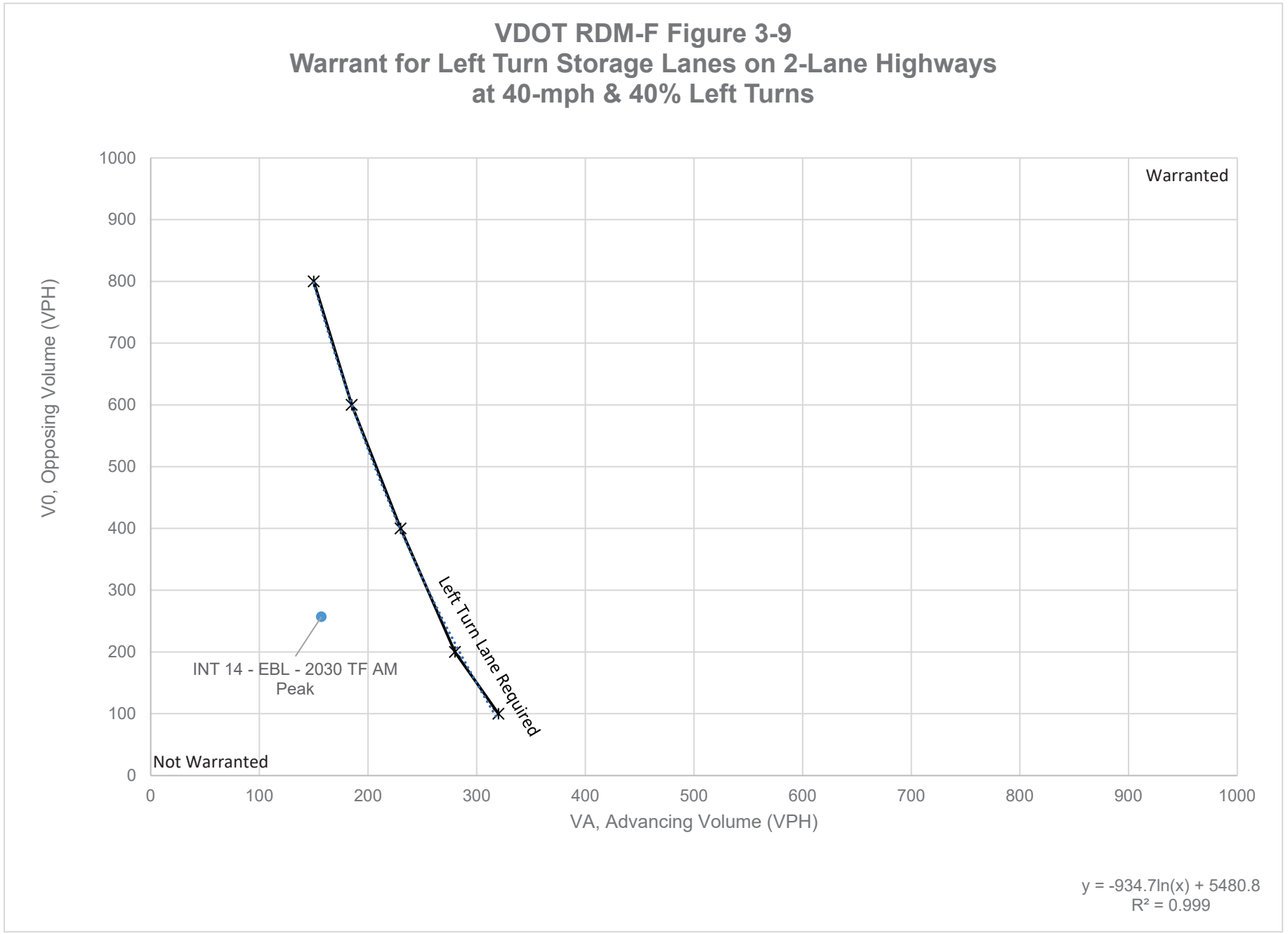
Design Speed (mph):	**40**	**(40, 50, or 60?)**

Assessment Summary:

Input				VDOT Calculated Thesholds			
Study Scenario	**Opposing Vol. (VPH)**	**Advancing Vol. (VPH)**	**Left Turn Vol. (VPH)**	**Left Turn %**	**Minimum Opposing Threshold (VPH)**	**VDOT RDM F Figure**	**Treatment**
INT 12 - EBL - 2030 TF PM Peak	157	110	1	0.91%	1,581	Fig. 3-4	Not Warranted
INT 13 - WBL - 2030 TF AM Peak	196	325	2	0.62%	813	Fig. 3-4	Not Warranted
INT 13 - WBL - 2030 TF PM Peak	274	141	1	0.71%	1,447	Fig. 3-4	Not Warranted
INT 14 - EBL - 2030 TF AM Peak	257	157	90	57.32%	754	Fig. 3-9	Not Warranted
INT 14 - EBL - 2030 TF PM Peak	103	268	17	6.34%	708	Fig. 3-5	Not Warranted
INT 15 - WBL - 2030 TF AM Peak	71	251	1	0.40%	1,037	Fig. 3-4	Not Warranted
INT 15 - WBL - 2030 TF PM Peak	253	101	1	0.99%	1,622	Fig. 3-4	Not Warranted


VDOT RDM-F Figure 3-4
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 5% Left Turns
Warranted
Not Warranted
Left Turn Lane Required
INT 15 - WBL - 2030 TF PM Peak
INT 13 - WBL - 2030 TF PM Peak
INT 13 - WBL - 2030 TF AM Peak
INT 12 - EBL - 2030 TF PM Peak
INT 15 - WBL - 2030 TF AM Peak
V0, Opposing Volume (VPH)
VA, Advancing Volume (VPH)
0
100
200
300
400
500
600
700
800
900
1000
y = -2E-06x³ + 0.0053x² - 5.5692x + 2132.8
R² = 1


VDOT RDM-F Figure 3-5
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 10% Left Turns
Warranted
Not Warranted
Left Turn Lane Required
INT 14 - EBL - 2030 TF PM Peak
V0, Opposing Volume (VPH)
VA, Advancing Volume (VPH)
0
100
200
300
400
500
600
700
800
900
1000
y = -6E-06x³ + 0.0094x² - 6.8063x + 1981.6
R² = 1


VDOT RDM-F Figure 3-9
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 40% Left Turns
V0, Opposing Volume (VPH)
VA, Advancing Volume (VPH)
Warranted
Not Warranted
Left Turn Lane Required
INT 14 - EBL - 2030 TF AM Peak
y = -934.7ln(x) + 5480.8
R² = 0.999
0
100
200
300
400
500
600
700
800
900
1000

Left Turn Lane Warrant Assessment

Four-Lane Highways

Background:

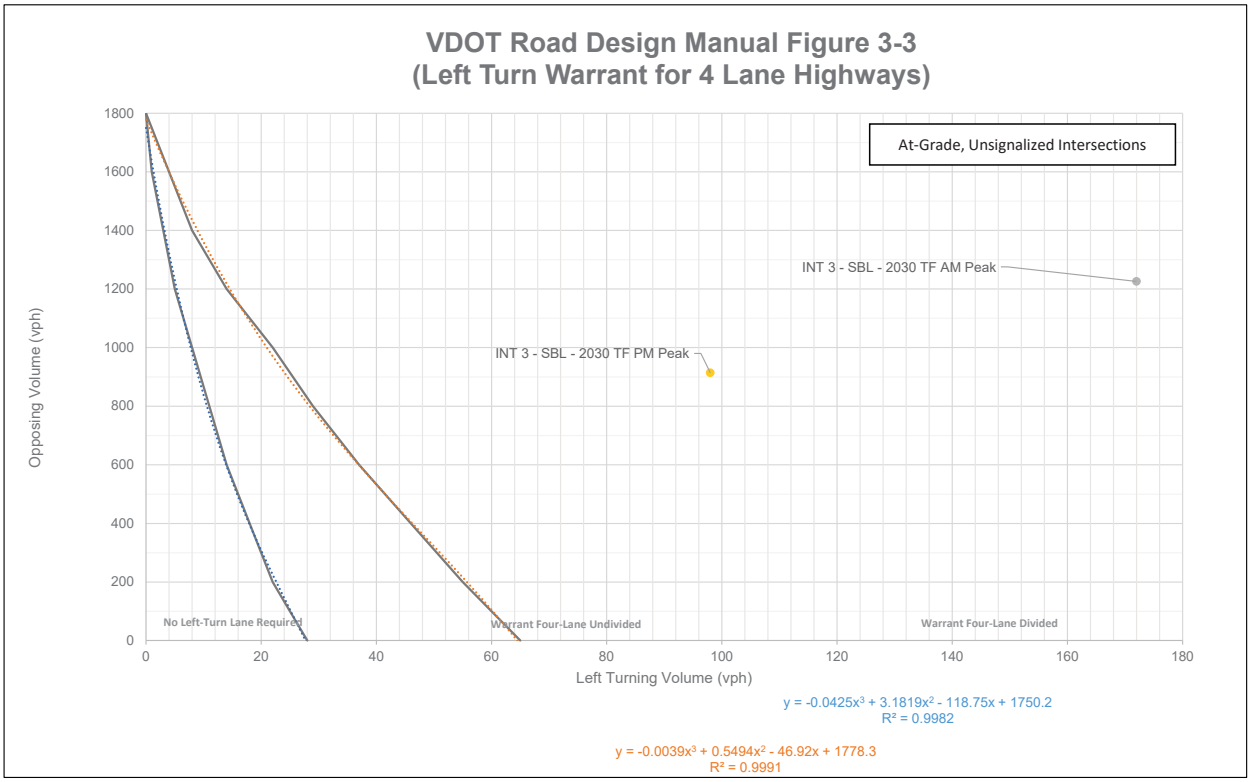
Warrants for left-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-3 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figure provides a graphical representation for determining the necessity of a left turn lane for divided and undivided roadway conditions by comparing the left turning volumes of a given approach and the respective opposing traffic volume.

Project Information:

Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	
Scenario:	2030 Total Future
Analysis:	Gorove Slade

Assessment Summary:

Input				Result	
Study Scenario	**Opposing Vol. (VPH)**	**Advancing Vol. (VPH)**	**Left Turning Vol. (VPH)**	**Left Turn %**	**Treatment**
INT 3 - SBL - 2030 TF AM Peak	1,226	932	172	18.5%	Full-width Turn Lane and Taper Warranted (for Undivided and Divided)
INT 3 - SBL - 2030 TF PM Peak	914	2,323	98	4.2%	Full-width Turn Lane and Taper Warranted (for Undivided and Divided)



Right Turn Lane Warrant Assessment

Two-Lane Highways

Based on NCHRP Report 279 / VDOT RDM Appendix F
"Intersection Channelization Guide"

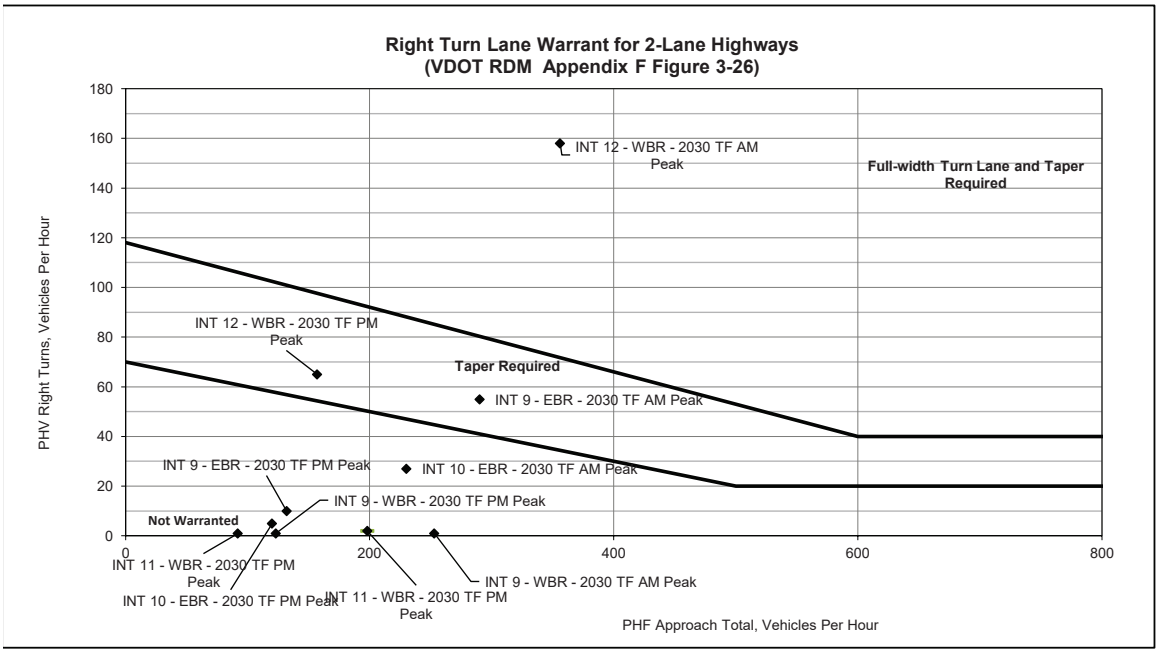
Background:

Warrants for right-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-26 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). This figure provides a graphical representation for determining the necessity of a right turn lane and / or taper by comparing the total volumes of a given approach with their respective right turn volumes.

Project Information:

Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	
Scenario:	2030 Total Future
Analyst:	Gorove Slade

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 9 - WBR - 2030 TF AM Peak	253	1	45	85	Not Warranted
INT 9 - WBR - 2030 TF PM Peak	123	1	58	102	Not Warranted
INT 9 - EBR - 2030 TF AM Peak	290	55	41	80	Taper Required
INT 9 - EBR - 2030 TF PM Peak	132	10	57	101	Not Warranted
INT 10 - EBR - 2030 TF AM Peak	230	27	47	88	Not Warranted
INT 10 - EBR - 2030 TF PM Peak	120	5	58	102	Not Warranted
INT 11 - WBR - 2030 TF AM Peak	198	2	50	92	Not Warranted
INT 11 - WBR - 2030 TF PM Peak	92	1	61	106	Not Warranted
INT 12 - WBR - 2030 TF AM Peak	356	158	34	72	Full-width Lane and Taper Required
INT 12 - WBR - 2030 TF PM Peak	157	65	54	98	Taper Required



Right Turn Lane Warrant Assessment

Two-Lane Highways

Based on NCHRP Report 279 / VDOT RDM Appendix F
"Intersection Channelization Guide"

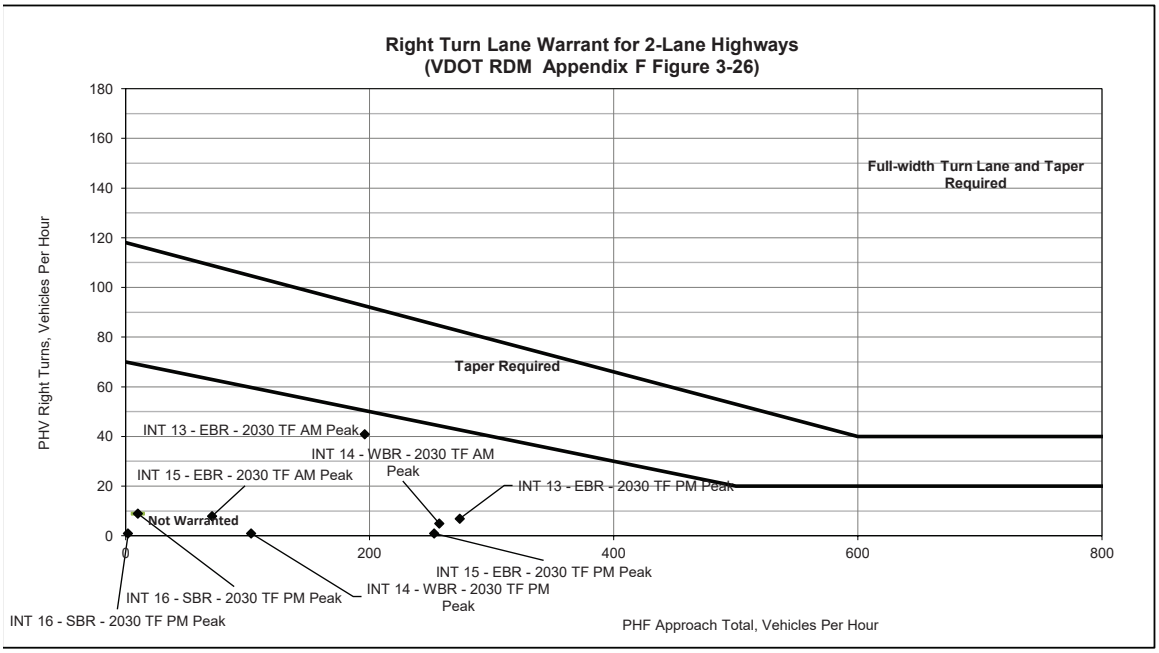
Background:

Warrants for right-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-26 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). This figure provides a graphical representation for determining the necessity of a right turn lane and / or taper by comparing the total volumes of a given approach with their respective right turn volumes.

Project Information:

Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	
Scenario:	2030 Total Future
Analyst:	Gorove Slade

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 13 - EBR - 2030 TF AM Peak	196	41	50	93	Not Warranted
INT 13 - EBR - 2030 TF PM Peak	274	7	43	82	Not Warranted
INT 14 - WBR - 2030 TF AM Peak	257	5	44	85	Not Warranted
INT 14 - WBR - 2030 TF PM Peak	103	1	60	105	Not Warranted
INT 15 - EBR - 2030 TF AM Peak	71	8	63	109	Not Warranted
INT 15 - EBR - 2030 TF PM Peak	253	1	45	85	Not Warranted
INT 16 - SBR - 2030 TF AM Peak	10	9	69	117	Not Warranted
INT 16 - SBR - 2030 TF PM Peak	2	1	70	118	Not Warranted



Right Turn Lane Warrant Assessment

Four-Lane Highways

Based on NCHRP Report 279 / VDOT RDM Appendix F
"Intersection Channelization Guide"

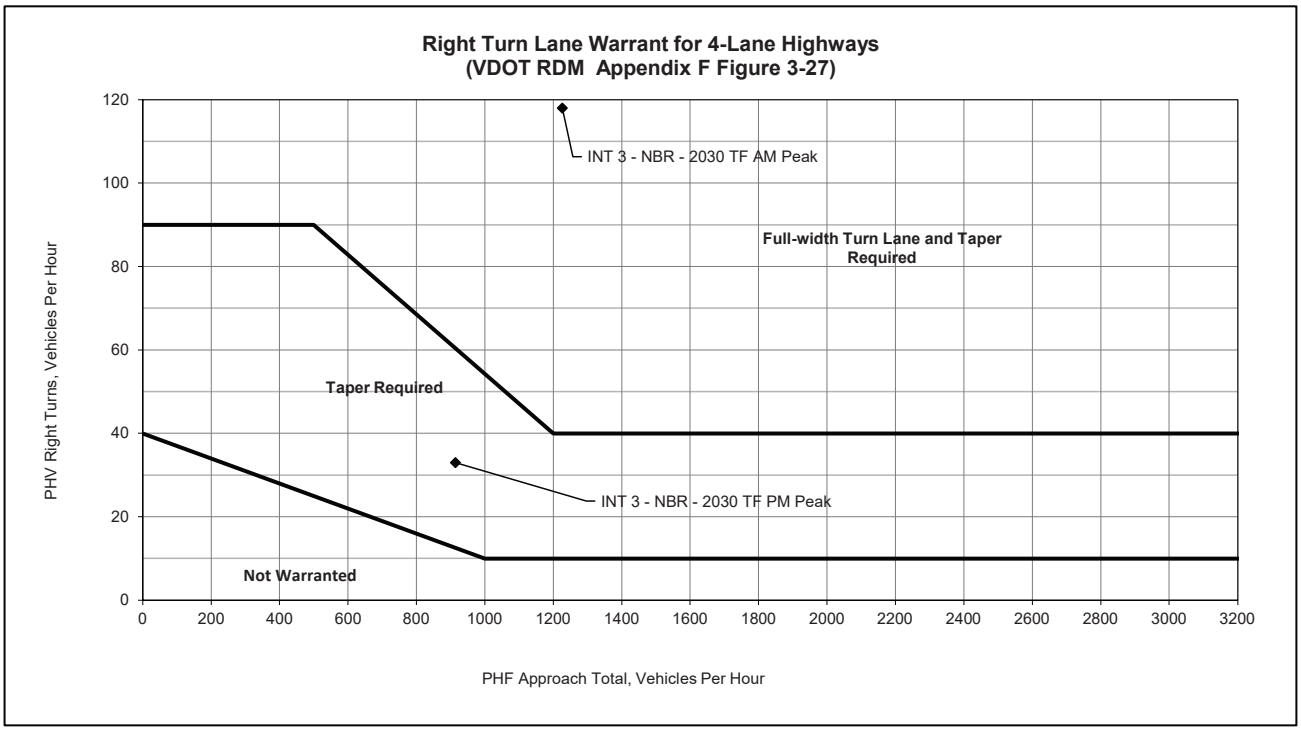
Background:

Warrants for right-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-27 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). This figure provides a graphical representation for determining the necessity of a right turn lane and / or taper by comparing the total volumes of a given approach with their respective right turn volumes.

Project Information:

Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	
Scenario:	2030 Total Future
Analyst:	Gorove Slade

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 3 - NBR - 2030 TF AM Peak	1,226	118	10	40	Full-width Lane and Taper Required
INT 3 - NBR - 2030 TF PM Peak	914	33	13	60	Taper Required



STAFFORD COUNTY, VIRGINIA
COMPREHENSIVE PLAN AMENDMENT
UTILITY IMPACT ASSESSMENT (UIA)

Applicant:	Stafford Technology LC
Owner:	Stafford Technology LC
Amendment Request:	Revisions to Urban Services Area and Future Land Use Maps to extend the USA to fully encompass Tax Map 38-124 ("Property") and include it as part of the Suburban district
Project Name:	Stafford Technology Campus
Date:	September 8, 2023
File No.	_____

As noted in the Zoning Reclassification Impact Statement, this Parcel is partially located outside of the County's USA and does not entirely have access to public water and sewer. In accordance with County policy, water and sewer upgrades will be done as necessary to fully serve the parcel and provide adequate capacity to the site.

Public Water: This project is split between the Central and Falmouth Pressure Zones. The anticipated daily demand for water for the Stafford Technology Campus is not yet known at this time, as the buildings have not been fully designed. It is anticipated that upgrades to the existing water infrastructure will need to be made to account for this development. A hydraulic analysis will be performed at the time of final engineering to determine the exact water pressures and velocities. Continued coordination with the Stafford Utilities Department will take place as demands are determined.

Sewer: This project is currently split by the USA, with the area within the USA being within the Potomac Creek sewershed. The anticipated daily demand for sewer discharge from the Stafford Technology Campus is not yet known at this time, as the buildings have not been fully designed. Based on preliminary calculations, upgrades to the existing infrastructure may be required to support the development of this campus, including the existing sewer line connecting to Parcel 38-124. A sewer study will be performed at the time of final engineering to determine the exact water discharge rates and what upgrades are required as a result of the proposed development.

WALSH COLUCCI
LUBELEY & WALSH PC

Jessica L. Pfeiffer
(703) 680-4664 Ext. 5119
jpfeiffer@thelandlawyers.com
Fax: (703) 680-6067

February 27, 2023

Via Hand Delivery and E-mail

Jeffrey Harvey,
Director of Planning and Community Development
1300 Courthouse Road
2nd Floor
Stafford, VA 22554

Re: Zoning Reclassification Application Submission
Stafford Technology Campus

Dear Mr. Harvey:

Enclosed please find the following items in connection with an application for a zoning reclassification for the properties identified as Tax Map Numbers 38 124 and 38 29A (collectively the "Property"). The Property is comprised of approximately ± 523.94 acres and is located on the east side of Richmond Highway and on either side of Eskimo Hill Road. The Property is currently zoned A-1, Agricultural and located in the Falmouth Election District.

1. A completed Application Submittal Checklist;
2. A completed Project Information & Primary Contacts form;
3. An executed Statements of Understanding form signed by STAFFORD TECHNOLOGY LC;
4. An executed Statements of Understanding form signed by Susanne Bradley Geslois, Trustee of the Susanne Bradley Geslois Revocable Trust, dated December 18, 2017;
5. An executed Owners Consent Statement signed by Susanne Bradley Geslois, Trustee of the Susanne Bradley Geslois Revocable Trust, dated December 18, 2017;
6. A completed General Information form;
7. A check made payable to Stafford County in the amount of $80,694.00, which represents the filing fee;
8. A completed Review Fee Calculations sheet;

9. A completed List of Adjoining Property Owners form;
10. A completed Application Affidavit;
11. Proof that real estate taxes have been paid for Tax Map Numbers 38 124;
12. Proof that real estate taxes have been paid for Tax Map Numbers 38 29A;
13. A legal description of Tax Map Numbers 38 124;
14. A legal description of Tax Map Numbers 38 29A;
15. An Impact Statement, dated February 22, 2023;
16. A copy of the Proffer Statement, dated February 24, 2023;
17. A completed Checklist of Generalized Development Plans;
18. Twelve (12) full size copies and one (1) 8 ½" x 11" copy of the plans entitled "Generalized Development Plan (GDP) – Stafford Technology Campus" prepared by Bohler Engineering, dated February 24, 2023 and consisting of the following sheets:
    a. Cover Sheet
    b. Existing Conditions Plan
    c. Generalized Development Plan
    d. Overall Illustrative Plan

Please note that a Traffic Impact Study for the Property will be provided as soon as it is available.

Once you have had an opportunity to review the application, together with the supporting documents, please contact me immediately if any additional information is required for acceptance. Thank you for your assistance in connection with this application.

Very truly yours,

WALSH, COLUCCI, LUBELEY & WALSH, P.C.

Jessica L. Pfeiffer

Jessica L. Pfeiffer
Planner

JLP

Enclosures

cc: Taylor Chess/Kevin McHugh (*via email only*)
Michael O'Shaughnessy/Nick Georgas (*via email only*)
Kevin Sitzman (*via email only*)

P1283048.DOCX

Application Submittal Checklist

☒ Completed **"Project Information & Primary Contacts"** form (Page 6)

☒ Signed **"Statements of Understanding"** from the owner(s) and applicant (Page 7)

☒ Signed and Notarized **Owner's Consent Statement** (if applicant/agent is not the owner)

☒ Completed **"General Information"** sheet (Page 8)

☒ Completed **"Review Fee Calculation"** sheet and appropriate fees payable to "County of Stafford" and "Virginia Department of Transportation" (if applicable) (Pages 9 – 11)

☒ Completed **"List of Adjoining Property Owners"** (Pages 12 & 13)

☒ Completed **"Application Affidavit"** (Pages 14 – 17)

☒ Completed **"Checklist for Generalized Development Plans"** (Pages 19 & 20)

☒ Completed **"Transportation Impact Analysis Determination Form"** (Page 21)

☒ Proof that **Real Estate Taxes** have been paid

☒ Complete **Legal Description** of the area to be reclassified (Acreage must match Boundary Survey Plat)

☒ Completed **Impact Statements** (See **"Checklist for Impact Statements"** (Page 18)

☒ Completed **Transportation Impact Analysis (TIA)**, if required (Five (5) paper copies with electronic copies or ftp site) (See "**VDOT Rezoning Package Checklist"**, Page 23)

PLATS AND PLANS

☒ **Boundary Survey Plat** of area subject to rezoning (with 3 copies at 8½" x 11" size) (Acreage must match Legal Description)

☒ **Generalized Development Plan** (12 full-size copies at 24"x 36" size)

* See **"Checklist for Generalized Development Plans"** (Pages 19 & 20)

Applications for reclassification to the P-TND zoning district shall also include:

☐ Twenty (20) copies of the Regulating Plan

☐ Twenty (20) copies of the Neighborhood Design Standards

PROFFER STATEMENT – OPTIONAL

☒ **Proffer Statement** (It is preferred for the proffer statement to be properly executed upon initial submittal, or as soon thereafter as possible. Prior to advertisement of any public hearing, the latest version of the proffer statement must be properly executed – see Notice to Applicants Regarding Proffers – Pages 24 & 25)

If Proffer Statement is for new residential developments and residential components of mixed-use properties:

☐ Completed **Election of Code Provisions for Residential Proffers Worksheet** (Page 26)

PROFFER REASONABLENESS ANALYSIS

☐ **Proffer Reasonableness Analysis**

Note: if electing to proceed under legislation requiring an evaluation of reasonableness, the Proffer Reasonableness Analysis is required. See Table on Page 26.

RECEIVED	OFFICIALLY SUBMITTED
DATE:_____ INITIALS _____	DATE:_____ INITIALS_____

Other Optional Application Materials

Although not required, the following additional materials are requested to be included with the initial application submission, if available. These items are often requested during the review process. Providing the information in advance can assist in accelerating the review:

1. Site Illustrations or Building Elevations
2. Electronic Version of generalized development plans, boundary survey, and any illustrations (a pdf on a CD, DVD, sent via email, or through ftp site is acceptable)
3. Additional Fiscal Impact Information for Commercial Rezonings, including:

   a) Direct jobs expected to be created from the rezoning (years 1-5)

   b) Estimated average wage

   c) North American Industry Classification System (NAICS) business sector code

   d) Projected investment in real property - broken down by land and building (years 1-5)

   e) Projected investment in machinery & tools/equipment (years 1-5)

   f) Projected investment in business tangible personal property (years 1-5)

   g) Other revenues projected such as Sales, Meals, Lodging Taxes (years 1-5)

Project Information & Primary Contacts

PROJECT INFORMATION **PROJECT #** RC23154931

Stafford Technology Campus
PROJECT NAME

SECTION

ADDRESS (IF AVAILABLE)

±503.84 acres
TOTAL SITE ACREAGE

38 124 & 38 29A
TAX MAP /PARCEL(S)

A-1 to M-2
ZONING DISTRICT

East side of Richmond Highway and the east and west side of Eskimo Hill Road
LOCATION OF PROJECT

APPLICANT / AGENT (Provide attachment if Applicant and Agent differ) Primary Contact Person ☐

James J. Vecchiarelli
NAME

Stafford Technology LC
COMPANY

12500 Fair Lakes Circle, Suite 400 Faifrax VA 22033
ADDRESS CITY STATE ZIP

PHONE NUMBER FAX NUMBER EMAIL ADDRESS

APPLICANT / **AGENT** (Provide attachment if Applicant and Agent differ) Primary Contact Person ☑

Jonelle Cameron | Jessica Pfeiffer
NAME

Walsh, Colucci, Lubeley & Walsh PC
COMPANY

4310 Prince William Pkwy Suite 300 Prince William VA 22192
ADDRESS CITY STATE ZIP

(703) 680-4664 jcameron@thelandlawyers.com | jpfeiffer @thelandlawyers.com
PHONE NUMBER FAX NUMBER EMAIL ADDRESS

OWNER (Provide attachments if multiple owners) Primary Contact Person ☐

Stafford Technology LC
NAME COMPANY

12500 Fair Lakes Circle, Suite 400 Fairfax VA 22033
ADDRESS CITY STATE ZIP

PHONE NUMBER FAX NUMBER EMAIL ADDRESS

PROFESSIONAL (Engineer, Surveyor, etc.) Primary Contact Person ☐

NAME		COMPANY	
Michael O' Shaughnessy | Nick Georgas		Bohler Engineering	
ADDRESS	**CITY**	**STATE**	**ZIP**
12825 Worldgate Drive, Suite 700	Herndon	VA	20170
PHONE NUMBER	**FAX NUMBER**	**EMAIL ADDRESS**	
(571) 366-6832			

P1330719.DOCX

Statements of Understanding

I, as owner/co-owner of the property subject to this application, do hereby certify that I have read and understand the requirements for the submission of a reclassification as outlined in this application and as provided under the Stafford County Code, and further, that this submittal is in compliance with the requirements of this application and applicable provisions of the Stafford County Zoning Ordinance, Chapter 28 of the Stafford County Code.

Date: 2/23/23

Stafford Technology LC
a Virginia limited liability company

By: MVP Management, LLC
a Virginia limited liability company
its Manager

By: _____
Name: John M. Peterson
Its: Manager

Statements of Understanding

I, as owner/co-owner of the property subject to this application, do hereby certify that I have read and understand the requirements for the submission of a reclassification as outlined in this application and as provided under the Stafford County Code, and further, that this submittal is in compliance with the requirements of this application and applicable provisions of the Stafford County Zoning Ordinance, Chapter 28 of the Stafford County Code.

Date: 2-27-23

Susanne Bradley Geslois, Trustee of the Susanne Bradley Geslois Revocable Living Trust Dated December 18, 2017

STAFFORD COUNTY ZONING CONDITIONAL USE PERMIT
OWNER'S CONSENT STATEMENT

COMMONWEALTH OF VIRGINIA

COUNTY OF: Henrico

This 27th of February, 2023

I, Susanne Bradley Geslois, Trustee of the Susanne Bradley Geslois Revocable Trust, dated December 18, 2017, (owner) do hereby authorize the Applicant, Stafford Technology LC, or its successors and assigns (collectively, the "Applicant"), to file on my behalf all zoning conditional use permit or other land use or permitting applications necessary to develop Tax ID 38 29A as the Applicant may reasonably determine. I further authorize the Applicant, at its sole cost and expense, to procure, file and provide all necessary studies, application documents, any draft conditional use permit conditions, plans and other application materials, and to undertake all other actions necessary to obtain approval of the aforementioned use.

Susanne Bradley Geslois, Trustee of the
Susanne Bradley Geslois Revocable Trust,
dated December 18, 2017

COMMONWEALTH OF VIRGINIA

COUNTY OF: Henrico

Subscribed and sworn to before me this 27th day of February, 2023, in my county and state aforesaid, by the aforenamed principal.

Donna S Reese
NOTARY PUBLIC

My Commission Expires: 5/31/26

DONNA S. REESE NOTARY PUBLIC REG #7062770 COMMONWEALTH OF VIRGINIA

General Information

Clearly indicate all information that applies to this project:

DETAILED DESCRIPTION OF PROJECT

The applicant, Stafford Technology LC (the "Applicant") is the owner of the properties identified as Tax Map Numbers 38 124 and 38 29A, which is comprised of approximately 503.84. The proposal is to reclassify the Property from A-1, Agricultural, to M-2, Heavy Industrial. The Applicant's proposal includes a phased data center campus which will contain approximately 5.8 million square feet of data center uses at full buildout.

INFORMATION FOR FEE CALCULATIONS

± 503.84 # of Acres

Type of Conditional Use Permit:

☐ Standard Conditional Use Permit (including amendments)

☐ Minor Conditional Use Permit Amendment *

☐ Minor Conditional Use Permit Amendment (submitted simultaneously with a Minor Proffer Amendment Application) *

* See Background Information on page 3 to determine if the request qualifies as a minor amendment.

INFORMATIONAL

Previous Resolution # A-1

Zoning District M-2

Proposed Use(s) The Applicant's proposal includes a phased data center campus which will contain approximately 5.8 million square feet of data center uses at full buildout. Other M-2 uses may be permitted on the Property.

Review Fee Calculations

STAFFORD COUNTY FEES:

The County review fee calculations are divided into four sections. Each section is based on a different type of reclassification. Determine the application fee by filling out the one section that applies.

Section I. Standard Rezoning:

A. Base Fee: (Required - Enter the dollar amount that applies)
If less than 5.0 acres …….. .$4,375.00
If 5.0 acres or greater …….$12,500.00……..…….. $ 12,500.00

B. General Fee: (If greater than 5 acres)

(523.94 Acres – 5) X $125 ……..…….. $ 64,867.50

C. Fire & Rescue Review Fee (required)……..…. $ 125.00

D. Utilities Department Review Fee (required)……..... $ 215.00

E. Public Works Review Fee (required)…….……..... $ 200.00

F. Traffic Impact Analysis Review Fee: (If TIA required)
Volume <1,000 VPD ……$200.00
Volume >1,000 VPD ……$400.00...…….…… $ 400.00

G. Adjacent Property Notification (required):

(35 Adjacent properties) X $6.48 ……..... $ 226.80

Sub-total (Add appropriate amounts from lines A thru G above)..... **$** 78,534.30

H. Technology Fee (sub-total x 2.75% or 0.0275)…… $ 2,159.70

TOTAL (Sub-total + H. Technology Fee)…….…… $ 80,694.00

Section II. Planned Development:
(For requests to the PD-1, PD-2, or P-TND zoning districts)

A. Base Fee …….…. $ 15,000.00

B. General Fee:

(_____Acres – 75) X $25 ……..…. $_____

C. Fire & Rescue Review Fee (required) …… $ 125.00

D. Utilities Department Review Fee (required) …… $ 215.00

E. Public Works Review Fee (required)…….…….. $ 200.00

F. Traffic Impact Analysis Review Fee: (If TIA required)
Volume <1,000 VPD ……$200.00
Volume >1,000 VPD ……$400.00……..… $_____

G. Adjacent Property Notification (required):

(_____Adjacent properties) X $6.48 …….. $_____

Sub-total (Add lines A through G) ……..…….…… **$_____**

H. Technology Fee (sub-total x 2.75% or 0.0275)…… $_____

TOTAL (Sub-total + H. Technology Fee)……..…… $_____

Section III. Proffer Amendment:

A. General Fee:
$10,000 + If Acres>5 ((Acres – 5) X $25) ……..…… $_____

B. If Planned Development:
$10,000 + ((_____ Acres – 75) X $25) ……..… $_____

C. Adjacent Property Notification (required):

(_____Adjacent properties) X $6.48 ……..…. $_____

Sub-total (Add lines A and C) or
(Add lines B and C) ……...….. $_____

D. Technology Fee (sub-total x 2.75% or 0.0275)…… $_____

TOTAL (Sub-total + D. Technology Fee)……..…… $_____

Section IV. Minor Proffer Amendment:

A. General Fee: ……... …… $ 6,190.00

B. Adjacent Property Notification (required):

(_____Adjacent properties) X $6.48 ……..…….. $_____

Sub-total (Add lines A and B) ……..…… $_____

C. Technology Fee (sub-total x 2.75% or 0.0275)…… $_____

TOTAL (Sub-total + C. Technology Fee)……..…… $_____

Section V. Minor Proffer Amendment (when submitted simultaneously with minor Conditional Use Permit Application):

A. General Fee: ……... …… $ 3,095.00

B. Adjacent Property Notification (required):

(_____Adjacent properties) X $6.48 ……..…….. $_____

Sub-total (Add lines A and B) ……..…… $_____

C. Technology Fee (sub-total x 2.75% or 0.0275)…… $_____

TOTAL (Sub-total + C. Technology Fee)……..…… $_____

Sections I, II, III, IV and V: MAKE CHECK PAYABLE TO "STAFFORD COUNTY".

- **If an application is withdrawn prior to the first public hearing, fifty (50) percent of the amount of the application fee may be refunded to the applicant.**
- **If an application is withdrawn after the first public hearing, the application fee is non-refundable.**

VIRGINIA DEPARTMENT OF TRANSPORTATION FEES:

Transportation Impact Analysis Fee:
(For applications that meet VDOT Traffic Impact Analysis thresholds)

A. Subject to low volume road criteria (see 24 VAC 30-155-40 A 3) $ 250.00

B. All other submissions $ 1000.00

MAKE CHECK PAYABLE TO "VIRGINIA DEPARTMENT OF TRANSPORTATION"

For a third or subsequent submission of a rezoning proposal that is requested by VDOT on the basis of the failure of the applicant to address deficiencies previously identified by VDOT, the fee is equal to the initial fee paid. (per 24 VAC 30-155, §15.2-2222.1 of the Code of Virginia)

List of Adjoining Property Owners

The applicant is required to provide a list of the owners as shown on the current real estate tax assessment books of all abutting properties and properties immediately across the street or road from the property to be rezoned or issued a Conditional Use Permit. If the application requests a rezoning of only a portion of the parcel or a Conditional Use Permit on only a portion of the parcel, the entire parcel must be the basis for the below listing.

Provide additional pages if needed.

TAX MAP / PARCEL	NAME
38 30	PORTILLO ALEXANDER

690 FITZPATRICK CT
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-6583

TAX MAP / PARCEL	NAME
38 32	MORROW CHARLES R & BRENDA H TRUSTEES MORROW RONALD A

10524 COURTHOUSE RD
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-1612

TAX MAP / PARCEL	NAME
38A 3	SOUTHEASTERN FREIGHT LINES INC

420 DAVEGA DR
MAILING ADDRESS

CITY	STATE	ZIP
LEXINGTON	SC	29073-7485

TAX MAP / PARCEL	NAME
38A 5	15 SAGE LLC

15129 WETHERBURN DR
MAILING ADDRESS

CITY	STATE	ZIP
CENTREVILLE	VA	20120

TAX MAP / PARCEL	NAME
38A 6A	DEGEN-UTAH LLC

PO BOX 7103
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22404-7103

TAX MAP / PARCEL	NAME
38 29	FERNANDEZ JULIO EDGAR MONTANO

34 STALLINGS LN
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-5455

TAX MAP / PARCEL	NAME
38 25K	FREDWOOD L C

PO BOX 600
MAILING ADDRESS

CITY	STATE	ZIP
CHANTILLY	VA	20153-0600

TAX MAP / PARCEL	NAME
38 25L	DEVITO FREDERICK W & MARY T TRSTEES

5 ALY SHEBA LN
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22556-6679

TAX MAP / PARCEL	NAME
38 25M	CRANES CORNER LLC

170 W SHIRLEY AVE STE 201
MAILING ADDRESS

CITY	STATE	ZIP
WARRENTON	VA	20186-3083

TAX MAP / PARCEL	NAME
38 24X	FLYNN PROPERTIES & JEFFREY FLYNN HOL

PO BOX 429
MAILING ADDRESS

CITY	STATE	ZIP
LOCUST GROVE	VA	22508-0429

TAX MAP / PARCEL	NAME
38 24Y	J-SEA II LLC

22638 MORNING GLORY CIR
MAILING ADDRESS

CITY	STATE	ZIP
BRADENTON	FL	34202-6356

TAX MAP / PARCEL	NAME
38 24M	POTOMAC CREEK INDUSTRIAL LLC

2603 MORSE LN
MAILING ADDRESS

CITY	STATE	ZIP
WOODBRIDGE	VA	22192-4628

TAX MAP / PARCEL	NAME
38 22A	PERDOMO REALTY LLC

20801 BISCAYNE BLVD STE 501
MAILING ADDRESS

CITY	STATE	ZIP
MIAMI	FL	33180-1400

TAX MAP / PARCEL	NAME
38 22	LEXON ENTERPRISES INC

275 W 231 STREET STE 1030
MAILING ADDRESS

CITY	STATE	ZIP
BRONX	NY	10463-3903

TAX MAP / PARCEL	NAME
38 126	METTS LC

1355 BEVERLY RD STE 240
MAILING ADDRESS

CITY	STATE	ZIP
MC LEAN	VA	22101-3649

TAX MAP / PARCEL	NAME
38 125	SHANNON MATTHEW F

3332 M STREET SE
MAILING ADDRESS

CITY	STATE	ZIP
WASHINGTON	DC	20019-2931

TAX MAP / PARCEL	NAME
38 130	FRANKS BETTY A

368 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7308

TAX MAP / PARCEL	NAME
38 131, 38 132	COMMONWEALTH OF VIRGINIA DEPARTMENT OF CORRECTIONS

384 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7308

TAX MAP / PARCEL	NAME
38 132A	COMMONWEALTH OF VA DEPT OF HWYS

1111 E BROAD ST 2ND FLOOR
MAILING ADDRESS

CITY	STATE	ZIP
RICHMOND	VA	23219-1936

TAX MAP / PARCEL	NAME
39 26D, 39 26, 39 22	BOARD OF SUPERVISORS OF STAFFORD COUNTY

PO BOX 339
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22555-0339

TAX MAP / PARCEL	NAME
38 104	TRIDEX ASSOCIATES INC

200 BIG SPRING LN
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7316

TAX MAP / PARCEL	NAME
38G D, 38G B	KENDALL HILLS HOMEOWNERS ASSOCIATION

PO BOX 1866
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22402

TAX MAP / PARCEL	NAME
38 105B	TOLBERT CARL R

8061 CHANCELLOR RD
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-7301

TAX MAP / PARCEL	NAME
38 105A	ATCHINSON PRICILLA

108 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7304

TAX MAP / PARCEL	NAME
38 107B	LLOYD MELODY

100 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7304

TAX MAP / PARCEL	NAME
38 107	ESCOBAR MELVIN O MARTINEZ

76 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	2554-7302

TAX MAP / PARCEL	NAME
38 116	KELLY CROCKETT & DREAMA J

1351 OSBORNES GAP RD
MAILING ADDRESS

CITY	STATE	ZIP
CLINTWOOD	VA	24228-5853

TAX MAP / PARCEL	NAME
38 117	HUSSAIN SAKHAWAT & ASHRAF MOHAMMAD SABIR

134 JIB DR
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-5322

TAX MAP / PARCEL	NAME
38 118	DOSA INCORPORATED

13416 CLASSIC CT
MAILING ADDRESS

CITY	STATE	ZIP
WOODBRIDGE	VA	22192-4502

TAX MAP / PARCEL	NAME
38 119	COMMONWEALTH OF VA DEPT OF HWYS

1111 E BROAD ST 2ND FLOOR
MAILING ADDRESS

CITY	STATE	ZIP
RICHMOND	VA	23219-1936

TAX MAP / PARCEL	NAME
38 122A, 38 122	26 & 30 STATE SHOP ROAD LLC

8449 MARY JANE DR
MAILING ADDRESS

CITY	STATE	ZIP
MANASSAS	VA	20112-4710

TAX MAP / PARCEL	NAME
38 121A	7K INVESTMENTS LLC

818 18TH ST NW STE 400
MAILING ADDRESS

CITY	STATE	ZIP
WASHINGTON	DC	20006-3504

TAX MAP / PARCEL	NAME
38 31	KIM ANTHONY

3999 RICHMOND HWY
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-4826

TAX MAP / PARCEL	NAME
38 38	MORROW CHARLES R & BRENDA H TRUSTEES MORROW RONALD A

10524 COURTHOUSE RD
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-1612

TAX MAP / PARCEL	NAME
38 123A	VEPCO

MAILING ADDRESS

CITY	STATE	ZIP

STAFFORD COUNTY
Department of Planning and Zoning

Application Affidavit

This form to be filed with:

STAFFORD COUNTY
BOARD OF SUPERVISORS

1300 COURTHOUSE ROAD
STAFFORD, VIRGINIA 22555

Internal Use Only	
Project Name:	
A/P #:	
Date:	

All applicants for a special exception, a special use permit, conditional use permit, amendment to the zoning ordinance or variance shall make complete disclosure of the equitable ownership of the real estate involved in the application, including in the case of corporate ownership, limited liability company ownership or similar business ownership, the name of stockholders, officers, managing partners, general partners, owners and members, and in any case the names and addresses of all of the real parties in interest. The requirement of listing names of stockholders, officers and directors shall not apply to a corporation whose stock is traded on a national or local stock exchange and having more than 500 shareholders. In the event the ownership of the involved real estate changes in any respect during the time the application is pending, the applicant shall make complete disclosure of the new equitable ownership of the real estate involved in the application as required herein. If the applicant is a contract purchaser, the ownership information required herein shall be provided for the contract purchaser in addition to the owner of the real estate involved in the application. This section applies to applications before the board of supervisors, planning commission and board of zoning appeals.

See Section 15.2-2289 for State Enabling Authority

1. Applicant information

Name of Applicant: James J. Vecchiarelli
Name of Company: Stafford Technology LC

Applicant Address 12500 Fair Lakes Circle, Suite 400
Fairfax, VA 22033

Applicant's Signature: James Vecchiarelli

Name of Agent Jonelle Cameron | Jessica Pfeiffer
Walsh, Colucci, Lubeley & Walsh P.C.

Address of Agent 4310 Prince William Parkway, Suite 300
Prince William, VA 22192

2. Type of Application

- ☐ **Conditional Use Permit**
- ☑ **Rezoning**
- ☐ **Variance**
- ☐ **Special Exception**

Project Name: _____
A/P #: _____
Date: _____

Application Affidavit
Page 2
Applicant: Stafford Technology LC

3. Property Information

Assessor's Parcel(s) 38 124 and 38 29A

Address _____
_____

4. Unless the equitable ownership is a corporation, limited liability company or similar business ownership, list all equitable owners of the property.

Name of owners	Address

5. If the equitable ownership of the property is a corporation, limited liability company or similar business ownership, list all officers, managing partners, general partners, shareholders, owners and members. This provision shall not apply if the corporation is listed on a national or local stock exchange and has more than 500 shareholders.

Name of Members	Address
The ownership is family trusts that do not have members.	

6. Unless the applicant is a contract purchaser and is a corporation, limited liability company or similar business ownership, list all individuals involved with the purchase of the property.

Name of Members	Address

Application Affidavit
Page 3
Applicant: Stafford Technology LC

Project Name: _____
A/P #: _____
Date: _____

7. If the applicant is a contract purchaser and is a corporation, limited liability company or similar business ownership, list all officers, managing partners, general partners, shareholders, owners and members. This provision shall not apply if the corporation is listed on a national or local stock exchange and has more than 500 share holders

Name of Members	Address
_____	_____
_____	_____
_____	_____
_____	_____

8. Have all individuals listed on this affidavit been notified of the purpose of the application?

☐ **Yes** ☐ **No**

9. If #8 is No, list all individuals who have not been notified about this application plus submit the cost required for the Department of Planning and Zoning or Code Administration to send certified letters notifying those listed below of this application prior to the public hearing.

Name	Address, including zip code, no P.O. Box please
_____	_____
_____	_____
_____	_____
_____	_____

Number of owners to be notified: _____X
Cost for certified letters $ _____ (cost as of the day of submittal)
Total due: $_____ (Make checks payable to County of Stafford)

Please submit a check in the amount due with this application to cover the cost of serving the individuals listed in this section.

STAFFORD COUNTY
Department of Planning and Zoning

Application Affidavit
Page 4
Applicant: Stafford Technology LC

Project Name: _____
A/P #: _____
Date: _____

10. Affirmation & Witness

I hereby make oath or affirmation that the contents of this affidavit are true and correct to the best of my knowledge, information and belief. In the event the ownership of the involved real estate changes during the time the application is pending, I shall make complete disclosure of the new equitable ownership of the real estate involved in the application as required herein.

Printed name of Signer James J Vecchiarelli

Corporate Office of Signer Manager

Signature _____

Date 02/22/2024

~~STATE~~ OF: Commonwealth of Virginia
COUNTY: Fairfax

The forgoing affidavit was acknowledged before me this 22nd day of February, 2024 by James J Vecchiarelli owner/applicant.

My commission expires: January 31, 2026

_____
Notary Public

STACEY ADAIR NOTARY PUBLIC REG # 7653768 MY COMMISSION EXPIRES 01/31/2026 COMMONWEALTH OF VIRGINIA

Checklist for Generalized Development Plans (GDP)

In accordance with Section 28-224 of the Stafford County Code, when a GDP involves engineering, architecture, urban land use planning or design, landscape architecture, or surveying, such work shall be performed by persons qualified and authorized to perform such professional work, in accordance with applicable provisions of the Code of Virginia.

The following items must be shown on a GDP:

N/A	COMPLETE	
		Sec 28-225(1)
☐	☑	Date of drawing,
☐	☑	true north arrow,
☐	☑	scale,
☐	☑	legend for all symbols used,
☐	☑	name of the applicant,
☐	☑	name of the owner,
☐	☑	name of the development,
☐	☑	person preparing the drawing,
☑	☐	match lines if applicable;
		Sec 28-225(2)
☐	☑	Boundaries of the area covered by the application,
☐	☑	vicinity map showing the general location of the proposed development, major roads and existing subdivisions at a scale of one inch equals two thousand (2,000) feet;
		Sec 28-225(3)
☐	☑	Approximate locations and identification of any easements and rights-of-way on or abutting the site;
		Sec 28-225(4)
☐	☑	Approximate location of each existing and proposed structure on the site
☐	☑	the number of stories,
☐	☑	height,
☑	☐	roof line,
☐	☑	gross floor areas and
☑	☐	location of building entrances and exits;
		Sec 28-225(5)
☐	☑	Identification and location of uses and structures on all abutting properties;
		Sec 28-225(6)
☐	☑	Approximate location of all existing and proposed parking and loading areas,
☐	☑	outdoor trash storage,
☑	☐	lighting facilities, and
☐	☑	pedestrian walkways;

Checklist for Generalized Development Plans (continued)

N/A	COMPLETE	
		Sec 28-225(7)
☐	☑	Approximate location, height and type of each existing and proposed wall, fence, and other types of screening;
		Sec 28-225(8)
☐	☑	Approximate location and description of all proposed landscaping;
		Sec 28-225(9)
☑	☐	Approximate location, height and dimensions of all proposed signage on site;
		Sec 28-225(10)
☐	☑	Approximate location of all existing drainage ways, floodplains and wetlands on site;
		Sec 28-225(11)
☐	☑	Approximate location of all common open space, recreational areas and bufferyards;
		Sec 28-225(12)
☑	☐	Where the site abuts any tidal water body or impoundments, the approximate high water line, low water line, top of bank and toe of slope;
		Sec 28-225(13)
☐	☑	Approximate location and identification of all significant natural or noteworthy features including, but not limited to, historic and archeological sites, cemeteries, existing trees with a trunk diameter greater than six (6) inches DBH.

Waiver of GDP Requirements

In accordance with Section 28-223 of the Stafford County Code, the Director of Planning and Zoning may waive the requirement for the submission of a GDP or one of the above required components if the application meets one of the following standards:

(1) There will be less than two thousand five hundred (2,500) square feet of total land disturbance on lots or parcels of less than ten thousand (10,000) square feet.

(2) For single-family dwellings intended for the occupancy of the applicant and where there will be less than five thousand (5,000) square feet of land disturbance.

(3) For specific items of information when, in the opinion of the director of planning, their application to the subject property does not serve the purpose and intent of this article.

A request for a waiver shall be made in writing to the Director of Planning and Zoning identifying the sections in which you are requesting a waiver and the reason for the request.

RECLASSIFICATION
TRANSPORTATION IMPACT
ANALYSIS DETERMINATION

RECEIVED BUT NOT OFFICIALLY SUBMITTED

DATE:_____ INITIALS:

OFFICIALLY SUBMITTED

DATE:_____INITIALS:_____

Name of development: Stafford Technology Campus
Type of development: Data Center
Parcel #: Parcels 38-124 and 38-29A

Traffic Volume Calculations

This site generates:

523 VPH (highest VPH)

4,356 VPD on state-controlled highways (highest)

523 VPH Peak AM

175 VPH Peak PM

N/A VPH Peak Saturday

1,411 VPD highest intensity*

Attach a page showing the calculations and the ITE trip generation codes to this form.

Minimum Thresholds to submit a TIA
County: Any proposals generating 1,000 or more VPD.
VDOT: See "VDOT Traffic Impact Analysis Requirements" table on next page.

Trip Generation Calculation Guidelines

- Traffic volumes shall be based on the rates or equations published in the latest edition of the Institute of Transportation Engineers Trip Generation.
- If a site has multiple entrances to highways, volumes on all entrances shall be combined for the purposes of this determination.
- If the site does not have direct access to a state-maintained road, the site's connection is where the site connects to the state highway system.
- Traffic volumes shall NOT be reduced through internal capture rates, pass by rates, or any other reduction methods.
- For redevelopment sites only: when the existing use is to be redeveloped as a higher intensity use, trips currently generated by the existing development that will be removed may be deducted from the total trips that will be generated by the proposed land use.
- When rezoning, use the highest possible traffic generating use unless development is limited by proffer to less than the possible highest traffic generation.

For development proposals that generation 1,000 or more vehicle trips per peak hour the applicant shall request a scope of work meeting with VDOT and Stafford County Office of Transportation to discuss the required elements of a traffic impact analysis.

*The highest intensity use is the highest possible allowable under the zoning requirements for the entire property should it be developed to its fullest extent possible under the current building guidelines. The trip generation for the highest intensity used shall be analyzed in the study. The only exception is if proffers limit the area and type of uses.

VDOT Traffic Impact Analysis Requirements

Process		Threshold	Review Process*	Fee**
Comprehensive Plan and Plan Amendments (including small area plans)		5,000 VPD on state-controlled highways, or Major change to infrastructure / transportation facilities	Application submitted to VDOT for review and comment VDOT may request a meeting with the locality within 30 days Review to be completed in 90 days or later if mutually agreed	$1000 covers first and second review. No fee if initiated by locality or public agency. No fee for citizens' organization or neighborhood association proposing plan amendments.
Rezoning	Residential Low Volume Road Submission	400 VPD AND exceeds the current traffic volume on a state controlled highway	VDOT or local TIA (certified by VDOT) and Application submitted to VDOT for review and comment VDOT may request a meeting with the locality & applicant within 45 days Review to be completed in 120 days if VDOT requests a meeting Otherwise review to be completed in 45 days NOTE: When a related comprehensive plan revision and rezoning proposal are being considered concurrently for the same geographical area, then only a rezoning TIA package is required.	For first and second review: $250 - Low Volume Rd $1000 – All other submissions No fee if initiated by locality or public agency No fee if using a VDOT TIA prepared for a small area plan
	All Other Land Uses including residential	5,000 VPD on state controlled highways, or 5,000 VPD on locality maintained streets AND within 3000 feet of a state controlled highway		

* For proposals generating less than 1000VPH the locality and/or applicant may request a Scope of Work Meeting with VDOT. For proposals generating 1000 VPH or more the locality and/or applicant shall hold a Scope of Work Meeting with VDOT.

** Third or subsequent submissions require additional fee as though they were an initial submission.

Traffic Volume Calculations:

The Development is proposed to be located along both sides of Eskimo Hill Road (Route 628), east of US Route 1 (Richmond Highway), and south of State Shop Road. The Site is currently undeveloped and consists of two parcels of land, fronting Eskimo Hill Road and fronting the east side of US Route 1. The two parcels, totaling approximately 503.94-acres, can be identified on the Stafford County GIS with the following Property IDs: 38-124 and 38-29A. The parcels are currently zoned as A-1 Agricultural. For the future land use, a portion of the Property is located in the Central Stafford Targeted Development Area (TDA) and a portion is located outside of the Urban Service Area. The Applicant is proposing to rezone the Property to M-1 and include the entire Property in the Urban Service Area.

The Applicant is proposing to rezone the parcels from A-1 to M-1 (Light Industrial) in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be complete and in operation by 2030. The highest VPH, VPD on state-controlled highways, VPH Peak AM, VPH Peak PM, and VPH Peak Saturday were calculated based using VDOT approved rates of 0.09 for the AM peak hour, 0.03 for the PM peak hour, and 0.75 for the weekday daily trips per 1,000 sf of data center land use based on recent data collection in a study by Bowman Engineering. The trips generated by the proposed development are illustrated in **Table 1**.

Table 1: Site Trip Generation

Land Use	ITE Code	Size	------ Weekday ------						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Stafford Technology Campus									
Data Center [1]	160	5,808.0 kSF	288	235	523	52	123	175	4,356

[1] VDOT approved rates of 0.09 for AM, 0.03 for PM and 0.75 for Daily trips per 1,000 SF for Data Center land use.

As shown in **Table 1**, the proposed development would generate 523 trips during the morning peak hour, 175 trips during the afternoon peak hour, and approximately 4,536 weekday daily trips.

Based on Stafford County's Ordinance, the trip generation, permissible by A-1, was calculated. Using ITE's Trip Generation Manual, 11th Edition, the VPD Highest intensity was calculated as illustrated in **Table 2**. Of note, for the purposes of this assessment the portion of the site under A-1 zoning was assessed based on one residential dwelling unit (DU) per three acres.

Table 2: Site Trip Generation (VPD Highest Intensity)

Land Use	ITE Code	Size	------ Weekday ------						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Single-Family Detached Housing	210	144 DU	27	77	104	88	52	140	1,411

Stafford County
Revenue Collection System

Real Estate Inquiry

Map Number: 38 124 PAGINDCBKLOT S
PIN: 23999
District: AQ

Property Description
LOT 6A 496.711 AC
(LOTS 1,2,3,4,5,PT6 CLIFT)
RESIDUE
No Situs Address

Responsible Name and Addresses
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIR STE 400
FAIRFAX VA 22033-3813

Real Estate Descriptions and Values

Land Value	$24,100,600.00
Building Value	$0.00
Land Use Value	$0.00

Outstanding Balance Information

Total Due:	$0.00
Levy:	$0.00
Penalty:	$0.00
Interest:	$0.00
P&I Calculated as of:	2/22/2024

Bill Year	Bill Number	Installment Number	Cat	Bill Amount Due	Total Paid	Last Payment Date	Levy Due	Penalty Due	Interest Due	Total Due
2023	23477	2	2	$1,056.51	$1,056.51	12/06/2023	$0.00	$0.00	$0.00	$0.00
2023	23477	1	1	$1,056.51	$1,056.51	06/05/2023	$0.00	$0.00	$0.00	$0.00
2022	23482	2	2	$950.30	$950.30	12/06/2022	$0.00	$0.00	$0.00	$0.00
2022	23482	1	1	$950.30	$950.30	06/01/2022	$0.00	$0.00	$0.00	$0.00
2021	23505	2	2	$1,084.46	$1,084.46	11/30/2021	$0.00	$0.00	$0.00	$0.00
2021	23505	1	1	$1,084.46	$1,084.46	06/07/2021	$0.00	$0.00	$0.00	$0.00
2020	23514	2	2	$1,084.46	$1,084.46	12/08/2020	$0.00	$0.00	$0.00	$0.00
2020	23514	1	1	$1,084.46	$1,084.46	06/03/2020	$0.00	$0.00	$0.00	$0.00
2019	23530	2	2	$1,129.18	$1,129.18	11/19/2019	$0.00	$0.00	$0.00	$0.00
2019	23530	1	1	$1,129.18	$1,129.18	05/28/2019	$0.00	$0.00	$0.00	$0.00
2018	23557	2	2	$1,106.82	$1,106.82	11/27/2018	$0.00	$0.00	$0.00	$0.00
2018	23557	1	1	$1,217.50	$1,217.50	06/25/2018	$0.00	$0.00	$0.00	$0.00
2017	23584	2	2	$1,268.23	$1,268.23	05/22/2018	$0.00	$0.00	$0.00	$0.00

Stafford Technology Campus

COM23154932; Comprehensive Plan Amendment
RC23154931; Reclassification
COM24155687; Comp Plan Compliance Review

Stafford County Planning Commission

June 12, 2024

Background

- Requests:
  - COMP PLAN AMENDMENT: Amend Future Land Use Plan maps to expand the Urban Services Area and amend the future land use from Agricultural/Rural to Central Stafford Targeted Development Area, and future land use of Business and Industry
  - REZONING: Rezone from the A-1, Agricultural to M-2, Heavy Industrial Zoning District, with proffers.
  - COMP PLAN COMPLIANCE REVIEW: Review compliance with the Comprehensive Plan, for the placement of up to 6 electric substations.
- All to permit a data center, public facility/utility, and related accessory uses.

2

Background

- Tax Map Parcel Nos.: 38-124 & 38-29A
- Area: 503.84 Acres
- District: Falmouth
- Applicant/Owner: Stafford Technology, LC
- Agents: Jonelle Cameron & Jessica Pfeiffer, Walsh, Colucci, Lubeley, & Walsh PC

3

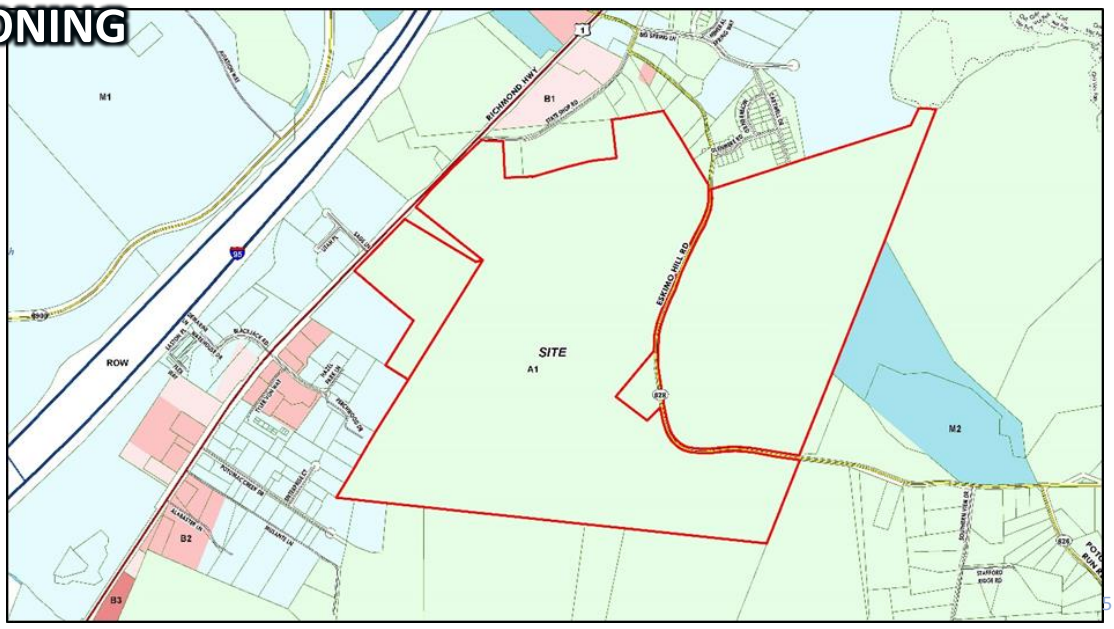
LOCATION



4

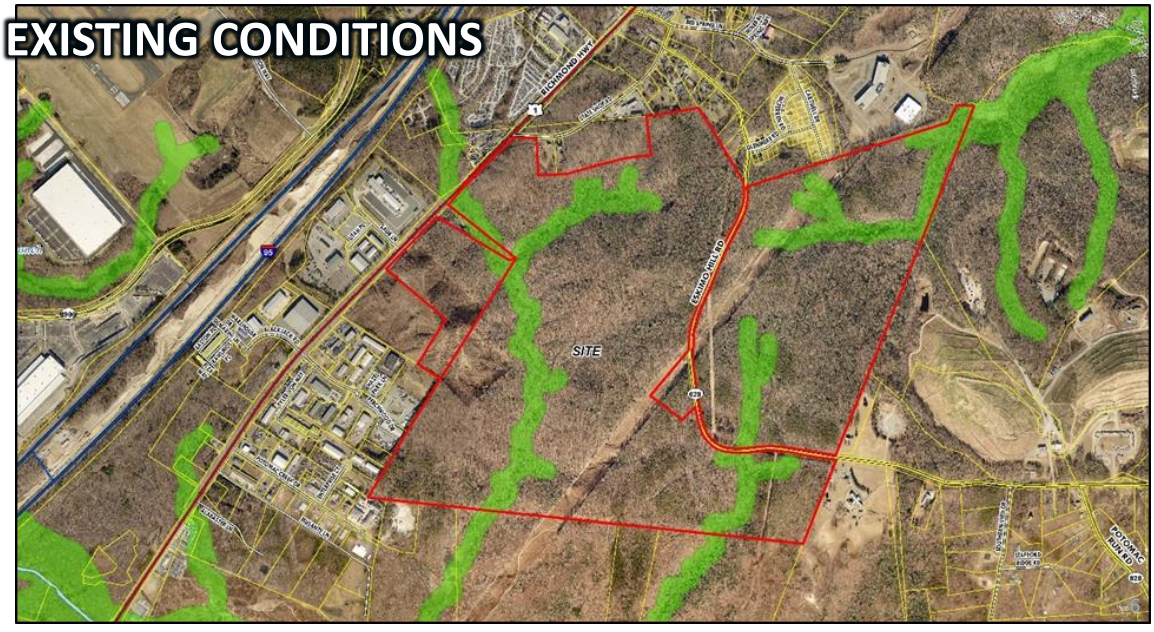
STAFFORD Virginia

ZONING



STAFFORD Virginia

EXISTING CONDITIONS



COMPREHENSIVE PLAN AMENDMENT

7

PROPOSED MAP AMENDMENTS

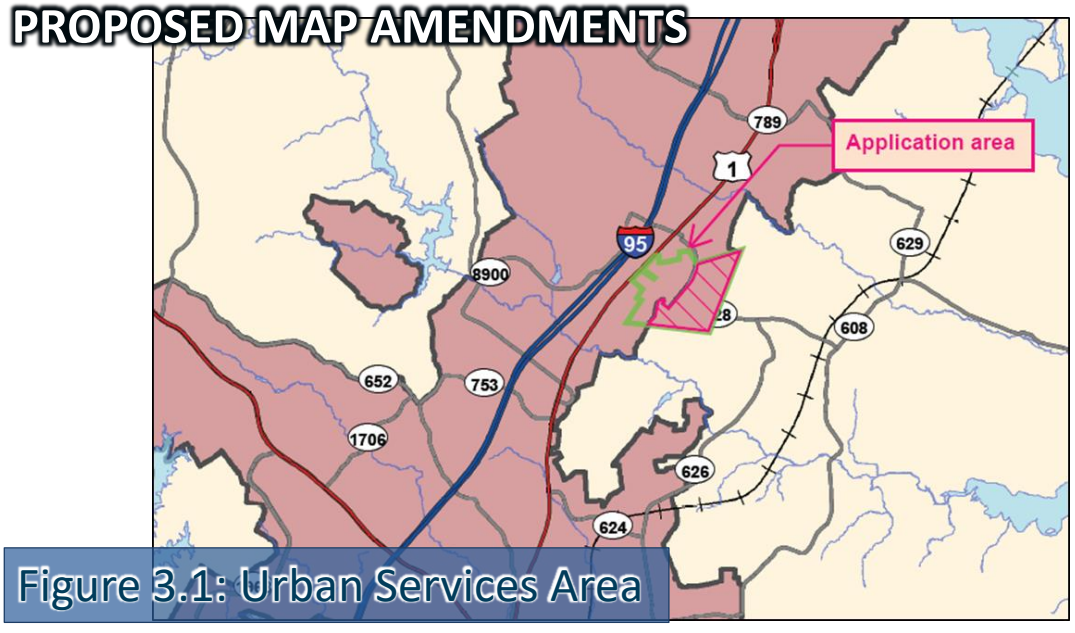
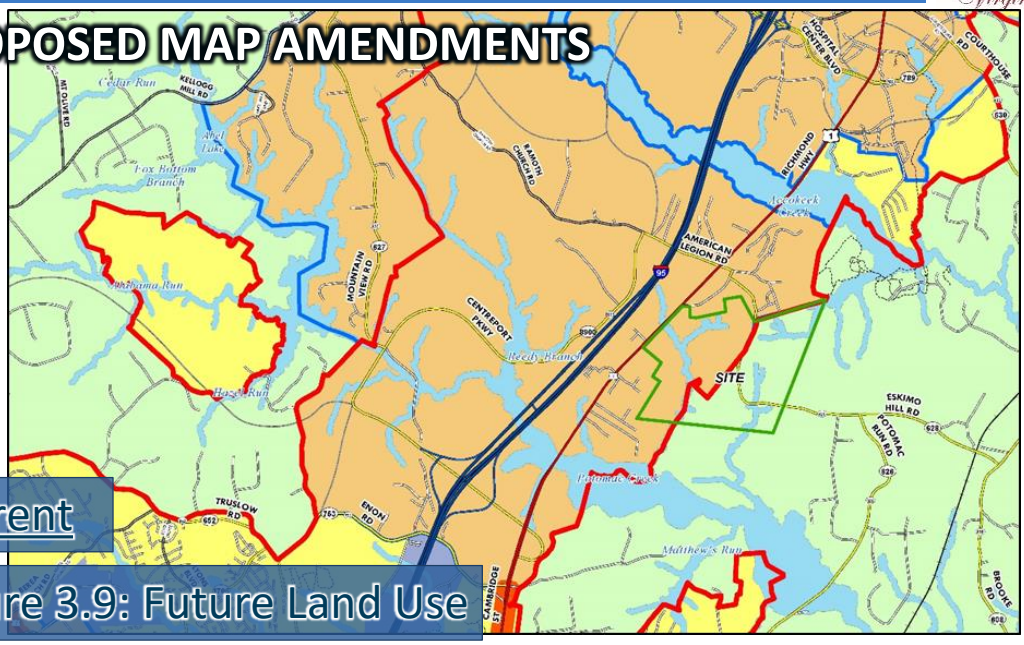


Figure 3.1: Urban Services Area

8

STAFFORD Virginia

PROPOSED MAP AMENDMENTS



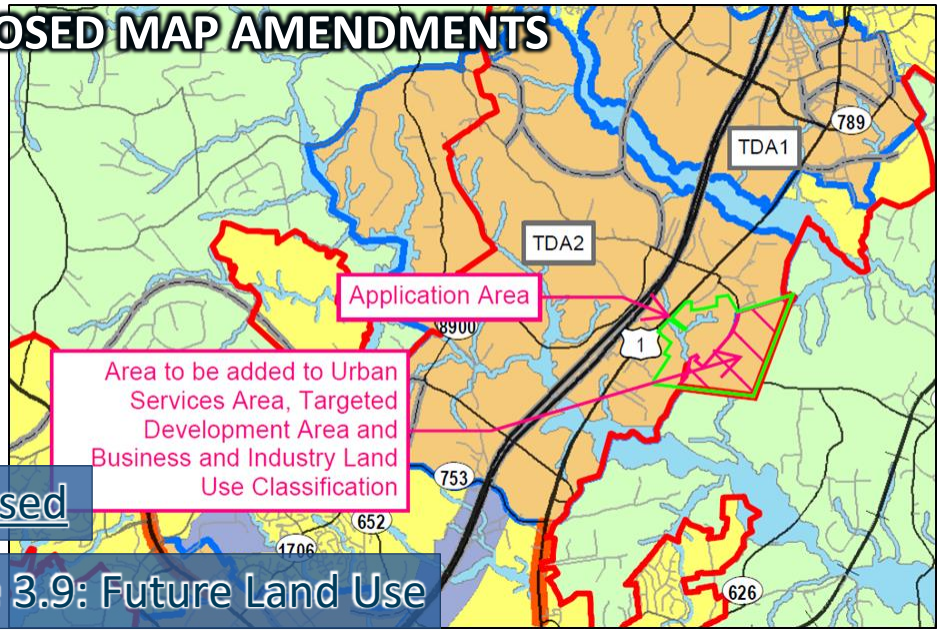
Current

Figure 3.9: Future Land Use

9

STAFFORD Virginia

PROPOSED MAP AMENDMENTS



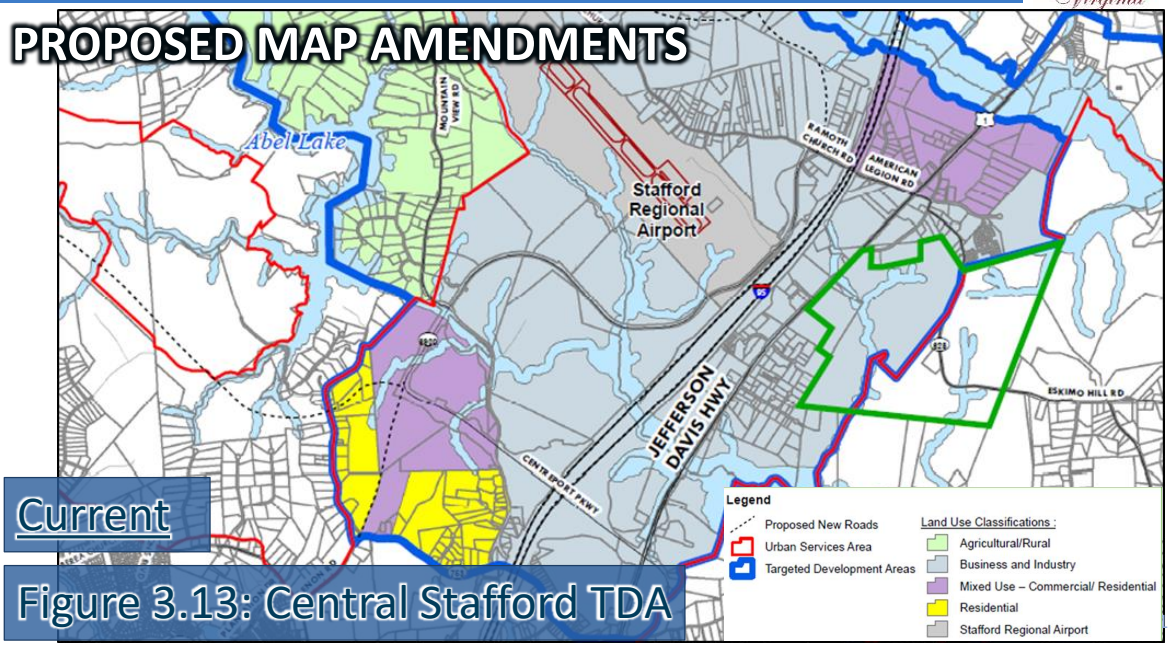
Proposed

Figure 3.9: Future Land Use

10

STAFFORD Virginia

PROPOSED MAP AMENDMENTS

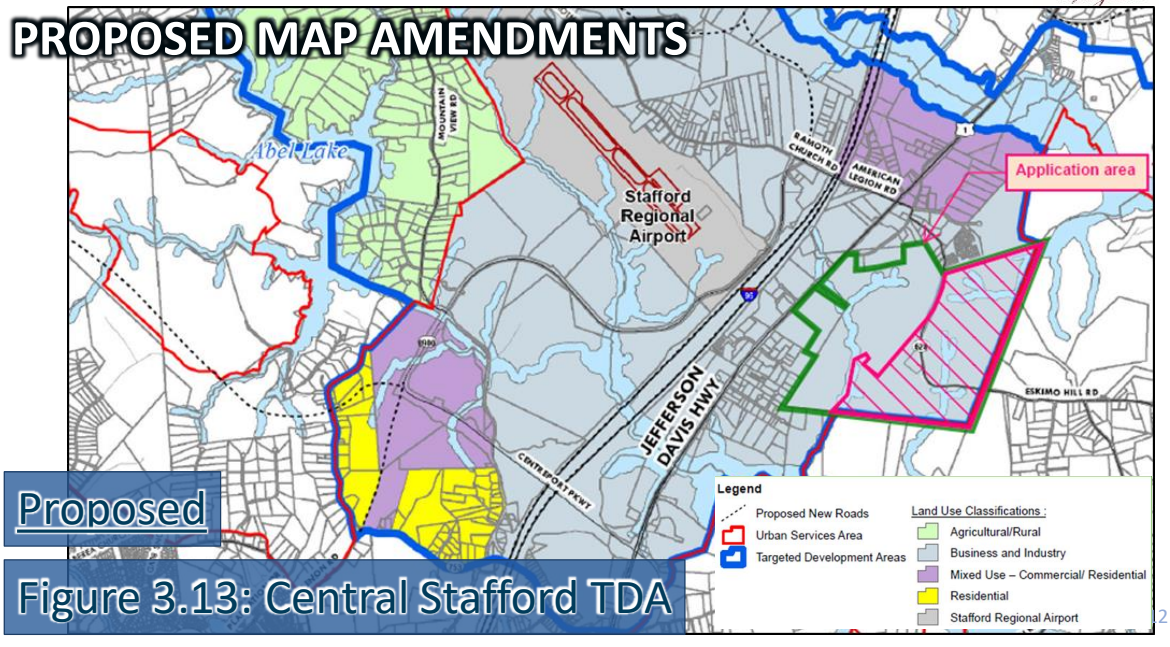


Current

Figure 3.13: Central Stafford TDA

STAFFORD Virginia

PROPOSED MAP AMENDMENTS



Proposed

Figure 3.13: Central Stafford TDA

Evaluation – Staff Findings (COMP PLAN AMENDMENT)

- Positives
  - Proposed use is more compatible with the surrounding existing land uses.
  - There are limited public services to support residential development.
  - Proposed extension of the USA is unlikely to lead to further extensions of water and/or sewer to other lands outside the Urban Services Area.
  - Proposed use is more appropriate than the current use in the vicinity of the airport.
  - The corresponding zoning reclassification proposes to mitigate many of the anticipated impacts.
- No apparent Negative impacts noted.

13

Recommendation – COMP PLAN AMENDMENT

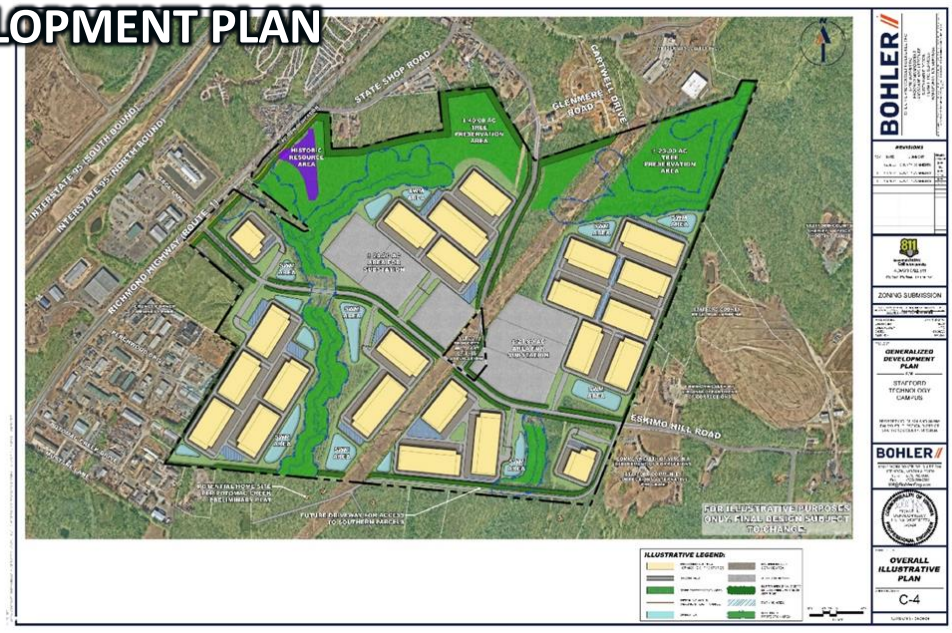
- Staff recommends approval of the proposed amendments to the Comprehensive Plan (application RC23154932), pursuant to proposed Resolution R24-187.

14

ZONING RECLASSIFICATION

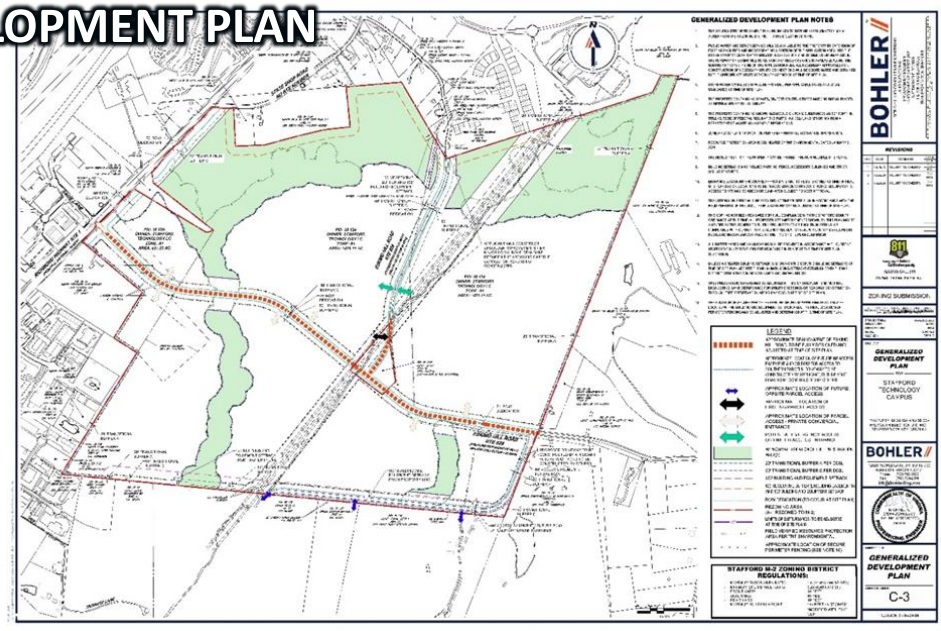
15

DEVELOPMENT PLAN



16

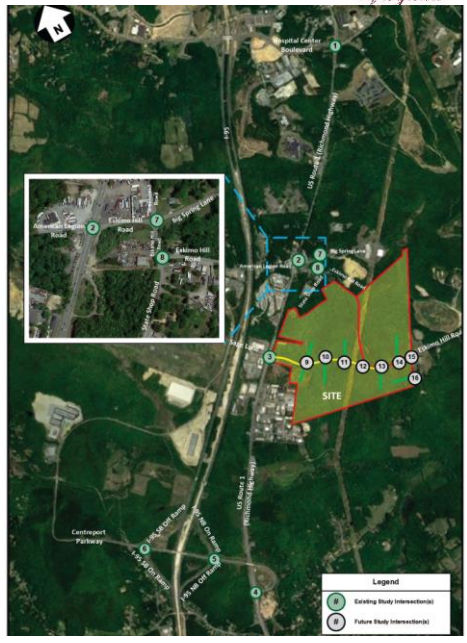
DEVELOPMENT PLAN



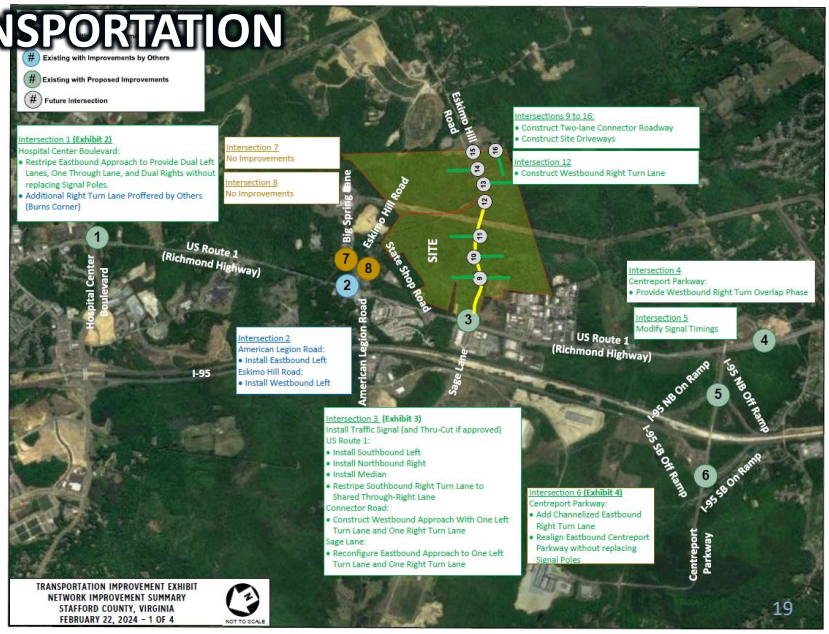
17

Evaluation - TRANSPORTATION

- 4,356 vehicle trips per day
- A TIA evaluated surrounding intersections
- Several mitigation measures identified
- Project would implement recommendations from the Transportation Plan



Evaluation - TRANSPORTATION



19

Evaluation - TRANSPORTATION



20

Evaluation – UTILITIES

- Water demand: Not quantified in the application
- Proffers:
  - require connection to reuse water lines when available to meet cooling requirements.
  - Required to enter into a water service agreement with the County.
- Temporary use of potable water until reuse lines constructed to the site.
- Other off-site water and sewer improvements needed.

21

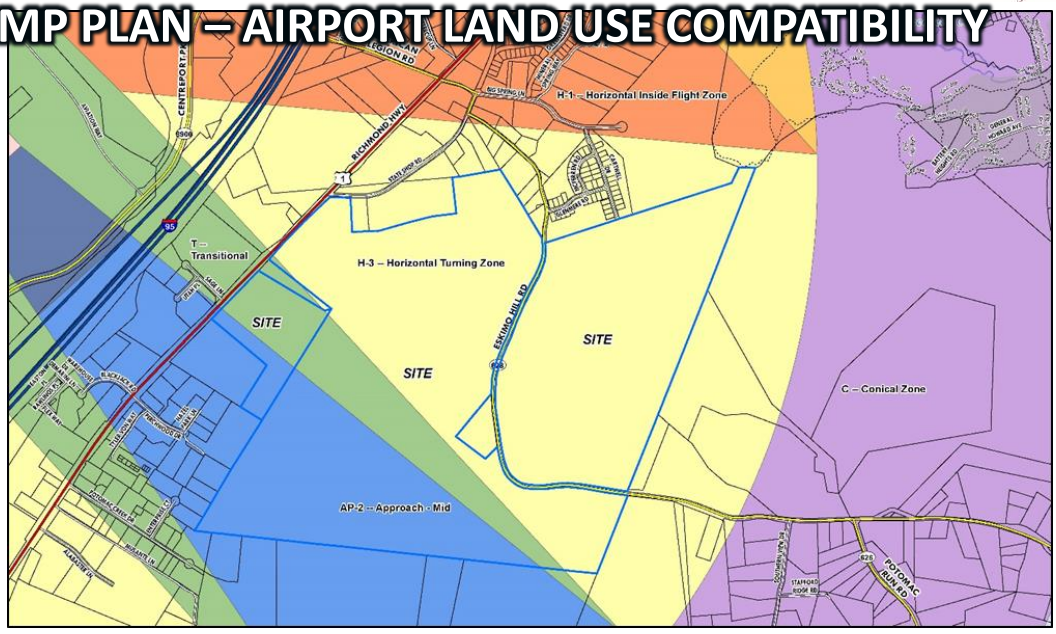
Evaluation –SOUND

- Data Centers have the potential of creating noise impacts
- Proffers:
  - For prominent discreet tones, the Sound Standard shall be reduced by 3 dB(A).
  - Require sound measurements six (6) months after final occupancy permit to confirm compliance.
  - Require a sound analysis prior to the approval of each final site plan for the property.

22

STAFFORD Virginia

COMP PLAN – AIRPORT LAND USE COMPATIBILITY



23

STAFFORD Virginia

BUILDING FACADE TREATMENTS

Data Center Fenestrations, material changes



Change in step-backs, recesses and change in color



Change in height



24

Additional Proposed Proffers

- Require the Property to be developed in general accordance with the GDP;
- Prohibit several uses that would be permitted in the M-2 district;
- Permit building heights of 105 feet, above the max. permitted;
- Permit electric substations on the property, with height and location standards;
- Require a 150-foot data center building setback from the southern property line ;
- Require security fence to be at least 7 feet in height, if provided;
- Establish tree preservation areas;
- Establish fire and rescue standards;

25

Additional Proposed Proffers

- Provide a series of sound mitigation standards;
- Provide a series of Transportation improvements;
- Limit the combined uses on the property to no more than 4,356 vehicle trips per day;
- Pay to repair any damaged wells or septic systems on adjoining residential properties, or pay public connection fees if requested;
- Develop a construction management plan;
- Develop an emergency management action plan; and
- Provide an annual general development schedule if requested by the County.

26

Evaluation – Staff Findings (ZONING RECLASSIFICATION)

- Positives
  - Use consistent with the recommended Business and Industry land use and the full site would be in compliance if the concurrent Comp Plan amendment is approved.
  - The data centers are an appropriate use within the Airport Overlay district.
  - Data centers would be consistent with the adjacent industrial and public facility uses.
  - Buffers and building setbacks would limit visual impacts to the adjacent residential uses.
  - Siting near electric transmission lines limit the need to extend additional transmission lines.

27

Evaluation – Staff Findings (ZONING RECLASSIFICATION)

- Positives
  - The substations would be centrally located on the site, minimizing visual impacts to adjacent properties.
  - Ensures the data centers will use reuse water when available, negating any potential impacts to the County's potable water supply.
  - The planned connector road is generally consistent with a recommended road connection in the Transportation Plan, improving access to the data centers.
  - Promotes Economic Development goals of bringing high paying jobs to the County.

28

Evaluation – Staff Findings (ZONING RECLASSIFICATION)

- Negatives
  - Several transportation issues remain unresolved.
  - The electric substations may be in conflict with the Airport Compatibility guidelines.
  - Taller maximum building heights may create potential visual impacts on adjacent properties.
  - There are no limitations to the amount of potable water that may be used for data center cooling, or corresponding timeframes for the completion of the water reuse line.
  - Sound measurement proffers may not provide adequate standards.

29

Recommendation – ZONING RECLASSIFICATION

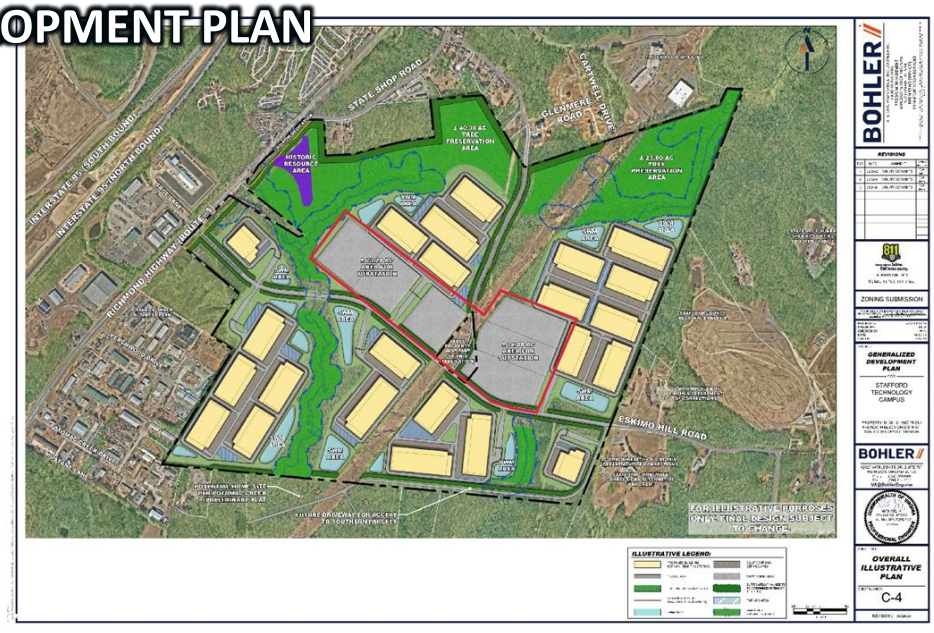
- Although there are several positive aspects, staff recommends deferral of the application (RC23154931), as there are unresolved issues that should be considered.

30

COMPREHENSIVE PLAN COMPLIANCE REVIEW

31

DEVELOPMENT PLAN



32

SAMPLE SUBSTATION IMAGE



33

Comp Plan Evaluation

- *Objective 5.5: Support the expansion of electric and pipeline utilities in a manner that minimizes the exposure of County residents to potential pipeline ruptures and visual impacts and environmental hazards associated with electrical generation transmission, and distribution facilities.*

- *Policy 5.5.4: Electric utility and telecommunication providers should design their systems to minimize electromagnetic field impacts on nearby residential uses, schools, and businesses.*

34

Comp Plan Evaluation

- *Policy 5.5.5: Above ground transmission lines, sub-stations, and switching stations should be sited and designed in a manner to minimize visual and environmental impacts on adjacent land uses. Within the Urban Services Area, the County strongly encourages the underground placement of all electric transmission lines when new lines are installed or existing lines relocated. Above ground transmission lines of 150 kilovolts or more, and associated facilities such as sub-stations and switching stations should provide adequate screening and buffering.*

- *Policy 5.5.6: The County discourages future residential development from locating in the vicinity of existing and future electric transmission lines of 150 kilovolts or more, and associated facilities such as substations and switching stations without adequate screening and buffering.*

35

Evaluation – Staff Findings (COMP PLAN COMPLIANCE)

- Positives
  - Siting of substation immediately adjacent to the existing overhead powerlines eliminates the need to extend transmission lines through the community.
  - The site is located away from densely populated areas, with lower density land uses in the proximity of this site.
  - The proposed tree preservation and setbacks of the substations from the closest residential properties would minimize any visual or other negative impacts.
  - The Comprehensive Plan does not support higher-density residential development in the vicinity of the site.

36

Evaluation – Staff Findings (COMP PLAN COMPLIANCE)

- Negatives
  - Potential impacts to operations sat the Stafford Regional Airport are unknown at this time.

37

Recommendation – COMP PLAN COMPLIANCE REVIEW

- Staff recommends that the Planning Commission defer the request to determine if the substations would pose any negative impacts on the operations of the Stafford Regional Airport.

38

1. COM23154932; Amendment to the Stafford County Comprehensive Plan – Stafford Technology Campus - A proposal to amend the "Stafford County, Virginia, Comprehensive Plan 2016-2036 2021 5-Year Update," adopted on November 16, 2021, as last revised, regarding future land use designations to support higher density commercial development. The proposed amendment would modify Chapter 3.0, "The Land Use Plan;" to amend the maps entitled Figure 3.1, "Urban Services Areas;" Figure 3.9, "Future Land Use;" and Figure 3.13, "Central Stafford Targeted Development Area" (collectively, the "Maps"). The proposal would amend the Maps by changing the future land use designation on an approximately 262-acre portion of Tax Map Parcel No. 38-124 (Property) from Agricultural/Rural to the Central Stafford Targeted Development Area with a land use designation of Business and Industry; and amend the Urban Services Area limits to incorporate the Property into the Urban Services Area. The Property consists of approximately 262 acres, located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road, within the Falmouth Election District.

2. RC23154931; Zoning Reclassification – Stafford Technology Campus - A proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-124 and 38-29A, together consisting of 503.84 acres (collectively, "the Property"). The proposed proffers would: require the Property to be developed in general conformance with the generalized development plan; prohibit specific uses otherwise permitted in the M-2 Zoning District; permit height for data center buildings of one hundred and five (105) feet; permit and establish requirements applicable to electric substations; establish building setback and architectural design standards for data center buildings; establish tree preservation areas; establish fire and rescue standards; establish noise limitation standards; require specified improvements to utilities and transportation; and require plans related to construction management and emergency management and a general development schedule. The Property is located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road, within the Falmouth Election District. **(Time Limit: September 20, 2024)**

3. COM24155687; Comprehensive Plan Compliance Review – Stafford Technology Campus - A request to review compliance with the Comprehensive Plan, in accordance with Virginia Code Sec. 15.2-2232, for the placement of up to six (6) electric substations on Tax Map Parcel No. 38-124 (Property). The Property consists of 476.61 acres, and is located on the east side of Richmond Highway, south of State Shop Road, and east and west of Eskimo Hill Road, within the Falmouth Election District. **(Time Limit: August 11, 2024)**

Mr. Zuraf: Good evening Vice Chair Shelton and members of the Commission. Mike Zuraf with the Planning and Zoning Department. My presentation, if I can have the computer please, for this project, it includes items 1, 2, and 3. So if you, if I may, I'd go ahead through the full presentation of all three items. So this is three separate applications for a single project called Stafford Technology Campus. It includes a Comprehensive Plan Amendment, Zoning Reclassification, and Comprehensive Plan Compliance Review. So the first item is a Comprehensive Plan Amendment. It is a proposal to amend the Future Land Use Plan maps. There are three separate Land Use Plan maps that are proposed to be amended. First, to expand the Urban Services Area map, to amend the Future Land Use map from AG/Rural, Agricultural/Rural to the Central Stafford Targeted Development Area, and a third map modifying the Central Stafford TDA map that pinpoints specific land use recommendations. The second item is a Zoning Reclassification to rezone the subject properties from A-1, Agricultural to M-2, Heavy Industrial Zoning, and includes proffers. And then a Comp Plan Compliance Review, to review compliance with the Comp Plan for the placement of up

to six electric substations. This would all be to permit a data center campus and public facility utility related, and related accessory uses. And I'll go through all this in a lot of detail. So for background, these parcels, two parcels are involved, 38-124, and 38-29A. This covers over 500 acres. It's in the Falmouth Election District. Stafford Technology, LC is the applicant, and Jonelle Cameron is here tonight representing the applicant. The site's located on the east side of Richmond Highway, across from the intersection with Sage Lane. It's also on the south side of State Shop Road and on both sides of Eskimo Hill Road. This is a zoning map of the site and surrounding area. The light green color represents A-1 zoning of the subject property. And then the surrounding zoning includes other A-1 zoned property in all sides, There's some M-1, Light Industrial zoning; that's the light blue shading that is on the western side of the site and a little bit to the north. And then on the eastern side, there's a little bit of M-2, Heavy Industrial zoning. The property has been zoned A-1 since before 1978 and there are no proffers that exist currently on the site. There was a preliminary subdivision plan approved on this property for 145 residential lots; it was back in 2005. That approval is still valid, but there's no development that has occurred for that residential project. The property is undeveloped and wooded. This is an aerial view. There is a high voltage transmission line and easement that bisects the property. You can kind of see that different shading through the middle. That's where the high voltage transmission line is located. The site includes rolling, sloping terrain through the property. There are several perennial streams and wetlands and RPA buffer areas across the site. Those are highlighted in the green shading. Some of the general surrounding uses include some residential and undeveloped uses to the north, and also other residential and undeveloped to the south as well. The Stafford Regional Landfill and also State Corrections Facility is located on the eastern side of the property. And to the west you have an industrial park, auto salvage yard, and other undeveloped land. The undeveloped parcel to the south has, also has an approved subdivision plan for 24 dwelling units. This is known as Potomac Creek Overlook. There, the property owner, though, has submitted a Comp Plan amendment application for that property. So first going over the, in a little more detail, the first item on the agenda, the Comp Plan Amendment. Again, this is the proposal to amend three different maps, and I'll go over those changes or those proposed changes. So the first map would be Figure 3.1 out of the, out of the Land Use chapter of the Comp Plan. This basically the red shaded area highlights the limits of the Urban Services Area. And so the propo… the subject property that is highlighted with the green line, and then the area that where the Urban Services Area would be expanded, it was in the red hatched area, basically on the eastern side of the property. And that area covers approximately 262 acres. The next map amendment request is, so this is the Figure 3.9, the Future Land Use map, also in Chapter 3 of the Comp Plan. This highlights the existing Future Land Use map. Again, the site highlighted in green, the orange shaded area is the area known as the Central Stafford Targeted Development Area. The light green area is the Agricultural/Rural Future Land Use Area. And the red line, that is the current Urban Services Area limit. So the proposed change to this map would expand that Central Stafford Targeted Development Area to the east to include the entire site. And the corresponding Urban Services Area limit would, would change and be expanded to include that area as well. So in the last map being requested to be changed is Figure 3.13. This is the Central Stafford Targeted Development Area map. It's the Future Land Use Concepts within this Targeted Development Area. So this is the current map, and you can see the gray shaded area recommends Business and Industry Future Land Use, and you see the portion of the site currently is outside of that. So then the proposed amendment to this map would expand that Business and Industry Land Use to go along with the proposed new boundaries to the Urban Services Area and Central Stafford Targeted Development Area. With the overall evaluation of, of this item, there are several positive aspects that staff point out. The proposed use is more compatible with the surrounding existing land uses in this area. There are limited public services in this area to support additional residential development such as schools and parks and things like that, and other shopping as well. Also, third point, the proposed extension of the Urban Services Area is unlikely to lead to further extension of the water and/or sewer to other lands outside of the Urban Services Area. As I noted, the area kind of butts up against the regional landfill, so there would be no need

to expand the Urban Services Area to cover that, that area. Also, the proposed use is more appropriate than the current use in the vicinity of the Stafford Regional Airport. Some maps I'll get into show the operations of the airport and how that affects this site. And also the corresponding zoning reclassification proposes to mitigate many of the anticipated impacts. Staff does not see any negative impacts from this proposed land use change, the Comp Plan change, and staff recommends approval of the Comp Plan Amendment pursuant to Resolution R24-187. So now getting into the zoning reclassification, this is the second item on the agenda. This, again, is rezoning the property from A-1, Agricultural to M-2, Heavy Industrial. This application includes a general development plan. This general development plan contemplates up to 23, at least shown on this concept plan, 23 buildings. Those are the yellow boxes on this plan. They are anticipated as data, as a data center campus, which total up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site and avoid the Critical Resource Protection Areas that, and stream corridors that, that run through the property. The plan is showing potential building locations and layouts. With a project of this size, I'll point out that the applicant cannot commit to specific, the specific number of buildings and building locations and sizes as future tenant needs may change as the build-out of this project proceeds out several years. Each building would consist of two to three levels. The two level buildings would likely be up to 65 feet tall. The three level buildings would potentially be up to 105 feet tall. The maximum building height in M-2 is 65 feet in the zoning ordinance. Any structures exceeding that, that elevation would typically require a conditional use permit. The applicant, though, has listed the height exception in the proffer statement as a permitted component of the project. So acceptance of the proffers by approval of this request would allow the applicant to proceed with constructing the buildings up to 105 feet without needing a conditional, separate conditional use permit. The applicant is also proposing to construct a new road extension from Richmond Highway across from Sage Lane and running east to connect to Eskimo Hill – let's see if this works tonight. The new road extension, here's Route 1. It would run across here in this direction and connect up with Eskimo Hill in this, in this area. So that would be a new road network that would be added. Entrances to the data center pods are proposed off the new road and the existing Eskimo Hill Road. The applicant does not propose any, any direct entrances off of Route 1 into any of the specific parcels into the site, other than the main road entrance. Also the general development plan identifies up to six electric substations. They're proposed in the center of the site; the gray boxes in the center in this location. The stations will connect to the adjacent high voltage power line, and that bisects the property. Also similar to the height, I'll note that the electric substation is identified as a use that requires a conditional use permit in M-2. The applicant has listed the use as a permitted use in the proffer statement. And same thing here, that acceptance of the proffers would allow that, that use to proceed without needing a separate conditional use permit application. The general development plan also includes another page that identifies tree preservation areas. Those are the green shaded areas on the site. They also identify landscape buffers to screen the project from residential uses to the north. The tree preservation zones are identified as ranging from 400 to 1,000 feet in width. Mature trees that exist in this area would be preserved as part of this plan. Transitional buffers are proposed, are shown on this… you have a 20-foot transitional buffer adjacent to the landfill and Corrections Facility. On the south side, a 50-foot transitional buffer is, is planned and street buffers of 50 feet in width are proposed along Eskimo Hill Road and the new road connection. So looking at some of the evaluation factors, with transportation, a traffic impact analysis was submitted with the application to determine if the impacts from the proposed use. The development would generate up to 4,365 vehicle trips per day. The traffic study evaluated impacts from the project on the, on several intersections that go up and down Richmond Highway, all the way from Hospital Center Boulevard down to Centreport Parkway, and also the I-95 ramps at the Centerport exit. In the study, several mitigation measures were identified in the, that would be implemented as part of the project. A Transportation Plan Exhibit is included with the application that illustrates the proposed improvements. The project would also incorporate recommendations out of the Transportation Plan Element of the Comprehensive Plan. This includes right-of-way dedication that's recommended along

Route 1, and then also right-of-way dedication along Eskimo Hill Road to allow for future widening and general improvement to those two roads in the future. And also the new east/west road connection is a recommended road segment in our Comprehensive Plan so the applicant is implementing that recommended road segment. This is one of the main pages from the Transportation Plan Exhibit. It just highlights the improvements to be made from, from one end to the other, and it kind of spell, identifies each point and highlights, in general, the improvements being provided. Then also separate pages in the Transportation Plan zoom in on specific intersections and provide more detail on how the improvements would be made at each of those intersections. With utilities, a data center use does require more water than other typical commercial and industrial development. The amount of water needed for the project, it was not identified specifically in the application. There are proffers that are being offered though. The proffers would require connection to a future reuse water line when available to meet cooling requirements. And also, they would be required through the proffers to enter into a Water Service Agreement with the County to help outline the improvements that would be needed to serve this site and surrounding area. The Water Service Agreement would outline how and when the reuse line would be constructed. The reuse line would need to be constructed from the Aquia Wastewater Treatment Plant to out to this site. The previous Potomac Church data center project that was approved, they proffered to construct a line to their site, and so from that Potomac Church data center site you have a one and three quarter mile distance to get to this site. The Water Service Agreement also then needs to be approved separately by the, from the Board of Supervisors. And staff would note, the proffers do not set a limit. First off, I'll note that the temporary use of potable water would be likely until the reuse lines are constructed to the site. I'll note, the proffers do not set a limit on the number of buildings that can utilize potable water. The reuse line is an extensive infrastructure project that will take several years to complete, so staff does recommend some sort of limit be established as to how many projects, how much, how many data centers can really utilize the potable water on this site. And also, other off-site water and sewer improvements would be needed, and the applicant is proposing to construct other off-site potable water improvements that the buildings will still require even if they are connected to reuse. So with sound, data centers do have the potential creating noise impacts. The applicant, the facilities, data center facilities, they require consistent climate control, which is handled with cooling systems that operate more frequently. The uses can generate consistent, low level sound that can be audible from adjacent properties. There are proffers that the applicant has included addressing sound. They have included that for prominent, discrete tones, the sound standard would be, the sound standard that is provided in the proffers and in the County ordinance would be reduced by three decibels. Also, require sound measurements to be conducted six months after final occupancy of the buildings to permit, occupancy permit to confirm compliance with the, the sound proffers and County Noise Ordinance, and also require sound analysis prior to the approval of each final site plan for the property. Staff would recommend additional sound measurement criteria be added, including sound measurements at specific months of the year, and then also requiring some measurements several years after occupancy. You saw the Comp Plan maps already on this. There are other Comp Plan features that affect this site. The site's within the Airport Impact Overlay that is in the Comp Plan as it relates to the Stafford Regional Airport. This identifies specific operational areas around the airport and identifies what land uses would be compatible or not, or might be iffy, within all these different zones. So you see the site highlighted in blue, this area is affected by and intersects with three different airport land use zones. Your bright blue area, the AP-2, that's, that's the approach pattern to the runway. And the green area, that is a transitional zone adjacent to that approach. And then H-3 is called the horizontal turning zone. That's if a plane needs to circle the airport in some way, that's generally where planes will be circling in that area. And so I mentioned the, the land use compatibility, the plan addresses that with, and identifies if uses are compatible or not or require additional review. Data centers would like be defined as needing additional review in the approach zone, additional review in the transition zone, and ident… are identified as a compatible use in the H-3 turning zone. The electric substations are classified in the, in this matrix as vertical infrastructure. This use is defined as not

compatible in the approach zone, not incompatible in the transition zone, and needing additional review in the H-3 zone. These are representative images provided by the applicant depicting the required design features of the buildings. The proffers require buildings incorporate a variety of façade design treatments that correspond with, with these images. Just a quick summary of the proffers that were provided. The proffers require the property be developed in general accordance with the GDP; prohibit several uses that would otherwise be permitted by-right in the M-2 district. Also, as mentioned, permitting the building height up to 105 feet. Permit the electric substation on the property, also requiring a 100-foot data center building setback from the southern property line to help minimize potential noise impacts from residential uses in that direction. Also require security fence to be at least seven feet in height. If provided, established tree preservation areas and establish Fire and Rescue standards. Also, they're providing a series of sound mitigation standards. I mentioned a few. Also, providing a series of transportation improvements, limiting the combined uses of the property to no more than 4,356 vehicle trips per day. That… those number of vehicle trips correspond with up to 5.8 million square feet of data center building area. That's how the two match up. And also, they would pay to repair any damage… oh, that's not this project, that's the other one. Sorry. They would develop a construction management plan, develop an Emergency Management Action Plan, and provide annual general development schedule, if requested by the County. So the overall evaluation of the rezoning – there are positives: the use is consistent with the recommended Business and Industry Land Use in the, in the, and the full site would be in compliance if the concurrent Comp Plan Amendment is approved. The data centers are an appropriate use within the Airport Overlay District; data centers would be consistent with the adjacent industrial and public facility uses; buffers and building setbacks would limit visual impacts to the adjacent residential uses; and siting near electric transmission lines limit the need to extend additional transmission lines throughout the County. Additional positives – the substations would be centrally located on the site, minimizing visual impacts to adjacent properties. The project ensures the data centers will reuse, will use reuse water, reuse water when available, negating the potential impacts to the County's potable water supply. Planned connector road… the planned connector road is generally consistent with the recommended road connection in the, in the Comp Plan and the Transportation Plan; and promoting economic development goals of bringing high paying jobs to the County. There are some negative aspects. There's several transportation issues remaining that are, and concerns raised by VDOT that remain unresolved. The electric substations may be in conflict with the Airport Compatibility Guidelines. The taller maximum building heights may create potential visual impacts on adjacent properties. There are no limitations to the amount of potable water that might be used for data center cooling or corresponding timeframes for the completion of the water reuse line. And then sound measurement proffers may not provide adequate standards. For the recommendation on the reclassification, although there are several positive aspects, staff does recommend deferral of the application because there are unresolved issues that should be considered. In the staff report we basically outline all those, all those issues after this, after the recommendation. So the last item, item three, the Comprehensive Plan Compliance Review, again, this is a request for the Planning Commission to review compliance with the Comp Plan for the placement of up to six electric substations. As mentioned, they're centrally located within the overall property; the gray shaded area shows the locations. They're along Eskimo Hill Road and the proposed extension of Eskimo Hill Road. This is a sample substation image included with the application. The applicant noted the tall structure in the facility are components called backbones and static poles that reach 95 feet in height. So Chapter 2 of the Comp Plan includes one objective and three policies that are specific to electric substations. Staff evaluated how the substations conform to the policies. The proposal is generally consistent with Objective 5.5; the substation is located immediately next to an existing transmission corridor, eliminating the need to extend transmission lines through the community. The facility is located away from dense residential uses, and setbacks are proposed from the closest residential uses to the south and north. On Policy 5.5.4, the application does not necessarily address the electromagnetic field impacts, but other similar applications in the past have noted that Dominion Energy

does site and design their facilities to maximize or minimize, sorry, minimize any impact of EMF levels. Staff is uncertain if there are maximum permissible EMF levels or other measurable standards that address the issue. The central location of facilities, though, on the property should serve to minimize EMF impacts on adjacent properties. Regarding Policy 5.5.5, the mature tree cover being preserved to the north and proposed buildings and setbacks to the south would help to provide screening of any new overhead lines. The substation infrastructure will likely be visible, though, from Eskimo Hill Road; the tall structures within the facility, as mentioned, the static poles at 95 feet. It has been noted that the uses identified as incompatible in two of the airport zones that bisect the site. The proximity of the potential substation locations to these incompatible areas and the potential impact on the airport operations should be explored in more detail. With Policy 5.5.6, the site is primarily surrounded by non-residential uses to the east and west. A relatively new residential development, Kendall Hills, and a few other residential parcels are located to the north. A few existing residents in a planned larger, large lot subdivision are located to the south. Staff would note the Comp Plan recommends Business and Industry in Ag/Rural Future Land Uses in this area which does not support other future higher density residential development. With the evaluation of item 3, there are positive aspects. The siting of the substation immediately adjacent to the existing overhead power lines eliminates extensions of transmission lines. The site's located away from dense populated areas with lower density land use in the proximity. The proposed tree preservation and setbacks from the closest residential properties will minimize visual or other negative impacts. And the Comp Plan does not support higher density residential in the future in this area. With the negative, the potential impacts to operations at the Stafford Regional Airport are unknown at this time, and because of that, staff recommends the Planning Commission to further request to further determine if the substations would pose any negative impacts on the operations of the airport. And that concludes my presentation.

Mr. Shelton: Questions for Mr. Zuraf? Ms. Barnes?

Ms. Barnes: Okay, just a few. At some, at one point I remember the proffers said that the GDP was proffered. So it's proffered, but there's a couple of outs, correct? So it's proffered, except for we don't know how many buildings. It's proffered, the GDP is proffered, except for we don't know exactly how tall the buildings are going to be. It's, the road connection between Route 1 and Eskimo Hill is proffered, but we don't really… well, and I'm not sure if that's even proffered; it was kind of loose in there. So what… why, why is there some question about that road that could possibly be connected?

Mr. Zuraf: Yeah, the proffer related to the road extension does mention… it includes, one of the provisions does say if, I guess since that road does have to cross a perennial stream with wetlands and, and environmental features, so if there's any issues there, I guess the applicant wanted to kind of have that caveat that if there's any issue with a, if they're unable to get approval from the County or VDOT, that they would make other improvements to Eskimo Hill Road and then do a future traffic study to see what the impacts would be at Eskimo Road and the intersection up towards Route 1.

Ms. Barnes: So, when they say the GDP is proffered, then what exactly is proffered in that GDP?

Mr. Zuraf: I think that generally it's going to be the buildable areas, and then that one image that identified the preservation areas and your buffers.

Ms. Barnes: Okay, so we, do we have a… those buffers, do we have a… those, those preservation areas to the north, it looked quite extensive. Do we know how wide they are and is that proffered, or is that proffer then adequately covered in saying that that's going to be where it is on the GDP?

Mr. Zuraf: Right. Yeah, it does. It ranges anywhere from 400 to 1,000 feet from the properties to the north.

Ms. Barnes: Okay. Another big thing that I noticed, it says that they are going to use the recycled water the quote, unquote, purple pipe when it becomes available. Is it and if it becomes available as well? That seems… that makes me nervous.

Mr. Zuraf: Well, there, yeah, there's, there's a proffer that states that the applicant has to enter into a Water Service Agreement, and that's going to focus on the on the reuse line, but that's…

Ms. Barnes: So if it, for some reason, doesn't become available, then we've got possibly 23 buildings using potable water at some point in time. That's a possibility.

Mr. Zuraf: Well, potentially, but I'm sure there's probably going to be some capacity issues that would really potentially hamper the full, you know, use of the entire site with potable water.

Ms. Barnes: So that gets in… that get's into my next question is, we suggested, you suggested that we have a limit on I don't, I don't remember if it's the number of buildings that you want to have up while we're using potable water, or is there going to be a cap on the amount of water that they can use before they start to really stress the system.
Mr. Zuraf: Some sort of cap, whether it's the volume or square-footage, it probably would be the appropriate way…

Ms. Barnes: I know, those things that we're still working out at this point.

Mr. Zuraf: Yeah, and actually, we have the Director of Utilities here who can maybe talk a little bit more about all of that.

Ms. Barnes: Okay.

Mr. Edwards: Hello. My name is Chris Edwards, Director of Utilities. I guess, first and foremost the question of if there is a recycled reuse system. If you guys remember when we did the Potomac Church rezoning, the applicant for Potomac Church did proffer to build a reuse water facility. We are working actually through our Water Services Agreement with them, where they are, you know, still, they still agree to build a reuse water facility that would serve their site and potentially serve the Stafford Technology Campus. One of the things that, you know, we also anticipate as we work through the Water Services Agreement, the Water Services Agreement will have a cap on the maximum number of buildings or a maximum square-footage or, you know, availability of water that would be provided before potable water prior to us connecting it to reuse.

Ms. Barnes: Is that something that… is that information going to be made available to us, or maybe the Board of Supervisors at some point in time, or is that to be worked out after all of this either goes, goes through?

Mr. Edwards: I think, you know, moving forward, we will probably have, you know, the, most of the conditions of the Water Service Agreement, or some of the conditions of the Water Service Agreement, including the cap, agreed upon, you know, as it moves through this process.

Ms. Barnes: But we don't know what that is right now.

Mr. Edwards: We have a draft water ser… we have started to put together what we think would be a draft Water Surface Agreement that does have a cap in it right now, with the condition that a number of the potable water improvements are complete before they connect to potable water.

Ms. Barnes: Okay.

Mr. Shelton: Go ahead, Ms. Sellers.

Ms. Sellers: So is it based on the square-footage of the building, or is it based on the, the amount of equipment that, that's creating the heat? I mean, what are we basing the water usage on?

Mr. Edwards: We'll most likely put a cap on the amount of water usage. It won't be probably tied back to the number of buildings, since, in this case, the building size varies, you know, somewhat. So we will probably tie it back to a square-footage that allows them to develop. And so we know, by per square-footage, how much per square foot, how much water is used. So the amount of water will be tied back to a square-ootage of the building.

Ms. Sellers: Independent of whatever they have in the building?

Mr. Edwards: But you make… yeah, well, you make these, you know, you… they kind of know per square-footage how many… *inaudible*… are going to be in each square foot. That is something they've actually been able to provide the County as we've gone through this process.

Ms. Sellers: Okay. Because, I mean, in my mind, and I'm a social worker by training…

Mr. Edwards: Okay.

Ms. Sellers: … so let me tell you, typically, I'd have to say, how many iPhones is that.

Mr. Edwards: Yeah.

Ms. Sellers: That's my understanding of technology. But it's the technology that's creating the heat that's requiring the water is my understanding.

Mr. Edwards: Yeah, and you know how much, you know, technology they can get per square foot.

Ms. Sellers: Okay.

Mr. Edwards: And that you know how much heat, so you know how much water they're going to need per square foot. So if we cap the amount of water, and then you know how much water per square foot, then you can kind of, you know, enter, you know, make the estimate on how many square-footage, or how much square-footage we can provide water to, and put that cap based upon square-footage, correlating it back to water.

Ms. Sellers: So we also thought maybe about not just a cap, but looked at what is our ability to build out this, the, the capacity, because I don't know what capacity we have in that area, wherever this water is

coming from, but to build that out and tie it to some sort of phasing agreement that we would see in other commercial type of developments. So that we're not just placing a cap, but we're saying we're going to phase this development and phase the water usage so that we can… I'll use the word phase again… but you can sequence it in a way that, that, that everybody kind of knows when things are going to come on, come online, so that Dominion knows when they need to have the substation up and running, and the water is there, and.

Mr. Edwards: Yeah, and it's my understanding, I mean, there, there is a, you know, phasing plan. I mean, the goal with the reuse facility is to have that complete within the first year to two years of after construction begins, or after, you know, buildings start to come online. Once we're able to get the reuse line there, um, there won't be a question of, you know, how much water is needed. We should have more than enough reuse water for this, for this project.

Ms. Sellers: Okay. And even with the water, the new water that they're going to need in the beginning, it's my, it was m understanding from my years on the Board that they would have to pay for that anyway. I mean, it's not free water. They're going to have to pay for that capacity upgrade. And so…

Mr. Edwards: Yeah, they will make that capacity upgrade. And then they will, you know, that will be potable water. Once the reuse water line is there, they will go back to all the existing buildings, reconnect those to reuse water, and then all new buildings will also go on reuse water.

Ms. Sellers: Okay.
Mr. Shelton: Additional questions?

Ms. Barnes: The reuse line, it's going to be hooked up to Potomac Church.

Mr. Edwards: Mm-hmm.

Ms. Barnes: And then from Potomac Church to this project, that's, that's on the County, right? The County is going to be building that.

Mr. Edwards: No ma'am, that will be run by, you know, by the applicant, or, you know, by the previous applicant for Potomac Church from Aquia Wastewater Treatment Plant by the Potomac Church site to the STC site. So the County will not need to make, you know, they will not expend any funds to get reuse water down to the applicant's site.

Ms. Barnes: So the applicant is paying for offsite improvements to get the purple pipe to the the campus.

Mr. Edwards: Yes. I mean, a long story short, like I said, the County is going to be, you know, expend, you know, is not going to spend, expend any funds to construct the purple pipe to the Stafford Technology Campus.

Ms. Barnes: Okay.

Mr. Shelton: Additional questions?

Ms. Barnes: I have a few more for Mike, but I can…

Mr. Shelton: I have a couple, Mr Edwards, I'd like to ask you. If I understand what you're saying, you have not finished your utility impact study. Is that correct?

Mr. Edwards: We, yeah, we are, we're finalizing. Actually, it will be something that we present to the Board at the end of the… in the next couple of months. But it is a overall water, it's a reuse master plan that will be incorporated into our water sewer master plan that will have all of these improvements in it.

Mr. Shelton: So for the benefit of the public that's in the audience, what impact could this potentially have on water distribution? And I know what, I don't believe anyone's here from Dominion, but out of those two utilities, what potential impact would that have on our citizenry?

Mr. Edwards: You know, after, you know, after reuse water is brought to the site, there actually will not be any, you know, additional impact in, there won't be any impacts to the, you know, water or sewer capacity to our citizens for the potable water that they're provide, being provided for for the first year or two. They are making improvements to make sure that our citizens don't have long term or any impacts.

Mr. Shelton: So we're saying that Mooney Reservoir is capable of supplying adequate water to that geographical area.

Mr. Edwards: Yes, and…

Mr. Shelton: With no limitations.

Mr. Edwards: Yeah, we're, we right now, you know, going through, you know, all the calculations, it does not appear that, you know, Lake Mooney will have any negative impacts because of the project.

Mr. Shelton: Thank you.

Ms. Barnes: One more question, I'm sorry. I remember listening to a work session a couple weeks ago between the Board of Supervisors and I believe it was you, I don't remember… we are working on a drought plan. And the reason why I'm asking this is because if we do go through something like a drought, I remember that there was a series of, you know, who, who gets to go without first.

Mr. Edwards: Yeah.

Ms. Barnes: Can you just explain a little bit about that? Because one of the questions I'm getting is, if we have a drought and if we have water restrictions, do we restrict our uses so that the data centers can have the water, or is it going to be the other way around?

Mr. Edwards: Okay. So, number one, the drought management plan, that was a response. It's actually going back to Lake Mooney. We had to update our, you know, it's been 15 years since that was finished. So we had to update our… *inaudible*… permit there. It is a state mandate that we have a drought management plan. So the drought management plan, number one, was brought to the Board because it is a requirement by the state. But kind of, you know, as you remember, the presentation was three or four slides. The slide on there, you know, had, if the state like is in a drought watch or drought warning, the water levels of either Lake Mooney or Smith Lake, it actually requires two of the three. If they get past a certain level, we will go through voluntary water restrictions for residential customers, then voluntary water restrictions for commercial customers, then mandatory for residential, mandatory for commercial. You know, last year

was one that, you know, one of the highest droughts of records or one of the driest droughts of records, we still would not have gone to water restrictions last year. So what would end up happening is, we would, you know, ask, you know, if, and as I told Mr Shelton, you know, when we went back through it, even with the demand from a data center, we would not have gone to water restrictions last year. But the way that it would work is just like, you know, like we laid it out, we would have voluntary restrictions for residential, then commercial, and then mandatory for residential, then commercial. But we are not, you know, anticipating over the two year period, you know, hitting either voluntary or mandatory restrictions. But, you know, we could hit the next drought of record, and something does happen. I can't say without certain, with all certainty, but we do not anticipate going to restrictions with our existing water supplies.

Ms. Barnes: Okay, thank you.

Mr. Edwards: Yep.

Mr. Shelton: Any additional questions? Mr. Zuraf, I have one question. What has the Airport Commission said about the 105-foot building and the 95-foot structural thing for the electric distribution system? Do we have a letter from the Airport Commission condoning or questioning? I noticed you went over two or three different things about the glide path and that aspect. And for a person who worked aviation, crash Fire Rescue for 25 years, glide path is essential that we not have any obstructions.

Mr. Zuraf: Yeah, we we notified the Airport Authority of the of the applications, of the initial applications, which included the rezoning and the Comp Plan amendment. We did not get any input on or response on that aspect, which would have included the height. The issue of the substations, that application was submitted later in the game, and I don't think that was sent to them. So that was something we've, we've discovered very late, the issue of that incompatibility. So we do need to re-reach out to the Airport Authority again and, and make them aware of this, and just confirm they're, or see if they have any more specific information that they can provide us.

Mr. Shelton: Thank you very much. Any additional questions?

Ms. Barnes: I have one more.

Mr. Shelton: Yes, ma'am.

Ms. Barnes: Mike, we said, we said something about develop… in the proffers it says, develop a construction plan, but we don't know what that construction plan is, but it's proffered. Or do we do?

Mr. Zuraf: Was that referring to construction mitigation plan?

Ms. Barnes: Yes, yes.

Mr. Zuraf: Yeah, that would be something that would happen later, as they're getting into, actually, how the site is going to be developed, and they, they get into their phasing. And let me find that language. But it essentially is, it's something that happens, and it's typically something that is done at a later point in the game, when they're knowing more specifically where their access will be and where impacts may be.

Ms. Barnes: So we haven't, we haven't really nailed down whether they're gonna, they're gonna access this off of Eskimo Road, or if we're going to have access off of Route 1.

Mr. Zuraf: There potentially could be either way. Initially, it could be from both directions at first and, because it is phasing for the, the connection is through the proffers phased to happen at a later point.

Ms. Barnes: So there's a possibility that we could have a lot of really heavy construction traffic that does that little zigzag on Eskimo Hill, around the corner there and pass some of those houses.

Mr. Zuraf: Yes.

Ms. Barnes: Okay, thank you.

Ms. Sellers: *Inaudible, microphone not on*.

Ms. Barnes: I don't know that I can say it again. There's a possibility that we'll have heavy construction, very large trucks coming off of Route 1 at where it's, I think it's Foreign Legion Road is on the west side, and Eskimo Hill is on on the east side. And then you go through Eskimo Hill, and there's that, that zigzag that goes, I mean, it's a, it's a funky little zigzag. I don't think it was ever intentioned for, or intended to be used for really heavy construction equipment. I know that the dump is there, but this is, this is a pretty heavy industrial construction plan. So it concerns me that that is a very, I don't even think there's a… is there even a line on that zigzag that goes around there? *Inaudible*… the line broke?

Mr. Zuraf: I believe so.

Ms. Barnes: Yeah, so, I mean, that's a… I'd like to see some, some construction mitigations a little bit more firm in where that's going to come in, how it's going to come in, and if that we possibly can get it to come in from Route 1 rather than doing that. Does that make sense? Okay.

Mr. Shelton: Thank you, Mr. Zuraf. Would the applicant come forward and speak?

Ms. Cameron: Good evening. My name is Jonelle Cameron with Walsh, Colucci, Lubeley and Walsh, here tonight on behalf of the applicant, Peterson Companies. With me is Taylor Chess and Kevin McHugh with Peterson, Michael O'Shaughnessy, our civil engineer with Bowler, Kevin Sitzman, our traffic consultant with Grove Slade. Mike goes first, so a lot of my presentation is a repeat, so I will go through that pretty quickly, but I do have some exhibits that I think would be helpful based on the comments and conversations that you have asked Mike. So I will walk through the presentation. We have some line of sight exhibits to show you. I will then talk about the recommendations that were in the staff report for deferral and how we think that that has been adequately addressed, and I have some exhibits to show you there. And then I will end with proffer changes. So we provided updated proffers to staff last week before the staff report was dispatched, but those were too late to be incorporated into the staff report. But I do believe some of those proffers specifically address some of the comments that we have received after meeting with several of the Planning Commissioners over the last couple of weeks, and specifically Commissioner Barnes, some of those also get to the construction management plan. As Mike mentioned, the property is a little less than 504 acres in size. It's located east of Route 1 and west of Eskimo Hill Road. The property is currently zoned A-1. This is a request for a reclassification to M-2, a Comprehensive Plan Amendment, and a Comprehensive Plan Compliance Review for the substations. This slide, Mike went over in great detail that shows the Comprehensive Plan Amendment area. And as you can see, again, a portion of the property is within the Urban Service Area. There's about 262 acres that are outside of the Urban Service Area, so we are seeking all of the property to be located within the Urban Service Area and then designated as Central

Stafford Targeted Development Area. This slide is the General Development Plan that Mike went through in great detail. As part of this proposal, the applicant is seeking a floor area ratio of 1.0; however, we have limited the uses to not exceed 4,365 average vehicle trips per day, and that is a data center campus and associated uses of approximately 5.8 million square feet. The applicant has proffered 25% of open space on the property, and the applicant has committed to a minimum of 63 acres of preservation areas on the property. You can see those areas in green on the screen. A large part of this proposal and transportation improvement is a connection from Eskimo Hill Road to Route 1. This is what we're calling in the proffers, the connector road. And as Mike mentioned previously, the County's Comprehensive Plan did call for a connection between Eskimo Hill Road and Route 1. This slide is an illustrative of the building elevations, and it shows the landscaping. So as mentioned, the applicant is proposing a 50-foot buffer to the south adjacent to the vacant properties that are currently planned for residential. There is one property that's zoned M-1 to the south, so there will be a 20-foot buffer. We are proposing 50-foot buffers adjacent to Eskimo Hill Road, that new connector road, a 50-foot buffer adjacent to Route 1, a 100-foot buffer that would be preserved adjacent to the residential to the north, and then 20-foot buffers adjacent to the landfill and the Virginia jail. The applicant has proffered that no data center building or equipment yard can be located within 150 feet from the residential properties to the south. As you all are aware, the Board adopted new standards, both Comprehensive Plan standards and Zoning Ordinance standards for data centers. This property was grandfathered from those standards, but the applicant has incorporated a majority of those standards, both from a architectural standpoint, but also layout standpoint, fencing and screening. So the applicant has proffered to screen ground level and rooftop mechanical equipment. The screening may be provided by a principal building, existing vegetation, berms, landscaping, a visual solid fence, green wall or panel, parapet wall or other visually solid screens shall be constructed of materials generally compatible with those used in the exterior construction of the buildings or a combination thereof. As a request from a few of the Planning Commissioners, what you all have in the revised proffers, the applicant has mimicked the architectural standards that you all recommended approval for, for the Potomac Church data center project. So our updated proffers mimic those design standards. The applicant has also committed to conducting sound studies prior to site plan approval, and which is proffer 18, and committed to certain noise requirements, which is proffers 14 through 17.

Mr. Shelton: Excuse me for one moment. What's the dBA output?

Ms. Cameron: Fifty-five. So the applicant, um, part of the data center recommendation, although if you are adjacent to residential, it's 60 dBA in the zoning ordinance. The applicant has limited if you are adjacent to residential, that noise that hits that residential cannot be louder than 55 dBA in the day and at night.

Ms. Sellers: I have a question for you. While you have this up, this tree preservation area here, these are going to be evergreens I'm assuming?

Ms. Cameron: That’s the existing trees that are out there today. So it's a mix.

Ms. Sellers: Because you do have some residential homes right here. That would put some sound barriers between those.

Ms. Cameron: So, these residential homes here, the buildings, I will show you some line of sight exhibits. I think those are helpful because they show you the distance from the nearest home to the nearest building. And there is plenty of distance in between those, and we can walk through that.

Ms. Sellers: Okay.

Ms. Cameron: As part of the proposal, the applicant proffered several transportation improvements. Mike pulled this up earlier, but I do want to focus on the main transportation improvements with you all. At Route 1 and Hospital Center Boulevard, it's about 2.4 miles away from the site. The applicant proffered to restripe the eastbound approach on Hospital Center Boulevard to provide dual left turn lanes, one through lane, and two right turn lanes, and if required to modify the signal. With these improvements, the overall, the overall intersection changes from a Level of Service E in the future condition without our development, to a Level of Service D in the future with this development, and that's for the AM peak hour. And for the PM peak hour with this improvement, it's currently a Level of Service F in the future without this development, and this improvement would make it a Level of Service E. Many of the improvements were focused at the access to the site. So at Sage Lane and Route 1, the applicant proffered to provide a dedicated left and right turn lanes into the site on the connector road. They proffered to restripe the southbound right turn lane on Route 1, to provide a shared through right turn lane extending from Sage Lane to Blackjack Road, and to install a traffic signal. On Sage Lane itself, the applicant proffered to provide curb and striping modifications to not allow for through movements to the connector road, so you can only do a left or right from Sage Lane onto Route 1. And the benefit of that is it helps with that overall intersection, and it's less phasing that happens instead of having two throughs through that movement. At Route 1 and the I-95 ramps, the applicant proffered to provide striping to channelize the right turn lane and provided signal timing modifications. And we have had a lot of questions about the water line. I think this exhibit is helpful. Commissioner Barnes, you had questions about where it extends to and where it doesn't extend to. So as part of this proposal, the applicant is creating a new port potable water pump on Centreport and a new water line that crosses from Centreport and connecting to Route 1's existing line, so that new water line that you see, that's that water line in blue, and this water line is tapping into the water availability for Lake Mooney. The applicant is connecting a dedi… is connecting to a dedicated reuse line. That's that purple line that you see. Until the reuse water is available, there will be a limit on the number of buildings and potable water supply that can be used for cooling systems to ensure that there is not a negative impact on the residents of Stafford County. In addition, the applicant will be connecting to a specific sewer return line so they are not tapping into any existing sewer infrastructure going to Aquia Wastewater Treatment Plant.

Ms. Barnes: Can you go back to that slide again?

Ms. Cameron: Yeah, absolutely.

Ms. Barnes: A little clarification on that blue line, which is on the line from Centreport. So, that, that's been on the County CIP for, for a while, hasn't it?

Ms. Cameron: And the applicant is paying for that.

Ms. Barnes: Okay.

Ms. Cameron: So that will be an applicant payment for that line.

Ms. Barnes: Okay, thank you.

Ms. Cameron: You're welcome. And this slide shows distances. So to get to the properties to the north, so there's about 800 feet. And I'll start, I always break this thing, so I'll start here. This one is 800 feet from this building to the nearest residential. It's 850 feet from that building here. And then we have about 1,250

feet here, sorry. And then there's about 1,000 feet in this area in here. And then to the south, it's 500 feet. And this property here, it's 500 feet, and about 425 feet here.

Ms. Barnes: Okay, and just to clarify, because if I were the people living up there in those houses in the north, I want to make sure. That's the tree preservation area…

Ms. Cameron: Tree preservation area.

Ms. Barnes: Okay, and it's, it's not going anywhere. I mean…

Ms. Cameron: It is not going anywhere.

Ms. Barnes: It's absolutely in stone that that's going to remain there in perpetuity.

Ms. Cameron: Yes. Now there are some exceptions if we have to connect, like the sewer line and water line. It would go through that tree preservation area. But that tree preservation area is staying. It is shown on the general development plan as outside of the limits of clearing and grading.

Ms. Barnes: Okay, so, and if you, if you do have to do, do the connections that you just discussed, would that, would that, where it goes through. would that be re-landscaped then? Would it be turned…

Ms. Cameron: So, depending on the utility… so, you can't necessarily plant trees, but we might be able to plant shrubs or some other plantings over that. But we're not anticipating that it would be large swaths. For example, it's not going to be the large transmission line…

Ms. Barnes: Yeah, yeah.

Ms. Cameron: … running through there.

Ms. Barnes: Okay. And you are, and you are able to get in there to do safety things, like, if there are trees down, or…

Ms. Cameron: Yes.

Ms. Barnes: … is this like, are you treating it like an RPA?

Ms. Cameron: So we've said if, like, there are dead, dying, or noxious trees that might be a detriment to the data center building where it looks like it's falling, then they can remove those. But the goal is that it would remain in place. Some of it is within the RPA, so we wouldn't touch that. But if it's outside of the RPA, our goal is let it stay, but if it's a danger or harm, then we would remove it.

Ms. Barnes: Okay, thank you.

Ms. Cameron: You're welcome. And then in the next few slides, I just have some line of sight exhibits that better depict what people would see from a distance. So this is section AA, which is circled, and that is about 294 feet from the property line. The next one is 195 feet from the property line. Into the north again, that's about 800 feet from the building to building. That's about two football fields away. This is again

about 850 feet away, two football fields away. And we have this from building to building, and it's about 3.48 football fields away, so over 1200 feet away.

Ms. Barnes: How tall is that building that's on the left there. Is it 105, or…?

Ms. Cameron: So, these are all shown as 105 feet. So when you're looking at the line of sight, what you see is a home. The HOA property has landscaping. You see the vegetation to remain. So we start with the home, the HOA landscaping, the vegetation to remain, and then in this instance, we have the transmission line easement, open space, a drive aisle, and then you get to that building. So their visual impacts are going to be minimal, if at all, because of the landscaping and the distance in between. And then we do that again on this slide as well. So you have the home, the HOA property, vegetation to remain, and then we have the transmission line easement, additional vegetation to remain, open space in between the drive aisles, the drive aisle, and then you get to that building. So from a visual impact perspective, we're not anticipating that the people to the north would be able to see the buildings.

Mr. Shelton: Question.

Ms. Cameron: Yes.

Mr. Shelton: Back up…

Ms. Cameron: Absolutely.

Mr. Shelton: … to that one slide. So we're saying that the topography of where the transmission lines are in the lower level. Is that correct?

Ms. Cameron: Yes.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome. And then we have a couple from the south, assuming that there would be homes there based on the approved subdivision plan.

Mr. Shelton: Okay, clarify, 105 feet does not include the dog box, does it?

Ms. Cameron: It does not.

Mr. Shelton: So how tall is the dog box?

Ms. Cameron: We don't have that; usually it's 15 to 20 feet, but I can get that exact answer for you.

Ms. Barnes: Clarify,what is a dog box?

Ms. Cameron: It's this, it's… he's talking about…

Mr. Shelton: A utilility access.

Ms. Barnes: Okay.

Mr. Shelton: So, in other words, we're saying we're going from 105 feet up to a potential of 125 feet. Am I correct?

Ms. Cameron: Potentially, yes, and that would be for parapet wall and screening. So what you would see wouldn't be the mechanical equipment, but potentially the mechanical wall and screening.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome. And then this is the final line of sight exhibit. As part of the proposal, we do have Comprehensive Plan Compliance Review. I think Mike went over this in great detail. I do have in a couple of slides just to walk you through what we've already done with the FAA for the height, so I do want to show you all that. This is the substation rendering that was submitted as part of the Comprehensive Plan Compliance Review application.

Mr. Shelton: Is that one of six? Or is that…?

Ms. Cameron: Yes, this shows one of the six, just what that would look like. Thank you for that clarification. And I wanted to walk through with you all, staff had some recommendations, or, I would say, reasons for their recommendation for deferral. And I wanted to walk through each of these with you all, because we do feel like they were adequately addressed, either previously or with the proffers that we did submit to staff that you have in front of you today. So the VDOT comments requested modifications to several of the mitigation measures and asked for additional other information. So in the next couple of slides, I'll just walk through you, with you all what VDOT was asking for and how we think we've adequately mitigated our impacts. So, for this slide, VDOT essentially wants there to be a sixth right turn lane. So he wants this, they want this right turn lane here. And that right turn lane was already proffered by the Burns Corner development. But what subsequently happened is that 7-Eleven was constructed. And so in order to make a sixth right turn lane, you would impact the existing 7-Eleven, and there is a grade difference there. But as I mentioned to you all previously, we are mitigating the impacts, and we are making that Level of Service with what we've proposed better. And we thought it would be helpful maybe to show a graph that shows what that actually looks like. So the first two here, this is the existing Levels of Service today. So what the Level of Service is without this proposal today, and what you see is the delay is a Level of Service F, essentially. So this is the AM peak is yellow, and the PM peak is blue. And if you look at the future in 2030, without our development, that shows the delay. And then the total future with the development shows that we're decreasing that Level of Service, and we're bringing it back down from an F to an E in the PM peak hour. The next slide pertains to additional requests at Sage Lane and Route 1. Essentially, the comment from VDOT was you'll have to do a signal justification warrant when you do your signal and that is something that's a requirement anyways. So anytime you're proposing a signal after your project is approved, at the time of site plan, you have to submit a signal justification to the County and VDOT. And VDOT will review the justification and say, yes, we believe that a signal is justified. Recently, VDOT has been trying to get away from signals, and they've asked if people can look at alternative intersection designs. And what we did, and have proffered are the no through cut here and here, and to do that in advance of the signal, which helps with that intersection. So what we've done is, if… so if this didn't exist today, what you'd be able to do is make, go through. So you'd be able to go straight, and then if we didn't have that with our development, you would be able to go straight that way. And what happens is that gives you an additional traffic phasing. So essentially, everybody would have to stop at Route 1, and then there would be a Sage Lane phase to go left and right, and then there would be – and I might have our transportation person come just to make sure I'm saying it correctly – and then coming out, there would be

a separate phase. So by only allowing the lefts and the rights, you're getting rid of a phase at that traffic signal. So the through lanes are able to move through quicker. And really what you want to do is move people on Route 1 as fast as you can.

Mr. Martinez: How much time does that usually save? If you add the throughput?

Ms Cameron: Twenty-five seconds or so.

Ms. Sellers: *Inaudible, microphone not on*.

Ms. Cameron: Yes, that too. The next comment was at Route 1 and Centreport. One of the comments that VDOT asked us for is to look at potential improvements at Centreport, Route 1, and Enon. And Enon was not part of the scoping study that we had to provide. And what we're showing you on the screen is the improvements at Centreport and Route 1, which is further from our site. Those improvements are actually not changing the Levels of Service, so we're keeping the Levels of Service the same. And so normally what happens is, as long as you're not degrading the Level of Service, you don't have to make any additional improvements. The next staff recommendation pertain to Eskimo Hill Road. And staff mentioned, and Commissioner Barnes, you had questions about Eskimo Hill Road. So the property will be phased with the construction starting at Route 1, moving towards Eskimo Hill Road. Because of the need to go over the RPA, it requires both state and federal permits. And what we proffered was that in the event we cannot do the connector road, so we cannot get permission to do the connector road, the applicant is going to make improvements on Eskimo Hill Road that are in, in alignment with the Comprehensive Plan. So the Comprehensive Plan outlines improvements on Eskimo Hill Road. In addition, we have proffered that we would do a Traffic Impact Analysis again to see what the impacts are to Eskimo Hill Road and make any transportation improvements that are recommended in that Traffic Impact Analysis that would be reviewed and approved by VDOT.

Ms. Caudill: Does that… sorry. Does that mean that all the potholes will stop being potholes on that road?

Ms. Cameron: We would have to pave it as well, yes.

Ms Caudill: Thank you.

Ms. Cameron: You're welcome. The other comment pertained to the Eskimo Hill Road, as we're showing it. It currently goes through, sorry, I can't draw well, it goes through this property here, which is owned by VEPCO. The County Zoning Ordinance specifically has a section that said, if any lot is realigned or is reduced because of a realignment of the road, so we believe that this is a new road that would be accepted into the state system, that lot would then become non-conforming. And so we don't think that there is an issue with the road going through the A-1 lot. However, we have been in conversations that property is owned by Dominion. With Dominion, they are aware of this road alignment, and actually were willing to have their property added into this rezoning application, but it was too late in the process, and we didn't want to delay the process. So if we have to come back to rezone that small portion of the VEPCO property, we would be willing to do that. But I don't think it's needed based on the section that allows for a road to go through an A-1 property or any property. This is a repeat. It was also staff's recommendation about Eskimo Hill Road not being mitigated. So I talked about that with you all. The next comment pertains to staff's recommendation for the inter-parcel connection. So currently we are showing the inter-parcel connection here, and what staff would like is a direct connection like this. And that direct connection cannot occur because of the secured facility and the fencing that is required. We also don't think it's safe to have

a four-way stop. It's safer to have a three-way stop than a four-way stop, which would be what is here. It's really hard to tell at this scale what the dimensions are, but from the property line to the right-of-way that we're providing, it's 25 feet. So essentially, say from here to here is 25 feet, and then there's right-of-way that's being provided. That right-of-way width is going to be 60 feet. That right-of-way with the road itself is only required to be 24 feet, and usually there's a 6-foot shoulder on each side. So that's a 36-foot wide width. So that gives essentially 24 feet or so to play with for a grading. So we do not believe that there would be an impact to the 50-foot buffer that's on the other side of the right-of-way. *Can you help me? I don't know how to get rid of what I did. Sorry. Thank you.* The staff recommendation pertaining to the substation location, so staff went over the various approach zones as you get to the airport. As part of the proposal, you are required… as part of a development, no matter if it's by-right, or if you're going through a rezoning, you have to get FAA approval, and there's a form that's called No Hazard to Air Navigation. And what that form said, what you have to do with that form is you have to show the buildings and a finished floor area and the height. So we submitted for each of the campuses a No Hazard to Air Navigation for the buildings of a build… with the buildings of 105 feet. The FAA came back, they gave us that determination that the buildings at 105 feet do not have any impact, so they came back and said, yes, we agree there's no hazard to air navigation. That FAA form was for the buildings at 105 feet. So if there's not any impact at 105 feet, there would not be an impact at 95 feet. We would have to fill out that form before site plan for every substation and every building. We did it for the building now. If something was to change, you have to update that form, and that is a requirement when you are within the flight paths of an airport. And this was the other location, so it was also the location… so for your reference, here's the substation on this one, and then here is the substation locations on this one.

Mr. Shelteon: Okay, you used the figure 105 feet, but you're actually saying that doesn't include the dog box.

Ms. Cameron: It does not. But what we did here is when we gave the airport the heights, we increased the heights to include potentially mechanical equipment, and then any construction equipment that's needed in order to put the mechanical equipment on top of the floor, on top of the roof. So as you can see on these buildings, like for example, Building A has a finished floor area of 175 feet, and that was what was submitted to the FAA to make sure that anything that is putting stuff on buildings would also not be a hazard to air navigation. The next one of staff's comments was that the exception to the maximum building heights might be too open ended, but the Zoning Ordinance definition of height does not include the mechanical equipment that's on top of the roofs or the parapet walls. So we are actually proffering what is already in the Zoning Ordinance I believe. We just made it very clear as to what does not count. But that is what is, how the Zoning Ordinance defines height is only to the roof.

Mr. Shelton: Okay, hypothetically, our aerial that's located at station two is 105 feet. Mathematically and in a calculation that area will not reach the top of that 105 feet.

Ms. Cameron: And what you're referencing, just for my clarity, is a fire truck?

Mr. Shelton: Aerial unit, yes, ma'am.

Ms. Cameron: Yes. Okay, what we would be willing to do, if you would like, is that commit to any building that's over 90 feet that it would have an exterior ladder that can get to the roof in the event of a fire – stairs, I'm sorry, exterior stairs that can get to the roof in the event of a fire.

Mr. Shelton: Okay, so let me clarify one thing. Any of our firefighters are going to be carrying about 85 pounds worth of weight on their back. Transcending up a stairwell exterior is not the most advantageous way of doing it, so, just from a safety standpoint.

Ms. Cameron: Okay, we'll take that into consideration. The final comment, or one of the final comments, was the request that there's not a, there's a commitment to reutilizing reuse water when available, but we do not establish a timeframe for completion or restrict the amount of development that might use potable water. What we included in the proffers and that you see highlighted, is that the Water Service Agreement will cap the maximum capacity for bridging water and sewer until reuse water becomes available. That Water Service Agreement is negotiated with the Utilities Department, but ultimately it is approved by the Board. So the Water Service Agreement would be the mechanism in which the amount of water to not negatively impact the residents of this community is capped. Staff also had a recommendation pertaining to the sound proffer. So we do have a sound proffer, and what staff asked for is that there be monitoring for a longer period of time. So the applicant is willing, between the Planning Commission and the Board, to add a proffer that has monitoring for five years after the last building is constructed. That is something that the applicant would be willing to do. And finally, you all have proffers in front of you, but I just wanted to quickly summarize what was changed in those proffers. So architectural revisions to match Potomac Church. We added screening adjacent to residential to the south would be both for visual and sound attenuation. We made it clear that the sprinklers are NFPA 13 standard. We updated the Water Service Agreement and reuse water in order to make it clear that that is the mechanism in which the water would be capped until reuse water is available. We updated the transportation improvement on Route 1 to extend from state, to extend from Sage Lane to Blackjack Road. For construction proffers, we mimicked what Potomac Church did. So essentially, there is a construction mitigation plan that will outline construction traffic, any additional mitigations that may be needed for traffic, delivery notifications, providing a Public Liaison during construction, having a joint construction traffic reaction team in the event there is something that occurs, agreeing to pavement damage replacement within a certain timeframe, and then adding an applicant point of contact so that somebody will have a point of contact for the applicant throughout construction. And then there's a third-party contractor in which the County for Potomac Church requested that they be reimbursed for any third-party contractor that may be needed to review plans or implement or enforce a proffer. And that concludes my presentation. I can answer any questions that you have. We do request, we think that we have addressed staff's comments and request action this evening. Thank you.

Mr. Shelton: Questions for the applicant?

Ms. Caudill: I do.

Mr. Shelton: Ms. Caudill.

Ms. Caudill: So on page 5 of this the proffer statement, it says fencing may be provided. What do you mean may be provided? I thought you said there was going to be a…

Ms. Cameron: So, there is fencing that's provided around the data center campus. We, the data center ordinance says that it's 7 feet but there may not be, it might be fencing around each campus. We can say shall be provided around the data center, if that is the preference, but we would be providing fencing around the data centers.

Ms. Caudill: I think it should…

Ms. Cameron: Okay.

Ms. Barnes: Yeah, shall be and may be are vastly different descriptions, so I would…

Ms. Cameron: We're happy to change that.

Ms. Barnes: …definitely do, yeah.

Ms. Caudill: And then I've got another question, if, unless somebody else has one. On page 4, you have enclosures for generators. What do those enclosures look like for the generators?

Ms. Cameron: So we have proffered and let me just grab them.

Ms. Caudill: Yeah, absolutely.

Ms. Cameron: And you're looking at the new proffers?

Ms. Caudill: Yes, in the blue, number 3 all the way down on page 4, under building.

Ms. Cameron: I can get what those look like for you.

Ms. Caudill: Okay. And then my last thing, one more, is the the buffer. So you were saying that some of them are 20, some of them are 50. Why wouldn't we just do a total 100 buffer for like the site? So when you're driving down the road, you can't really see it. Because, you know, the whole visual experience of it is… *inaudible*.

Ms. Cameron: So we did the buffers based on the Zoning Ordinance requirements for buffers, and then laid out the site according to where the buffers would be located.

Ms. Caudill: Okay.

Ms. Cameron: And so, for example, the 20 feet on this side is because it's closer, and I said this side like you can see it, sorry.

Ms. Caudill: That's okay.

Ms. Cameron: The 20 feet on this side, it's because it's closer to like the dump, the jail, and then this property here is A-1… I'm sorry, M-1 and so that is why that had a 20-foot buffer as well.

Ms. Caudill: What about the one, what was the buffer on the potential residential?

Ms. Cameron: Fifty feet.

Ms. Caudill: Fifty. So could we make that 100 if it's going to be a residential, possibly a residential?

Ms. Barnes: That's a pretty skeletal buffer.

Ms. Cameron: I can ask.

Ms. Barnes: Yeah.

Ms. Cameron: So I have two questions to get back to you on.

Ms. Caudill: Yes, thank you.

Ms. Cameron: You're welcome.

Mr. Shelton: Additional questions for Ms. Cameron? I have one. On the dBA output, why is it a stagnet 55? Don't we, shouldn't we have one for the day and one for the night?

Ms. Cameron: So, the Zoning Ordinance for the day is 60 adjacent to residential, and at night it's 55. And we were asked to make it 55 during the day as well.

Mr. Shelton: If we were to emulate the Potomac Church, it's a 55 day and a 50 night.

Ms. Cameron: We can look into that. But I think we did 55 for both.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome.

Mr. Shelton: Additional questions? Hearing none, thank you very much.
Ms. Cameron: Thank you.

Mr. Shelton: Alright, at this time, we'll open it up to the public hearing comment period. This is the opportunity for the public to comment on this issue. Before starting your comments, please state your name and address. The clock starts when the green light appears. Yellow light means you have one minute. Red light means that your time is up. If you would like to speak, please come forward. Do we have anyone that wants to speak on this topic? Seeing none, I'll bring it back to the Commission. What's the favor of the Commission?

Ms. Barnes: I'm going to go ahead and make a recommendation. Let me preface this by saying that there's been a lot of really great work on this. I mean, some excellent work and great presentations. The application, I think, is much improved. A lot of, a lot of work has gone into this, and that's kind of what the Planning Commission does, is we, we take an application, regardless of what happens to it, and we make it better before it goes to the Board of Supervisors. And I think that we've done some work. However, our experts, which is staff, have mentioned some things that, that, that they they think need to be done before this is going to be passed on to the Board of Supervisors. I tend to agree with them. I think that this is probably, and maybe you guys can correct me, probably one of the largest, most impactful projects that we've seen in Stafford County. We've also given the applicant a couple of things to look at and to address, which I know that, I know that you guys will and I'm very, very sure that the next time we see you, that those items will be addressed. But because this is such an important and impactful application and such a huge application, and, quite frankly, a complicated application as well, I think that we need to listen to our experts, and I'm going to recommend that we defer to our July meeting. I don't remember what the date is on that; we only have one in July.

Mr. Shelton: Could I ask you to hold up on that for a moment, because I missed asking the…

Ms. Barnes: Okay.

Mr. Shelton: … the applicant or staff if they had any comments since we had no public service, public comments.

Ms. Cameron: Thank you. So for the buffer, I just wanted to answer Commissioner Caudill's questions before you guys wrap up. For the enclosure, it's a solid enclosure, and we did proffer that if it is adjacent to the proposed residential to the south, because that's the closest residential, that it would be, not only for visual, but it would be a sound enclosure as well. So it would help with sound. And then as far as the buffer, it is a 50-foot buffer, but the distance from the property line to the building is 150 feet, at least 150 feet, because that's what we proffered.

Ms. Sellers: *Inaudible, microphone not on*.

Ms. Cameron: Yes.
Ms. Sellers: This Eskimo Hill, is this suggesting that you guys are maintaining the Eskimo Hill Road through the property?

Ms. Cameron: So the Eskimo Hill Road through the property will be constructed by the applicant, and then it will be dedicated to VDOT for the, to be part of the state system.

Ms. Sellers: So you'll have the connector road through, and then this additional realignment of Eskimo Hill Road.
Ms. Cameron: Correct.

Ms. Sellers: Okay, back into the state system. Okay, through an easement. Okay. Thank you.

Ms. Cameron: You're welcome.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome.

Ms. Caudill: Thank you for that clarification. And I do want to apologize to you guys. I have been so busy at work that I wasn't able to get those couple questions to you.

Ms. Cameron: That's fine; life happens.

Ms. Caudill: So my apologies for real.

Ms. Cameron: Thank you.

Mr. Shelton: Mr. Zuraf, do you have any additional comments or questions? Okay, I'll bring it back to the Commission. Excuse me, Ms. Barnes, go ahead.

Ms. Barnes: Do I have to start over?

Mr. Shelton: No.

Ms. Barnes: So like I was saying, our experts have advised a deferral for the, for the reclassification and for the comprehensive compliance. But all three of these applications are inextricably, they can't be, be split up. So I'm going to recommend, and I'll do it one at a time that we defer to the July meeting, and I have to look at my calendar. What was the, what's the date for July?

Mr. Zuraf: It's July 24th.

Ms. Barnes: July 24th meeting, and we can bring all three of those back, and I think that gives us a lot of time. We have our cutoff times for the second two are September 20th and August 11th, so that still gives us a really decent amount of time to get that in. But like I said, I'm going to recommend deferral for all three of those for our July meeting. That is my motion.

Mr. Shelton: Do we have a second?

Ms. Sellers: Mr. Chairman, I'd like to make a counter motion. I'd like to, I'd like to move… I'd like to actually make a recommendation. I'd actually like to make a recommendation right now, just… we're going to make separate recommendations correct for each of these?

Mr. Shelton: Yes, ma'am.

Ms. Sellers: So I'd like to move forward on them and send them to the Board of Supervisors. And, you know, these are not the last time that we will see them. We are not the final say. The Board of Supervisors is the final say. And some of these are going to be highly political conversations, particularly the things with transportation. I, too, am very interested in those conversations. There's a couple of projects that the state has some money on in there that are going to be impacted, so I'm interested. So I'd like to make a motion on a couple of these separately, with the amendment to the Comprehensive Plan, the first one, I would like to recommend approval of that one.

Mr. Shelton: Do we have a second?

Ms. Caudill: Second.

Mr. Shelton: Discussion? Alright, cast your vote. Tally the vote. Three yes, two no.

Ms. Lucian: Can you reset the vote please?

Mr. Shelton: Please cast your vote. Four yes, two no, one absent (*Ms. Barnes and Mr. Martinez opposed; Mr. Apicella absent*).

Ms. Sellers: Okay, for the rezoning class, the zoning reclassification, I, I'd also like to make a recommendation. I'd like to approve that one and make the recommendation to approve that one, and I'll have a comment on it in a minute.

Mr. Shelton: Do we have a second? We do not have a second?

Ms. Caudill: Second.

Mr. Zuraf: So just to clarify, there were some new proffers.

Ms. Sellers: Yes, with the proffers that were provided up here. But, you know, my comment to that one is, I do think it needs some work on the proffers, and I think the Board of Supervisors needs to sit down and work with you guys on these things and really hash out the details. But I don't believe that's the role of the Planning Commission. I believe that's the role of the politicians. They got elected to do that work, and they need to sit down with you and do that work. And so I think it's time to get it out of here and send it to the Board of Supervisors.

Ms. Caudill: I have a comment as well.

Mr. Shelton: Sure, go ahead, please.

Ms. Caudill: I know that you, a lot of you, have already talked to Supervisor Diggs, at least in my district, so I know that he had mentioned, as long as it, you know, from the road, it's going to look nice and it's not going to impact, you know, residents' view of of the data center. So I would just say I am in support of that as well, just kind of getting with him, because I know he's, he's already told me quite a bit that he's had conversations with you all, so.

Mr. Shelton: Mr. Zuraf.

Mr. Zuraf: For clarification, since the Commission did just receive the proffers this evening, you should also have a first, a separate vote to accept the proffers or not.

Ms. Sellers: We do that first?
Ms. Lucian: Yes, you would have to do that first in order to make that a part of your vote on the rezoning.

Ms. Sellers: Okay, then I make the motion to accept the proffers that we received tonight.

Mr. Shelton: Do I have a second?

Ms. Caudill: I second those proffers, but as long as the fencing gets changed, not maybe. And then maybe a little bit more information on what the enclosures of the generators are going to look like, too. I know that they told us, but have it in there.

Ms. Barnes: Do we need to make, do we need to have some verbiage for that then?

Ms. Lucian: If you want to vote on it that way, yes, you would need to. So it may be a good idea to take a recess for a few minutes to allow you to do that with the applicant.

Mr. Shelton: Okay, if it's in agreement, we'll take a five minute recess.

Meeting recessed: 7:46 PM
Meeting reconvened: 7:51 PM

Mr. Shelton: We'll vote in the change in the proffers first that were presented to us tonight, so I'll entertain a motion.

Ms. Barnes: We already did that, didn't we?

Ms. Sellers: Yeah, I think… *inaudible, microphone not on*.

Mr. Shelton: A change in language.

Mr. Zuraf: The applicant is finishing up the language.

Mr. Shelton: Is the applicant ready?

Ms. Cameron: Almost. There are a lot of pages to initial. Sorry, y'all, I know it was going to be an early night. While he's still initialing the pages, I just wanted to walk through the changes. So we have made a change that, starting on design guidelines, 8, it says sound enclosures for each data center generator. So 8.a.i.3. And then 8b fencing says fencing for data center buildings shall be provided. And it's, we re-dated the proffers so they're dated today, July 12, 2024. June 12, sorry. Okay, that's it.

Mr. Shelton: Okay, did we have a motion to accept the proffers? And a second?

Ms. Sellers: So moved.

Ms. Caudill: Second.

Mr. Shelton: Cast your vote.

Ms. Caudill: And this is for number 2, right?

Mr. Shelton: No, this is for just accepting the proffers.

Ms. Caudill: Oh, yes, okay.

Mr. Shelton: The vote is 3 to 3.

Ms. Lucian: The motion fails.

Mr. Shelton: So the motion is denied.

Unknown speaker: What does that mean?

Ms. Lucian: It's just a failure.

Mr. Shelton: Clarification, fails.

Ms. Sellers: What does that mean?

Ms. Lucian: If you vote on the rezoning, it will not be with the new proffers.

Ms. Sellers: Well, I'd still like to make the motion to, in general, approve, recommend approval for the Stafford Tech Campus to the Board of Supervisors, and I'd like them to negotiate the proffers, as I stated before.

Mr. Shelton: And which one are you talking about, the zoning reclassification?

Ms. Sellers: Yes, number 2, RC23154931.

Mr. Shelton: Do we have a second?

Ms. Caudill: I'm not going to second that without the proffers.

Mr. Shelton: No second, so that also fails. Am I correct?

Ms. Lucian: There is no motion. So does anybody have an alternative motion?

Ms. Barnes: So I will go back to recommending a deferral for this to the meeting in July, and hopefully at that point in time, we'll, we'll make some progress with us, with whatever the, whatever is left with the proffers. It sounds like that they were pretty well established, but, yeah, defer until the end of the July meeting.

Mr. Martinez: Second.

Mr. Shelton: Any discussion amongst the Commission members? Ms. Sellers?

Ms. Sellers: So we're going to defer it, and I'd almost rather make a recommendation to deny the rezoning without the proffers, and still send it forward to the, to the Board of Supervisors, because it's going to come back here and we're going to go through public… it's not like before, where we came back here and we just discussed it. We have to go back through public hearing again and go through the whole process again. And so it's going to be another very long meeting, very long process. So my recommendation is for us to say, let's deny it without, without the proffers. Send it to the Board of Supervisors and let them do the negotiation. That way we don't come back here, put them back through the public hearing process here, put all of us through the public hearing process here. Let's send it to the Board of Supervisors and make it, and streamline this process. So I'd like to make a counter motion to deny the RC23154931, as it is today, because it doesn't have great proffers.

Mr. Shelton: Do we have a second on her substitute motion?

Ms. Caudill: Can I ask a question?

Mr. Shelton: Sure.

Ms. Caudill: On a motion, or do I have to wait till you guys to that and then I ask the questions?

Mr. Shelton: No.

Ms. Lucian: Who's the question for?

Mr. Shelton: Do we have a second to the substitute? Hearing none, we'll revert back to the original motion, and a motion is to deny until July.

Ms. Barnes: Nope, defer.

Mr. Shelton: Defer, excuse me.

Ms. Barnes: So, just a quick clarification. The public hearing part,we can keep that open, but usually that's closed at this point in time.

Ms. Lucian: No, it's not. Due to a change in state code last year, any deferral requires a new public hearing.

Ms. Barnes: Okay.

Ms. Lucian: So it'll be re-advertised, and they'll be the public comments again in July.

Mr. Shelton: Mr Martinez, since you seconded, do you have any comments?

Mr. Martinez: No further comment, thank you.

Mr. Shelton: Ms. Caudill, your comments? Question then.

Ms. Caudill: Okay. I have a question for the applicant. So I know with speaking with my Supervisor for the George Washington District, are any of these proffers changes, stuff that he has talked to you all about or is this just us?

Ms. Cameron: That's just you all, but I will say, with or without those proffer changes, we told you we would make them, and we would make them whether or not you all voted on them tonight or not. We were, we were going to make those changes.
Ms. Caudill: Okay, thank you.

Ms. Cameron: You're welcome.

Mr. Shelton: Okay, so we have a motion on the floor to defer until July. Cast your vote. Three to three. Okay, legal, what do we do?

Ms. Lucian: Motion fails.

Mr. Shelton: Motion fails.

Ms. Sellers: So I put my motion back on the floor that we deny the rezoning and send it to the Board of Supervisors.

Ms. Lucian: If there's a second.

Mr. Bratton: I second it.

Ms. Barnes: Point of clarification – if we take no action tonight then basically it goes to the Supervisors.

Ms. Lucian: You have to take an action.

Ms. Barnes: We have to take an action.

Ms. Lucian: You have to either defer it or make a recommendation.

Ms. Barnes: Okay, folks.

Mr. Martinez: So it just ping-pongs then.

Ms. Barnes: Unless somebody wants to change their mind. I, I personally don't want to deny this. I still think that there's, there's some work that we can do.

Ms. Cameron: Can we take a two minute pause? I have a question for the county attorney, and then.

Mr. Shelton: So granted.

Meeting paused: 8:00 PM
Meeting reconvened: 8:01 PM

Ms. Barnes: Like I said, yes, we're going to have to do this again, but we do this again frequently, we defer things all the time. There are some things our experts have told us, staff has told us, that there, there are some things that need to be worked out. It doesn't sound like there's a lot of things, and then we can, we can send it on up to the Board of Supervisors. I agree with with Ms. Sellers; I'd love to get it up to the Board of Supervisors. They're the ones that are really going to take a stab at this. But right now, our, our professionals, our experts, have told us that on these second two, the reclassification and the compliance plan, they recommend a deferral, and I am inclined to agree.

Mr. Shelton: Do I have a second?
Mr. Martinez: Mr Chair, I have just one quick question about the, for the staff, if I may.

Mr. Shelton: Go ahead, sir.

Mr. Martinez: Mr. Zuraf, the applicant made an attempt to address the, the points that you laid out. Did that, would… was that addressed sufficiently?

Mr. Zuraf: I would not just tonight want to just say everything is okay without…

Mr. Martinez: Thank you.

Mr. Zuraf: … looking at it in a little more detail.

Mr. Martinez: Appreciate it. I second.

Mr. Shelton: We have a motion and a second; any comments Ms. Barnes?

Ms. Barnes: I've made them all.

Mr. Shelton: Mr. Martinez?

Mr. Martinez: No sir.

Mr. Shelton: Anyone else on the Commission? Cast your vote to defer. Four to two (*Ms. Caudill and Ms. Sellers opposed; Mr. Apicella absent*).

Ms. Barnes: That was painful. Next one? We have to do the third one.

Mr. Shelton: We have to do it on the third one also. Alright, on the comprehensive plan compliance review, I entertain a motion.

Ms. Barnes: I'm just going to make a motion to defer based on staff's recommendation. It sounded like we've got some things that really need to be taken care of with, with those electric substations.

Mr. Martinez: Second.

Mr. Shelton: Motion and second. Ms. Barnes, any comments?

Ms. Barnes: Nope.

Mr. Shelton: Mr Martinez, any additional comments?

Mr. Martinez: No sir.

Mr. Shelton: Comments from the remaining Commissioners?

Ms. Sellers: What was the comments specific to the substations?

Ms. Barnes: It was regarding the airport.
Ms. Sellers: Regarding the airport?

Mr. Zuraf: The concern was the potential of the substations being within the Airport Land Use Compatibility zones that have, identified… them not being not compatible.

Ms. Sellers: And that's the gift that keeps on giving. I voted against it in 2015 and it just keeps on giving.

Mr. Shelton: Okay, we have a motion and a second. Please cast your votes to defer. Five to one to defer (*Ms. Sellers opposed; Mr. Apicella absent*). And we will reschedule that for July the… excuse me… the 24th. Thank you very much.

Stafford County
Planning Commission Meeting
Agenda Item Report
Meeting Date: July 24, 2024
PUBLIC HEARINGS

Subject:	
PLANNING AND ZONING; CONSIDER A PROPOSED ZONING RECLASSIFICATION, WITH PROFFERS, FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT ON TAX MAP PARCEL NOS. 38-124 AND 38-29A (PROJECT KNOWN AS RC23154931; STAFFORD TECHNOLOGY CAMPUS) Proposed Ordinance O24-20 **(Time Limit: September 20, 2024) (History: Deferred at the June 12, 2024 meeting to the July 24, 2024 meeting)** **BACKGROUND SUMMARY:** Recommends approval of zoning reclassification, pending outstanding issues.	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
	Falmouth
Overview:	
Consider a request for a proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124 (Property), consisting of 503.84 acres to permit a data center, public facilities/utilities, and related accessory uses.	
Discussion/Analysis:	
The General Development Plan (GDP) submitted by the applicant depicts the site layout for the proposed development. The GDP contemplates 23 buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas (CRPA) within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change. Each building would consist of two or three levels that total 60 to 65 feet in height for 2-level buildings, and up to 110 feet for 3-level buildings. In a data center, each floor is roughly 30 feet high to account for required cooling systems. The maximum building height in M-2 is 65 feet. Any structures exceeding this height would require a conditional use permit (CUP). The applicant has listed the height exception in the proffer statement as a permitted component of the project. Acceptance of these proffers by approval of	

this request would allow the applicant to proceed with constructing the buildings up to 110 feet tall without the need for a CUP.

The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Site topography includes sloping terrain. There are several perennial streams, wetlands, and CRPA buffer areas across the site. The northeast corner of the site drains to the northeast towards Accokeek Creek. The remainder of the site drains to the south towards Potomac Creek. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west. The undeveloped parcel to the south has an approved subdivision plan for 24 dwelling units (Potomac Creek Overlook).

The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.

The GDP identifies up to six electric substations proposed on the site. The substations will connect to the adjacent high voltage power line that bisects the site. Note that an electric substation is identified as a use that requires a conditional use permit in the M-2 zoning district. The applicant has listed the use in the proffer statement as a permitted use. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the substations without the need for a CUP.

The GDP identifies tree preservation areas and landscape buffers on the site. To screen the project from residential uses to the north, tree preservation zones are identified. These areas provide a buffer ranging from 400 to 1,000 feet in width. Mature trees that exist in this area would be preserved. Transitional buffers would be 20 feet on the east adjacent to the landfill and corrections facility and 50 feet on the south side where planned residential development exists. Street buffers 50 feet in width are proposed along Eskimo Hill Road and the new road connection. To provide level development pads for this type of use, retaining walls are proposed around the perimeter of each development area due to the sloping terrain.

The Property contains an archeological resource in the northwest corner: DHR ID #44ST0680. The site consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. The site is not proposed to be developed. It is identified on the GDP as being within a proposed tree preservation area.

The project will be required to be served by the public water and sewer system. The Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements, which will require a service agreement with the County.

APPLICATION UPDATE:
A public hearing was held on June 12, 2024 and this zoning reclassification was deferred to this meeting. The Commission recommended approval of the concurrent Comprehensive Plan Amendment and deferred the concurrent Comprehensive Plan Compliance Review.

The zoning reclassification included several outstanding issues and concerns from the Commission and staff. Subsequent to the June 12th meeting, the applicant provided the following documents in response to the concerns:

- Attachment 3: Comment response letter
- Attachment 4: Amended proffer statement dated June 17, 2024 – Red-line
- Attachment 5: Amended proffer statement dated June 17, 2024– Clean/Final
- Attachments 12 – 15: FAA Determination of No Hazards Documents – divided into four "Campuses". The FAA determination request identified structures up to 175 feet in height on the site. The FAA determined there was No Hazard to Air Navigation.

After further discussions with Commissioners Apicella and Shelton, the applicant further amended the proffers, dated July 18, 2024. These are included as Attachments 6 (Red-line) and 7 (Clean/Final).

Attachments:

1. O24-20 Attachment 1.pln Proposed O24-20 - REZONING APPROVAL
2. O24-20 Attachment 2.pln Proposed R24-189 - REZONING DENIAL
3. O24-20 Attachment 3.pln APPLICANT RESPONSE 06-25-24
4. O24-20 Attachment 4.pln Proffer Statement REDLINE 06-17-24
5. O24-20 Attachment 5.pln Proffer Statement CLEAN 06-17-24
6. O24-20 Attachment 6.pln Proffer Statement REDLINE 07-18-24
7. O24-20 Attachment 7.pln Proffer Statement CLEAN 7-18-24
8. O24-20 Attachment 8.pln Generalized Development Plan 04-20-24
9. O24-20 Attachment 9.pln Transportation Plan (February 2024)
10. O24-20 Attachment 10.pln Design Elements (February 2024)
11. O24-20 Attachment 11.pln Cross section Exhibits (February 2024)
12. O24-20 Attachment 12.pln FAA DETERMINATION East Campus 6-25-24
13. O24-20 Attachment 13.pln FAA DETERMINATION North Campus 6-25-24
14. O24-20 Attachment 14.pln FAA DETERMINATION South Campus 6-25-24
15. O24-20 Attachment 15.pln FAA DETERMINATION West Campus 6-25-24
16. O24-20 Attachment 16.pln Combined PC Packet 06-12-24

Summary/Conclusion:

Although there are several positive aspects, staff recommends the Commission consider the following remaining issues prior to recommending approval of the application:

- Virginia Department of Transportation (VDOT) comments request modifications to several of the mitigation measures and request other additional information. Staff sent the latest applicant responses to VDOT for their input.
- Proffers leave open the possibility that the connector road to Richmond Highway may not be constructed. Although the applicant is proffering to improve Eskimo Hill based on a future Traffic Study, it leaves uncertainty as to how impacts to Eskimo Hill Road would be mitigated.
- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Although the applicant believes there would be adequate space to accommodate the improvements, this may not be confirmed until detailed engineering occurs. In addition, the proposed alignment would cross a Resource Protection Area buffer in a manner that would create greater impacts than necessary. Staff continues to recommend a more direct inter-parcel connection to parcels to the south be considered.
- The electric substations, with components up to 90 feet in height, may be in conflict with the Airport Compatibility guidelines in the Comprehensive Plan and as a result, operations of the Stafford Regional Airport. The FAA determined structures up to 175 feet in height would pose No Hazard to Air Navigation. Staff has provided the application information related to the substations to Stafford Regional Airport staff. They are reviewing the information to determine if there would be any impacts.
- The latest proffer revisions include new language that the Water Service Agreement (WSA) restrict the amount of development that might use potable water. In addition, they add that the WSA shall be approved prior to the first occupancy permit. Staff still recommends: (1) The proffers identify the maximum amount of development that could use potable water; (2) Move the WSA approval earlier in the development approval process; and 3) The projects needed for "bridging" and the long-term improvements need to be included with the proffers, not only in the WSA. This includes the capacity improvements at the Aqua Wastewater Treatment Facility needed to accommodate the additional flow from areas outside of the existing Urban Services Area.

Strategic Priorities:

Reviewed By:

Michael J. Zuraf, AICP, Director of Planning and Zoning

O24-20

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

ORDINANCE

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the day of 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

AN ORDINANCE TO AMEND AND REORDAIN THE STAFFORD COUNTY ZONING ORDINANCE BY AMENDING THE ZONING DISTRICT MAP TO RECLASSIFY FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT TAX MAP PARCEL NOS. 38-29A AND 38-124, ALL LOCATED WITHIN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology, LC submitted application RC23154931, requesting a zoning reclassification from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, all located within the Falmouth Election District; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that the requested zoning amendment is compatible with the surrounding land uses and meets the criteria for a rezoning in Stafford County Code Sec. 28-206; and

WHEREAS, the Board finds that public necessity, convenience, general welfare, and good zoning practices require adoption of this Ordinance to reclassify the subject property;

NOW, THEREFORE, BE IT ORDAINED by the Stafford County Board of Supervisors on this the day of 2024, that the Stafford County Zoning Ordinance be and it hereby is amended and reordained by amending the Zoning District Map to reclassify from the A-1, Agricultural Zoning District to the M-2, Light Industial Zoning District Tax Map Parcel Nos. 38-29A and 38-124, in the location shown on the plat entitled "Boundary Survey Stafford Technology LC" prepared by Bohler Engineering & Design Studio, dated March 22, 2023 and sealed August 29, 2023, with proffers entitled "Proffer Statement" dated July 18, 2024 and completely signed , 2024.

FCM:MJZ:ss

R24-189

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the day of 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO DENY A REQUEST TO RECLASSIFY FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT TAX MAP PARCEL NOS. 38-29A AND 38-124, LOCATED WITHIN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology, LC submitted application RC23154931, requesting a zoning reclassification from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, located within the Falmouth Election District; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that the requested zoning amendment is incompatible with the surrounding land uses and does not meet the criteria for a rezoning in Stafford County Code Sec. 28-206; and

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the day of 2024, that application RC23154931 be and it hereby is denied.

FCM:MJZ:ss

WALSH COLUCCI
LUBELEY & WALSH PC

Jonelle M. Cameron
(703) 680-4664 Ext. 5132
jcameron@thelandlawyers.com

June 25, 2024

Via Hand Delivery and E-mail (mzuraf@staffordcountyva.gov)

Mike J. Zuraf, Director
Department of Planning and Zoning
1300 Courthouse Road, 2nd Floor
Stafford, VA 22554

Re: RC23154931 – Stafford Technology Campus
Staff Report Responses

Dear Mr. Zuraf:

As a follow-up to the Staff Report and Planning Commission public hearing held on June 12, 2024, enclosed are the following resubmission items and below are the responses to the reasons for the recommendation for deferral.

1. A copy of the Proffer Statement dated June 17, 2024;
2. A redline copy of the Proffer Statement dated June 17, 2024, compared to the Proffer Statement handed out at the Planning Commission public hearing dated June 6, 2024;
3. A redline copy of the Proffer Statement dated June 17, 2024, compared to the Proffer Statement that was included in the Staff Report dated April 24, 2024; and
4. Copies of the Determination of No Hazard to Air Navigation applications submitted to the FAA for the buildings located on the Property and the determinations received from the FAA indicating that the proposed buildings pose No Hazard to Air Navigation.

The following are the Applicant's responses to the case planner summary letter and agency comments that they received. Please note that only weaknesses/items to be addressed are listed below.

- **VDOT comments request modifications to several of the mitigation measures and request other additional information.**
  - **Richmond Highway & Hospital Center Boulevard:**
    - **Comment 3: VDOT REW 4 Response: VDOT previously suggested the applicant study a potential mitigation measure to restripe the EB approach to provide dual right turns and a single through lane. We did not specify this as an acceptable mitigation measure as suggested by the applicant, but rather as an option to be investigated. While the applicant's analysis shows that this measure would address some of the deficiencies at the intersection, this change would result in a forecast PM peak hour queue of 2,524 feet for the EB through movement. This indicates the need for both the dual right turns as well as dual through lanes. Simply restriping the approach with dual right turn lanes by taking away a through lane is not an acceptable solution. Alternative mitigation needs to be provided.**
    - **Comment 12: Transportation Improvements Richmond Highway: Proffer 22.e.ii.1.(b): This needs to be "two" through lanes. Currently, identified as "one".**

      This comment is being repeated for tracking purposes as it relates to comment 3 above.
    - **Comment 24: Richmond Highway e.iv. For clarity, please remove "If requested by the County or VDOT."**

      This comment is being repeated for tracking purposes as it relates to comment 3 above.
    - **Comment 25: Richmond Highway e.ii. l(b): This needs to indicate "two" through lanes. Currently, identified as "one".**

      This comment is being repeated for tracking purposes as it relates to comment 3 above.

      This comment is being repeated for tracking purposes and is relates to Comment 3 above.
  - **Richmond Highway & Sage Lane & Connector Road**
    - **Comment 4: Comment: General: The comment response sheet as well as the Transportation Plan states a Signal Justification Report and/or an Innovative Intersection design will be submitted for VDOT review.**

      a. When will the SJR be submitted for review?

      b. When will a Innovative Intersection design be submitted for review? This will need to be reviewed and approved by District Traffic

Engineering prior to being sent to VDOT Central Office Innovative Intersection Committee for review and approval.

This comment is being repeated for tracking purposes.

- **Comment 26: Richmond Highway e.iii.1-4: When will a Signal Justification Report and/or an Innovative Intersection design will be submitted for VDOT review.**

  a. When will the SJR be submitted for review?

  b. When will a Innovative Intersection design be submitted for review? This will need to be reviewed and approved by District Traffic Engineering prior to being sent to VDOT Central Office Innovative Intersection Committee for review and approval.

  This comment is being repeated for tracking purposes and is related to Comment 4 above.

The Applicant is only required to mitigate its impacts. As you are aware, Route 1 is a regional issue. To offset its impacts, the Applicant has provided mitigation measures that will work. VDOT is asking for two through lanes and two right turn lanes at Hospital Center Boulevard. Due to the location of the new 7-Eleven at the intersection of Route 1 and Hospital Center Boulevard, there is not enough space to construct an additional right turn lane without causing an impact to the 7-Eleven development. The proposed mitigation reduces the level of service and delay in both the AM and PM Peak hour. At the Connector Road and Sage Lane, the Applicant is proffering to construct a new connection and modify Sage Lane consistent with current VDOT recommendations for alternative intersection design (in this case, a "Thru-Cut"). This configuration will increase the capacity of Route 1 while efficiently handling the side streets to accommodate both the site trips and traffic redistributed from the existing northern segments of Eskimo Hill Road.

- **This project proposes a realignment of Eskimo Hill Road and a new connection to Rte. 1 (Richmond Highway) across from Sage Lane. There is a portion of this realignment that shows a connection to the existing Eskimo Hill Road that runs north to State Shop Road. This connection on the GDP states "VEPCO Property (Not part of this application)".**

  a. When will this connection be submitted if it is not with this plan?

  b. **NEW Comment: This was not fully addressed by the comment response. On the GDP it looks like there is new pavement/median/alignment of the existing Eskimo Hill Road. It is also called out that a Westbound Right Turn Lane will be constructed but this is not shown on the Transportation Plan or the GDP. How will this be addressed if the VEPCO Property portion of Eskimo Hill Road is not part of this application?**

This comment is repeated for tracking purposes.

The Applicant has been in communication with Dominion (the successor of interest to VEPCO). Dominion was willing to add their property into the reclassification application but we did not want to slow down the review process. Pursuant to Section 28-278 of the Zoning Ordinance, we believe there is an allowance for the road connection without making the parcel an unlawful nonconforming lot.

> Sec. 28-278. - Highway realignment or condemnation.
>
> Any lot which by reason of a realignment of a federal or state highway or by reason of condemnation proceedings, has been reduced in size to an area less than that required by law or ordinance, shall be considered a lawful nonconforming lot of record subject to the provisions set forth in county Code section 28-275. Any lawful use or structure existing at the time of such highway realignment or condemnation proceeding, which would thereafter no longer be permitted under the terms of this chapter, shall be considered to be a lawful nonconforming use or structure, as that term is defined in this chapter.
>
> (Ord. No. O16-30, 11-1-16)

In the event the Connector Road cannot be located through the Dominion parcel the Connector Road can be relocated in this area. The Applicant, in Proffer 26.a.i., has proffered the general area of the Connector Road but has allowed for the final location of the Connector Road to be determined at site plan.

- **Comment 28.b: Repeat Comment: US-1 at American Legion/Eskimo Hill**
  - **i. The PM SB thru/right movement queue is reported in the table as 579 feet. However, the printout in the appendix shows 3,665 feet. This needs to be addressed.**
  - **ii. NEW Comment: Applicant provided an explanation for the increased queue but offered no solution. Please provide a solution.**

  A solution has not been provided by the Applicant.

  A solution that eliminates the queue continues to be outside of the ability of any single application to accomplish. By increasing the throughput for the heavy eastbound right turn movement at Hospital Center Boulevard, more cars are able to move to American Legion/Eskimo Hill, which then results in longer queues. The lane use and signal timings at Hospital Center Boulevard can be adjusted to either hold vehicles at Hospital Center or move them to American Legion/Eskimo Hill, as shown in the two different timing plans reflected in the 579 feet and 3,665 feet of queue. The two available "solutions" are to not improve Hospital Center Boulevard, or to widen Route 1 between these intersections. The Applicant has proffered to make the improvement that is achievable with the development.

- **Comment 28.c. The intersection is modeled with a SB through right lane with a 765 foot downstream receiving/merge lane. The existing downstream merge lane is only 225 feet. For the third lane to provide significant operational value, the receiving lane must be lengthened in the field. This is not reflected on the Transportation Plan. The applicant also needs to provide a**

SYNCHRO/SimTraffic model demonstrating this lane is long enough both before and after the intersection such that it would actually be used by through traffic. The proposed improvement exiting Sage Lane needs to accommodate entering and exiting tractor trailer trucks. The Transportation Plan calls for the County or VDOT to obtain needed right-of-way. The applicant should reference the Proffers that provide more detailed conditions for right-of-way acquisition.

The Applicant has proffered to increase the downstream merge area from the current 225 feet to approximately 1,500 feet, all the way to the turn lane at Black Jack Road. This will allow for sufficient merge area.

- **Comment 29: The mitigated analysis shows significant increases to queuing in the AM and PM peak hours for various movements. The applicant has indicated that six-laning of Route 1 is needed to provide acceptable operations and that is beyond the scope of this development project. However, it appears that a third through lane can be added through the Centerport Parkway and Enon Road intersections southbound by providing a southbound right turn lane at Enon Road and converting the existing trap right turn lane to a through lane. There is adequate receiving pavement south of Enon Road to accept/merge this additional through lane.**

  Enon Road is outside of the scoped study area and the intersection was only included in the Synchro analysis because of its proximity to Centreport Parkway. There are already three through lanes on southbound Route 1 at Centreport Parkway.

- **Comment 30: Page 54, Planning Scenario: The intent of this analysis was to demonstrate improvements needed to meet the requirement of no degradation of failing operations for those situations where the applicant is not proposing to provide full mitigation. This would allow the County to determine whether or not they wish to require the applicant to complete these additional improvements or make an equitable monetary contribution toward future improvements. However, the County could still consider the improvements identified by the applicant for the presented LOS D scenario.**

  This comment is being repeated for tracking purposes.

  Acknowledged, the intent of the TIA in general is to identify traffic impacts associated with the proposed development so that the County can evaluate the Application as a whole and determine if the proffered transportation improvements are appropriately scaled to both adequately accommodate the site development and comply with state law.

- **Comment 31. Centerport Parkway at 1-95 NB ramps:**

a. **The applicant suggests signal timing adjustments as mitigation for operations. To assess true project impacts, signal timing adjustments must be applied to the no build condition to optimize that operation since VDOT will have already made adjustments as necessary over the course of time. These adjustments should be treated the same as geometric improvements that may be completed by others. Once this comparison is made, need for mitigation due to project traffic can be determined.**

   It is acknowledged that if signal timings are only able to achieve non-degradation of an intersection that remains over capacity, comparison of adjusted timings with and without development would quantify the site impact. In this case, the proposed timing adjustments result in LOS D conditions for each movement at this intersection (i.e., acceptable operation). Because the improvement meets the acceptable standard, no comparison to other timing scenarios is appropriate or necessary.

- **The realignment of Eskimo Hill Road is shown through an off-site property owned by VEPCO. Furthermore, the parcel is zoned A-1, Agricultural and may not be able to be subdivided to provide for right-of-way and meet the minimum 6 acre per lot density requirement.**

  The Applicant has been in communication with Dominion (the successor of interest to VEPCO). Dominion was willing to add their property into the reclassification application but we did not want to slow down the review process. Pursuant to Section 28-278 of the Zoning Ordinance, we believe there is an allowance for the road connection without making the parcel an unlawful nonconforming lot.

  Sec. 28-278. - Highway realignment or condemnation.

  Any lot which by reason of a realignment of a federal or state highway or by reason of condemnation proceedings, has been reduced in size to an area less than that required by law or ordinance, shall be considered a lawful nonconforming lot of record subject to the provisions set forth in county Code section 28-275. Any lawful use or structure existing at the time of such highway realignment or condemnation proceeding, which would thereafter no longer be permitted under the terms of this chapter, shall be considered to be a lawful nonconforming use or structure, as that term is defined in this chapter.

  (Ord. No. O16-30, 11-1-16)

  In the event the Connector Road cannot be located through the Dominion parcel, the Connector Road can be relocated in this area. The Applicant, in Proffer 26.a.i., has proffered the general area of the Connector Road but has allowed for the final location of the Connector Road to be determined at site plan.

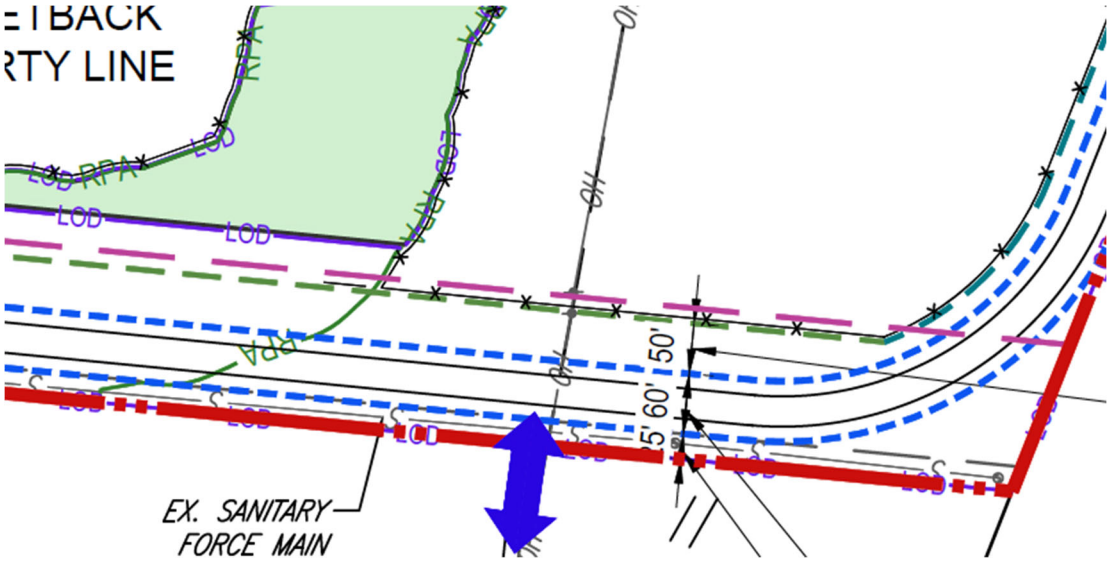
- **Proffers leave open the possibility that the connector road may not be constructed, leaving uncertainty as to how impacts to Eskimo Hill Road would be mitigated.**

  Please see Proffer 26.b.ii. addressing this comment. The Applicant has proffered that in the event the Richmond Highway access and Connector Road are not approved, the Applicant will construct improvements on Eskimo Hill Road in accordance with the

Comprehensive Plan and complete a traffic impact analysis and make any improvements suggested in that traffic impact analysis.

- **The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Staff would recommend a more direct inter-parcel connection to parcels to the south be considered.**

  As discussed at the meeting held on April 22, 2024, due to the security of the site, the proposed connection is the most direct connection that can be provided by the Applicant. The Applicant is constructing a driveway for the existing home but providing the right-of-way meeting the VDOT road standards when the property to the south redevelops and needs to construct the VDOT standard road. As shown on the MZP (excerpt below), there is a 25 feet setback between the Property line and the proposed right-of-way. There is then 60 feet of right-of-way of which only 24 feet will be needed for the roadway and then there is the 50 foot landscape buffer. The Applicant believes there is plenty of space between the right-of-way to not impact the buffers.



- **The electric substations may be in conflict with the Airport Compatibility guidelines in the Comprehensive Plan and as a result, operations of the Stafford Regional Airport. Further evaluation of this issue is recommended.**

  As you are aware, prior to development within airport flight zones, the Applicant is required to submit a Determination of No Hazard to Air Navigation to the FAA. Specifically, for Stafford Technology Campus, the Applicant submitted to the FAA determinations for the buildings within the campus with a finish floor elevation up to 175 feet. This height was to accommodate cranes or any equipment needed for development of the buildings. The FAA determined that there was No Hazard to Air

Navigation. The Applicant has provided the determination request and determination for the buildings closest to the substation.

- **The exception to the maximum building heights may be too open-ended, creating potential visual impacts on adjacent properties.**

  The proffer is in accordance with the Zoning Ordinance definition of "height of structure" as outlined below.

  > (2) *Height of structure.* The vertical dimension of a structure as measured from the average elevation of the finished grade at the front line of the building to the highest point of the roof of a flat roof, the deck line of a mansard roof, or the mean height level between eaves and ridge (mid-line of the roof) for a gable, hip or gambrel roof. The height limitations contained in Table 3.1 shall not apply to spires, belfries, cupolas, antennas, communication towers, silos, barns, water towers, ventilators, chimneys, or other appurtenances usually required to be placed above the roof level and not intended for human occupancy.

  In addition, as requested by some of the Planning Commissioners, the Applicant has proffered architectural requirements that match the Potomac Church architectural proffers. Please see Proffers 7 and 8.

- **Although there is a commitment to utilizing re-use water when available, the proffers do not establish a timeframe for completion or restrict the amount of development that might use potable water. This would be a concern if the reuse line construction experiences delays.**

  The Applicant has proffered to enter into a Water Service Agreement with Stafford and added language to ensure that the Water Service Agreement will contain a maximum capacity for bridging water until the reuse water system becomes available. Please see Proffers 19 and 20 addressing this comment.

- **Staff would recommend additional sound measurement criteria, including sound measurements at specific months of the year and several years after occupancy.**

  Please see Proffer 17 addressing this comment. The Applicant has proffered to provide sound monitoring 5 years after final occupancy of the last data center building on the Property.

We trust these responses address your comments. Please do not hesitate to contact me if you have any questions or need additional information. Thank you for your assistance in connection with this application.

Very truly yours,
WALSH, COLUCCI, LUBELEY & WALSH, P.C.

Jonelle M. Cameron

Jonelle M. Cameron

P1438377.DOCX

PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: ~~April 24~~June 17, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 ~~zoning district~~ Zoning District shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Machinery sales and service;

d. Railroad sidings;

e. Adult business;

f. Boat sales;

g. Drive-through;

h. Dwelling for watchman or caretaker on-premises;

i. Recycling facilities;

j. Truck stop; and

k. Vehicle fuel sales.

l. Automobile salvage yard or operations.

m. Feed lots.

n. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district.

o. Junkyard.

p. Slaughter and animal product processing.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be

relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer ~~21~~ 25 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Roof structures, mechanical equipment, equipment platforms, parapet walls, screen walls, elevator shafts, stair wells, penthouses, antennas and/or enclosures may exceed one hundred and five feet (105'). Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. ~~Electric~~ A maximum of (6) electric substations shall ~~not require~~ be permitted on the Property without requiring any further conditional use permit(s). In the event seven or more substations are needed on the Property, each additional substation over six (6) shall require a conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

   a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) ~~will~~ shall provide written notice to the ~~County~~ Zoning Administrator of its intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

   b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety five feet (95') in height. This height limitation shall not apply to transmission structures.

c. Location - Substations on the Property shall be located adjacent to the new connector Road~~. In~~ or in the event the Connector Road is not constructed, adjacent to where the Connector Road would have been. In the event a substation is located to the south of the new Connector Road, or in the event the Connector Road is not constructed, adjacent to where the Connector Road would have been, the substation may not be located within five hundred and fifty feet (550') `from Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. In the event the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

a. Building Facades

i. Principal Building Facades - The building exterior façade design shall include the following architectural features:

1. High albedo or light-colored roof;
2. Parapets;
3. Sound enclosures for each generator;
4. Shrouds for exhaust stacks;
5. Fenestration;

6. Varied building color; and
7. ~~a.Principal Building Facades - Principal building façades (i.e., building façades that face adjacent major arterials or interstates) shall be generally consistent in terms of design, materials, details, and treatment. Said principal building façade shall avoid the use of undifferentiated surfaces and include at least three (3) of the following design elements: (i) change in building height; (ii) building step-backs or recesses; (iii) fenestration; (iv) change in building material, pattern texture, color; or (v) use of accent~~ Varied building materials.

ii. Notwithstanding the above, building exterior facades (visible from surrounding roads or properties) will be composed of at least one primary and two secondary building material(s) as outlined below:

1. Primary Building Materials may be:

   a. Concrete masonry units (split faced or burnished);
   b. Precast concrete;
   c. Concrete tilt-wall;
   d. Glass (clear);
   e. Glass (architectural panels);
   f. Metal panels; and/or
   g. Secondary materials.

2. Secondary Building Materials will be limited to accents or subordinate elements of the façade. Secondary materials may be:

   a. Cement fiber board/cementitious siding;
   b. Concrete masonry units (flush/plain, split faced, or burnished);
   c. Gypsum reinforced fiber concrete;
   d. Metal panels;
   e. Pre-cast concrete (for trim elements only);
   f. Glass (clear); and/or
   g. Glass (architectural panels).

iii. Additional materials and features not listed may be permitted if the Zoning Administrator determines that they are substantially similar in appearance and quality of afore listed features and materials

b. Data Center Buildings Over Ninety Feet (90') - Any data center building over ninety feet (90') in height shall contain an exterior stairwell to the roof and a dedicated and suitable FDC (Fire Department Connection) mounted on the roof in a location coordinated with the Fire Marshall.

c. ~~b.~~Fencing - ~~Fencing may~~ Security fencing shall be provided. ~~If provided, security~~ Security fencing shall be at least seven (7) feet in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

d. ~~c.~~Roof Design - The roof shall be light colored.

e. ~~d.~~Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof. In the event Tax Map Parcels 38-125, 38-126, and/or 38-130 are still zoned A-1 and planned for residential uses screening shall address both visual screening and sound attenuation.

f. ~~e.~~Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

g. ~~f.~~Compliance - Compliance with this ~~proffer~~ Proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area on the Property be less than sixty three (63) acres. The Applicant shall provide a running tabulation of the total tree preservation areas on the Property on each site plan submitted for the Property (even if the site plan submitted does not contain tree preservation area). Notwithstanding

anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

13. Sprinkler System - Any data center building constructed on the Property shall be fully fire sprinklered with floor control valve assemblies on each level. Said sprinklers shall be a NFPA 13 standard or the standard in effect at the time of development of each building.

NOISE

14. Noise - Notwithstanding and in addition to the applicable Noise Ordinance, Stafford County Code Chapter 16, and as may be amended (the "Stafford County Noise Ordinance") any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: ~~60~~ 55 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and

between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by ~~county~~ County government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 15 below.

15. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer ~~12~~ 14 above shall be reduced by 3 dBA. The term "prominent discrete tone" shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

    a. 5 dB for center frequencies of 500 Hz and above;

    b. 8 dB for center frequencies between 160 and 400 Hz; or

    c. 15 dB for center frequencies less than or equal to 125 Hz.

16. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 14 or Proffer 15 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

17. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 14 and Proffer 15, six (6) months after a final occupancy permit is issued and then~~, upon request of the County, whenever there has been a change in the operations or use of the buildings on the Property that could reasonably be expected to affect compliance with Proffer 14 and Proffer 15. There will be no sound or noise measurements required after the initial measurement mentioned above unless there is a change in the operations or use of a building(s)~~ annually for a period of five (5) years after final occupancy permit for the final data center building on the Property. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter the

time of any noise measurement. The Acoustical Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events. During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer ~~12~~ 14 and Proffer ~~13~~ 15 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

18. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this ~~proffer~~ Proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 14 and Proffer 15, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

19. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water~~/~~" and "bridging sewer" for the project. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of this rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and approval of the Water Service Agreement. The Water Service Agreement shall include a capped maximum capacity for bridging water and

bridging sewer until reuse water becomes available. The Water Service Agreement shall be approved prior to the issuance of the first occupancy permit (temporary or final) on the Property. For purposes of this Proffer 19 and Proffer 20 "bridging water" shall mean temporary potable water used for data center cooling and "bridging sewer" shall mean the upgrades to the sewer system to support the load from bridging water.

20. ~~Resue~~ Reuse Water - The Applicant agrees that all industrial data center cooling water demands required for the ~~Project~~ project will utilize reuse water as the sole primary water source once the reuse water system is completed and extended to the ~~property boundary.~~Property boundary. Should the reuse water project become delayed or unavailable due to necessary repairs or unforeseen disruptions as outlined in the Water Service Agreement, the Applicant must then obtain approval from the Stafford County Department of Utilities for any additional bridging water and bridging sewer needs over the maximum allotted in the Water Service Agreement.

21. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

22. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

    a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

23. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

24. Interparcel Connections

a. Tax Map Parcels 38-~~-~~125 and 38-~~-~~130 - In the event Tax Map Parcels 38-~~-~~125, and 38-~~-~~130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said ~~Tax Map Parcels~~ parcels with the final location to be determined by the Applicant at final site plan.

b. Tax Map Parcel 38-~~-~~126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38-~~-~~126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

25. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

26. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road~~-~~: If permitted by the County, VDOT and/or other federal, state or local agencies the Applicant shall make the following transportation improvements on the Connector Road:

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final

completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard, along the Property's Eskimo Hill Road frontage. In addition, the Applicant shall conduct another traffic impact analysis to determine the impacts to Eskimo Hill Road and provide such improvements recommended from the northern Property boundary on Eskimo Hill Road to the Eskimo Hill Road / Route 1 intersection. Said improvements shall be constructed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane~~-~~, extending from Sage Lane to connect to the existing right turn lane at Black Jack Road, prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not

deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for the 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT. Said improvement shall be completed prior to the issuance of the 2,113th VPD on the Property.

27. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer ~~22~~ 26 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's sole expense. Applicant's request shall be in writing and shall comply in all respects with state, federal, and local laws, and the County's ~~Eminent Domain Policy~~eminent domain practices. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney's Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

~~28. Construction Mitigation Plan - The Applicant shall develop a construction management plan in consultation with the County and VDOT. Said construction management plan shall be submitted prior to the issuance of a land disturbance permit that is associated with final site plan approval. For the purposes of this proffer, a land disturbance permit associated with a grading plan shall not be subject to this proffer.~~

28. Construction

a. Construction Mitigation Plan - Prior to final site plan approval for each phase of development of the Property, a construction mitigation plan will be drafted by the

Applicant ("Construction Mitigation Plan") and submitted for review and concurrence to the County's Director of Development Services and Director of Capital Projects. The Construction Mitigation Plan will address, at minimum, construction traffic control measures, including any mitigation measures to be implemented during weekday AM and PM peak travel hours and school bus travel times along shared construction truck routes to and from the Property, access points, and dust control.

b. Delivery Notification - The Applicant agrees to provide the County's Director of Development Services & Community Development and Director of Capital Projects with at least forty-eight (48) hours written notice prior to any expected large or oversized deliveries to Property and/or any significant, heavy construction presence on the Property.

c. Public Liaison - The Applicant agrees to designate at least one public liaison and publicize a toll-free phone number and email address during construction on the Property. At minimum, the information must be published on the Applicant's website and provided to the County's Public Information Officer for publication on the County's website and other social media. The liaison must act as a point of contact between citizens and construction crews. The liaison must be available in person and by phone during active construction hours and must respond to any questions related to the project or Property. The liaison role will commence prior to issuance of a land-disturbing permit and must remain a minimum of six (6) months following the issuance of the final certificate of occupancy for each building constructed on the Property.

d. Joint Construction Traffic Reaction Team - If requested by the County, the Applicant must participate in a Joint Construction Traffic Reaction Team, which may include members of County staff and VDOT, the County Sheriff's Office, and the Virginia State Police to identify and expeditiously resolve or mitigate traffic issues that may arise during the construction on the Property. The Applicant agrees to assist in resolving and implementing solutions to traffic issues.

e. Pavement Damage - At the Applicant's expense, damage to pavement on the roads, including shoulders and aprons, attributable to construction on the Property must be repaired by the Applicant within one hundred and twenty (120) days of the issuance of the final certificate of occupancy for a building on the Property. However, if the Applicant receives notice from the County's Transportation Planner or VDOT staff stating that the damage to roads, including shoulders and aprons, has made a road unsafe, the Applicant will initiate the process of said

repairs within forty-eight (48) hours of written notice from the County and/or VDOT.

29. Applicant Point of Contact - Prior to the first certificate of occupancy permit issued for the Property, the Applicant will provide the County a community point of contact(s) through its "STACK- Public Affairs" department and any other appropriate contact person as determined by the Applicant.

30. ~~29.~~Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

31. ~~30.~~General Development Schedule - If requested by the County annually, the Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the ~~Project~~ Property for the next thirty six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 30 shall expire upon the full development of the Property.

32. Third Party Contractors - Should the County determine, in its sole discretion, that the size and scope of the proposal requires the County to rely upon contracted, or to other contract with, third parties to meet its obligations as they relate to reviewing, permitting and enforcing any aspect of the Project, the Applicant, after approving the costs for said contractors, will reimburse the County's incurred, reasonable costs or fund the County's reasonable estimates for the said third party contractors as set out in the County Code or other requirements. The Applicant will not unreasonably withhold approval of the costs. The Applicant will fund or reimburse the County's reasonable costs through (1) providing funds to the County upfront based on the County's reasonable estimates prior to the third party work and thereafter supplementing the estimated amounts paid, if necessary, by funding the actual, reasonable costs upon completion of the work; or (2) by reimbursing the County after the County has expended funds for the third party work, either, both, or a combination thereof, all as determined by the County. In the alternative, the County (after review and verification) may direct its contractors, vendors, and other third parties providing services in support of the County to present to the Applicant with their invoices directly, which the Applicant will review and approve, and thereafter pay on behalf of the County within thirty (30) days of its receipt. The Applicant will not unreasonably withhold approval of the invoices. Any late fees or costs accrued based upon the Applicant's failure to pay invoices timely presented to it by the County will be the responsibility of the

Applicant. The third-party costs paid by the Applicant hereunder will not be refunded under any circumstance, except in the event if the County unreasonably refuses to commence, or complete, once begun, the third-party work on the Property for which the third parties were contracted. This Proffer pertains to the initial development and construction activities on the Property and shall expire after final bonds for the Property have been released.

33. ~~31.~~Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

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PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: June 17, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 Zoning District shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Machinery sales and service;

d. Railroad sidings;

e. Adult business;

f. Boat sales;

g. Drive-through;

h. Dwelling for watchman or caretaker on-premises;

i. Recycling facilities;

j. Truck stop; and

k. Vehicle fuel sales.

l. Automobile salvage yard or operations.

m. Feed lots.

n. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district.

o. Junkyard.

p. Slaughter and animal product processing.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be

relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 25 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Roof structures, mechanical equipment, equipment platforms, parapet walls, screen walls, elevator shafts, stair wells, penthouses, antennas and/or enclosures may exceed one hundred and five feet (105'). Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. A maximum of (6) electric substations shall be permitted on the Property without requiring any further conditional use permit(s). In the event seven or more substations are needed on the Property, each additional substation over six (6) shall require a conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

    a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) shall provide written notice to the Zoning Administrator of its intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

    b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety five feet (95') in height. This height limitation shall not apply to transmission structures.

    c. Location - Substations on the Property shall be located adjacent to the new connector Road or in the event the Connector Road is not constructed, adjacent to

where the Connector Road would have been. In the event a substation is located to the south of the new Connector Road, or in the event the Connector Road is not constructed, adjacent to where the Connector Road would have been, the substation may not be located within five hundred and fifty feet (550') `from Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. In the event the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

   a. Building Facades

      i. Principal Building Facades - The building exterior façade design shall include the following architectural features:

         1. High albedo or light-colored roof;
         2. Parapets;
         3. Sound enclosures for each generator;
         4. Shrouds for exhaust stacks;
         5. Fenestration;
         6. Varied building color; and
         7. Varied building materials.

ii. Notwithstanding the above, building exterior facades (visible from surrounding roads or properties) will be composed of at least one primary and two secondary building material(s) as outlined below:

1. Primary Building Materials may be:

   a. Concrete masonry units (split faced or burnished);
   b. Precast concrete;
   c. Concrete tilt-wall;
   d. Glass (clear);
   e. Glass (architectural panels);
   f. Metal panels; and/or
   g. Secondary materials.

2. Secondary Building Materials will be limited to accents or subordinate elements of the façade. Secondary materials may be:

   a. Cement fiber board/cementitious siding;
   b. Concrete masonry units (flush/plain, split faced, or burnished);
   c. Gypsum reinforced fiber concrete;
   d. Metal panels;
   e. Pre-cast concrete (for trim elements only);
   f. Glass (clear); and/or
   g. Glass (architectural panels).

iii. Additional materials and features not listed may be permitted if the Zoning Administrator determines that they are substantially similar in appearance and quality of afore listed features and materials

b. Data Center Buildings Over Ninety Feet (90') - Any data center building over ninety feet (90') in height shall contain an exterior stairwell to the roof and a dedicated and suitable FDC (Fire Department Connection) mounted on the roof in a location coordinated with the Fire Marshall.

c. Fencing - Security fencing shall be provided. Security fencing shall be at least seven (7) feet in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any

fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

d. Roof Design - The roof shall be light colored.

e. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof. In the event Tax Map Parcels 38-125, 38-126, and/or 38-130 are still zoned A-1 and planned for residential uses screening shall address both visual screening and sound attenuation.

f. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

g. Compliance - Compliance with this Proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area on the Property be less than sixty three (63) acres. The Applicant shall provide a running tabulation of the total tree preservation areas on the Property on each site plan submitted for the Property (even if the site plan submitted does not contain tree preservation area). Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

13. Sprinkler System - Any data center building constructed on the Property shall be fully fire sprinklered with floor control valve assemblies on each level. Said sprinklers shall be a NFPA 13 standard or the standard in effect at the time of development of each building.

NOISE

14. Noise - Notwithstanding and in addition to the applicable Noise Ordinance, Stafford County Code Chapter 16, and as may be amended (the "Stafford County Noise Ordinance") any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by County government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 15 below.

15. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer 14 above shall be reduced by 3 dBA. The term "prominent discrete tone" shall be defined as an instance when one-third octave band

sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

a. 5 dB for center frequencies of 500 Hz and above;

b. 8 dB for center frequencies between 160 and 400 Hz; or

c. 15 dB for center frequencies less than or equal to 125 Hz.

16. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 14 or Proffer 15 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

17. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 14 and Proffer 15, six (6) months after a final occupancy permit is issued and then annually for a period of five (5) years after final occupancy permit for the final data center building on the Property. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter the time of any noise measurement. The Acoustical Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events. During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer 14 and Proffer 15 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

18. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this Proffer a final site plan does

not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 14 and Proffer 15, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

19. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water" and "bridging sewer" for the project. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of this rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and approval of the Water Service Agreement. The Water Service Agreement shall include a capped maximum capacity for bridging water and bridging sewer until reuse water becomes available. The Water Service Agreement shall be approved prior to the issuance of the first occupancy permit (temporary or final) on the Property. For purposes of this Proffer 19 and Proffer 20 "bridging water" shall mean temporary potable water used for data center cooling and "bridging sewer" shall mean the upgrades to the sewer system to support the load from bridging water.

20. Reuse Water - The Applicant agrees that all industrial data center cooling water demands required for the project will utilize reuse water as the sole primary water source once the reuse water system is completed and extended to the Property boundary. Should the reuse water project become delayed or unavailable due to necessary repairs or unforeseen disruptions as outlined in the Water Service Agreement, the Applicant must then obtain approval from the Stafford County Department of Utilities for any additional bridging water and bridging sewer needs over the maximum allotted in the Water Service Agreement.

21. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

22. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

    a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

    b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

    c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

    d. A 60-year title search of each such property.

    e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

23. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

24. Interparcel Connections

a. Tax Map Parcels 38-125 and 38-130 - In the event Tax Map Parcels 38-125, and 38-130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said parcels with the final location to be determined by the Applicant at final site plan.

b. Tax Map Parcel 38-126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38-126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

25. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356

average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

26. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road: If permitted by the County, VDOT and/or other federal, state or local agencies the Applicant shall make the following transportation improvements on the Connector Road:

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy six feet (76'), or a

lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard, along the Property's Eskimo Hill Road frontage. In addition, the Applicant shall conduct another traffic impact analysis to determine the impacts to Eskimo Hill Road and provide such improvements recommended from the northern Property boundary on Eskimo Hill Road to the Eskimo Hill Road / Route 1 intersection. Said improvements shall be constructed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access

roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane, extending from Sage Lane to connect to the existing right turn lane at Black Jack Road, prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for the 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the

preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT. Said improvement shall be completed prior to the issuance of the 2,113th VPD on the Property.

27. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 26 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's sole expense. Applicant's request shall be in writing and shall comply in all respects with state, federal, and local laws, and the County's eminent domain practices. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of

the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney's Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

28. Construction

a. Construction Mitigation Plan - Prior to final site plan approval for each phase of development of the Property, a construction mitigation plan will be drafted by the Applicant ("Construction Mitigation Plan") and submitted for review and concurrence to the County's Director of Development Services and Director of Capital Projects. The Construction Mitigation Plan will address, at minimum, construction traffic control measures, including any mitigation measures to be implemented during weekday AM and PM peak travel hours and school bus travel times along shared construction truck routes to and from the Property, access points, and dust control.

b. Delivery Notification - The Applicant agrees to provide the County's Director of Development Services & Community Development and Director of Capital Projects with at least forty-eight (48) hours written notice prior to any expected large or oversized deliveries to Property and/or any significant, heavy construction presence on the Property.

c. Public Liaison - The Applicant agrees to designate at least one public liaison and publicize a toll-free phone number and email address during construction on the Property. At minimum, the information must be published on the Applicant's website and provided to the County's Public Information Officer for publication on the County's website and other social media. The liaison must act as a point of contact between citizens and construction crews. The liaison must be available in person and by phone during active construction hours and must respond to any questions related to the project or Property. The liaison role will commence prior

to issuance of a land-disturbing permit and must remain a minimum of six (6) months following the issuance of the final certificate of occupancy for each building constructed on the Property.

d. Joint Construction Traffic Reaction Team - If requested by the County, the Applicant must participate in a Joint Construction Traffic Reaction Team, which may include members of County staff and VDOT, the County Sheriff's Office, and the Virginia State Police to identify and expeditiously resolve or mitigate traffic issues that may arise during the construction on the Property. The Applicant agrees to assist in resolving and implementing solutions to traffic issues.

e. Pavement Damage - At the Applicant's expense, damage to pavement on the roads, including shoulders and aprons, attributable to construction on the Property must be repaired by the Applicant within one hundred and twenty (120) days of the issuance of the final certificate of occupancy for a building on the Property. However, if the Applicant receives notice from the County's Transportation Planner or VDOT staff stating that the damage to roads, including shoulders and aprons, has made a road unsafe, the Applicant will initiate the process of said repairs within forty-eight (48) hours of written notice from the County and/or VDOT.

29. Applicant Point of Contact - Prior to the first certificate of occupancy permit issued for the Property, the Applicant will provide the County a community point of contact(s) through its "STACK- Public Affairs" department and any other appropriate contact person as determined by the Applicant.

30. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

31. General Development Schedule - If requested by the County annually, the Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the Property for the next thirty six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 30 shall expire upon the full development of the Property.

PROFFER STATEMENT
#RC2023154931
Applicant: Stafford Technology LC
Date: June 17, 2024

32. Third Party Contractors - Should the County determine, in its sole discretion, that the size and scope of the proposal requires the County to rely upon contracted, or to other contract with, third parties to meet its obligations as they relate to reviewing, permitting and enforcing any aspect of the Project, the Applicant, after approving the costs for said contractors, will reimburse the County's incurred, reasonable costs or fund the County's reasonable estimates for the said third party contractors as set out in the County Code or other requirements. The Applicant will not unreasonably withhold approval of the costs. The Applicant will fund or reimburse the County's reasonable costs through (1) providing funds to the County upfront based on the County's reasonable estimates prior to the third party work and thereafter supplementing the estimated amounts paid, if necessary, by funding the actual, reasonable costs upon completion of the work; or (2) by reimbursing the County after the County has expended funds for the third party work, either, both, or a combination thereof, all as determined by the County. In the alternative, the County (after review and verification) may direct its contractors, vendors, and other third parties providing services in support of the County to present to the Applicant with their invoices directly, which the Applicant will review and approve, and thereafter pay on behalf of the County within thirty (30) days of its receipt. The Applicant will not unreasonably withhold approval of the invoices. Any late fees or costs accrued based upon the Applicant's failure to pay invoices timely presented to it by the County will be the responsibility of the Applicant. The third-party costs paid by the Applicant hereunder will not be refunded under any circumstance, except in the event if the County unreasonably refuses to commence, or complete, once begun, the third-party work on the Property for which the third parties were contracted. This Proffer pertains to the initial development and construction activities on the Property and shall expire after final bonds for the Property have been released.

33. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

P1438440.DOCX

PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: ~~June 17~~July 18, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 Zoning District shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Machinery sales and service;

d. Railroad sidings;

e. Adult business;

f. Boat sales;

g. Drive-through;

h. Dwelling for watchman or caretaker on-premises;

i. Recycling facilities;

j. Truck stop; and

k. Vehicle fuel sales.

l. Automobile salvage yard or operations.

m. Feed lots.

n. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district.

o. Junkyard.

p. Slaughter and animal product processing.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be

relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 25 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). ~~Roof structures, mechanical equipment, equipment platforms, parapet walls, screen walls, elevator shafts, stair wells, penthouses, antennas and/or enclosures may exceed one hundred and five feet (105')~~Height shall be measured based on the existing definition of height in the Zoning Ordinance in effect at the time of approval of this rezoning. Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. A maximum of (6) electric substations shall be permitted on the Property without requiring any further conditional use permit(s). In the event seven or more substations are needed on the Property, each additional substation over six (6) shall require a conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

   a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) shall provide written notice to the Zoning Administrator of its intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

   b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety five feet (95') in height. This height limitation shall not apply to transmission structures.

c. Location - Substations on the Property shall be located adjacent to the new connector Road or in the event the Connector Road is not constructed, adjacent to where the Connector Road ~~would have been~~is shown on the GDP. In the event a substation is located to the south of the new Connector Road, or in the event the Connector Road is not constructed, adjacent to where the Connector Road ~~would have been~~is shown on the GDP, the substation may not be located within five hundred and fifty feet (550')~~`~~ from Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. In the event the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

a. Building Facades

i. Principal Building Facades - The building exterior façade design shall include the following architectural features:

1. High albedo or light-colored roof;
2. Parapets;
3. Sound enclosures for each generator;
4. Shrouds for exhaust stacks;

5. Fenestration;
6. Varied building color; and
7. Varied building materials.

ii. Notwithstanding the above, building exterior facades (visible from surrounding roads or properties) will be composed of at least one primary and two secondary building material(s) as outlined below:

1. Primary Building Materials may be:

   a. Concrete masonry units (split faced or burnished);
   b. Precast concrete;
   c. Concrete tilt-wall;
   d. Glass (clear);
   e. Glass (architectural panels);
   f. Metal panels; and/or
   g. Secondary materials.

2. Secondary Building Materials will be limited to accents or subordinate elements of the façade. Secondary materials may be:

   a. Cement fiber board/cementitious siding;
   b. Concrete masonry units (flush/plain, split faced, or burnished);
   c. Gypsum reinforced fiber concrete;
   d. Metal panels;
   e. Pre-cast concrete (for trim elements only);
   f. Glass (clear); and/or
   g. Glass (architectural panels).

iii. Additional materials and features not listed may be permitted if the Zoning Administrator determines that they are substantially similar in appearance and quality of afore listed features and materials

~~b. Data Center Buildings Over Ninety Feet (90') - Any data center building over ninety feet (90') in height shall contain an exterior stairwell to the roof and a dedicated and suitable FDC (Fire Department Connection) mounted on the roof in a location coordinated with the Fire Marshall.~~

~~c.~~b. Fencing - Security fencing shall be provided around the perimeter of the Property, each data center building, or multiple data center buildings. Security fencing shall

be at least ~~seven (7)~~ eight feet (8') in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

~~d.~~c. Roof Design - The roof shall be light colored.

~~e.~~d. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof. In the event Tax Map Parcels 38-125, 38-126, and/or 38-130 are still zoned A-1 and planned for residential uses screening shall address both visual screening and sound attenuation. In addition, generators that are facing the above mentioned tax map parcels and not screened by buildings shall be screened by a solid wall.

~~f.~~e. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

~~g.~~f. Compliance - Compliance with this Proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area on the Property be less than sixty three (63) acres. The Applicant shall provide a running tabulation of the total tree preservation areas on the Property on each site plan submitted for the Property (even if the site plan submitted does not contain tree preservation area). Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. Monetary Contribution - The Applicant shall make a monetary contribution to Stafford County Board of Supervisors in the amount of one million five hundred thousand dollars ($1,500,000) to be used for fire and rescue purposes. Said contribution shall be paid at the time of issuance of the building permit for the first data center building on the Property.

~~12.~~13. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

~~13.~~14. Sprinkler System - Any data center building constructed on the Property shall be fully fire sprinklered with floor control valve assemblies on each level. Said sprinklers shall be a NFPA 13 standard or the standard in effect at the time of development of each building.

NOISE

~~14.~~15. Data Center Noise - Notwithstanding and in addition to the applicable Noise Ordinance, Stafford County Code Chapter 16, and as may be amended (the "Stafford County Noise Ordinance") any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and

between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by County government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer ~~15~~ 16 below.

~~15.~~16. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer ~~14~~ 15 above shall be reduced by 3 dBA. The term "prominent discrete tone" shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

a. 5 dB for center frequencies of 500 Hz and above;

b. 8 dB for center frequencies between 160 and 400 Hz; or

c. 15 dB for center frequencies less than or equal to 125 Hz.

~~16.~~17. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer ~~14~~ 15 or Proffer ~~15~~ 16 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

~~17.~~18. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer ~~14~~ 15 and Proffer ~~15~~16, six (6) months after a final occupancy permit for each data center building is issued and then annually for a period of five (5) years after final occupancy permit for the final data center building on the Property. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter the time of any noise measurement. The Acoustical Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events. During the measurement, the Acoustical Consultant will position the microphone so as not

to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer ~~14~~ 15 and Proffer ~~15~~ 16 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

~~18.~~19. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this Proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior to issuance of a building permit. In the event the sound study shows compliance with the above Proffer ~~14~~ 15 and Proffer ~~15~~16, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

~~19.~~20. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water" and "bridging sewer" for the project. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of this rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and approval of the Water Service Agreement. The Water Service Agreement shall include a capped maximum capacity for bridging water and bridging sewer until reuse water becomes available. The Water Service Agreement shall be approved prior to the issuance of the first occupancy permit (temporary or final) on the Property. For purposes of this Proffer ~~19~~ 20 and Proffer ~~20~~ 21 "bridging water" shall mean

temporary potable water used for data center cooling and "bridging sewer" shall mean the upgrades to the sewer system to support the load from bridging water.

~~20.~~21. Reuse Water - The Applicant agrees that all industrial data center cooling water demands required for the project will utilize reuse water as the sole primary water source once the reuse water system is completed and extended to the Property boundary. Should the reuse water project become delayed or unavailable due to necessary repairs or unforeseen disruptions as outlined in the Water Service Agreement, the Applicant must then obtain approval from the Stafford County Department of Utilities for any additional bridging water and bridging sewer needs over the maximum allotted in the Water Service Agreement.

~~21.~~22. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

~~22.~~23. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

~~23.~~24. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

~~24.~~25. Interparcel Connections

a. Tax Map Parcels 38-125 and 38-130 - In the event Tax Map Parcels 38-125, and 38-130 do not have direct access to a future connector road to Eskimo Hill Road or

Richmond Highway, the Applicant shall construct an interparcel connection to said parcels with the final location to be determined by the Applicant at final site plan.

b. Tax Map Parcel 38-126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38-126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

~~25.~~26. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

~~26.~~27. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road: If permitted by the County, VDOT and/or other federal, state or local agencies the Applicant shall make the following transportation improvements on the Connector Road:

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall construct a six foot (6') wide shoulder in each direction and additional lane

width, where necessary, consistent with the County's Major Local Road standard, along the Property's Eskimo Hill Road frontage. In addition, the Applicant shall conduct another traffic impact analysis to determine the impacts to Eskimo Hill Road and provide such improvements recommended from the northern Property boundary on Eskimo Hill Road to the Eskimo Hill Road / Route 1 intersection. Said improvements shall be constructed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the

Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane, extending from Sage Lane to connect to the existing right turn lane at Black Jack Road, prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for the 4,356th VPD on the Property. In the event VDOT does not deem

the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT. Said improvement shall be completed prior to the issuance of the 2,113th VPD on the Property.

~~27.~~28. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer ~~26~~ 27 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's sole expense. Applicant's request shall be in writing and shall comply in all respects with state, federal, and local laws, and the County's eminent domain practices. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney's Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

28. Construction

a. Construction Mitigation Plan - Prior to final site plan approval for each phase of development of the Property, a construction mitigation plan will be drafted by the Applicant ("Construction Mitigation Plan") and submitted for review and concurrence to the County's Director of Development Services and Director of Capital Projects. The Construction Mitigation Plan will address, at minimum, construction traffic control measures, including any mitigation measures to be implemented during weekday AM and PM peak travel hours and school bus travel times along shared construction truck routes to and from the Property, access points, and dust control.

b. Delivery Notification - The Applicant agrees to provide the County's Director of Development Services & Community Development and Director of Capital Projects with at least forty-eight (48) hours written notice prior to any expected large or oversized deliveries to Property and/or any significant, heavy construction presence on the Property.

c. Public Liaison - The Applicant agrees to designate at least one public liaison and publicize a toll-free phone number and email address during construction on the Property. At minimum, the information must be published on the Applicant's website and provided to the County's Public Information Officer for publication on the County's website and other social media. The liaison must act as a point of contact between citizens and construction crews. The liaison must be available in person and by phone during active construction hours and must respond to any questions related to the project or Property. The liaison role will commence prior to issuance of a land-disturbing permit and must remain a minimum of six (6) months following the issuance of the final certificate of occupancy for each building constructed on the Property.

d. Joint Construction Traffic Reaction Team - If requested by the County, the Applicant must participate in a Joint Construction Traffic Reaction Team, which may include members of County staff and VDOT, the County Sheriff's Office, and the Virginia State Police to identify and expeditiously resolve or mitigate traffic issues that may arise during the construction on the Property. The Applicant agrees to assist in resolving and implementing solutions to traffic issues.

e. Pavement Damage - At the Applicant's expense, damage to pavement on the roads, including shoulders and aprons, attributable to construction on the Property must be repaired by the Applicant within one hundred and twenty (120) days of the issuance of the final certificate of occupancy for a building on the Property. However, if the Applicant receives notice from the County's Transportation Planner or VDOT staff stating that the damage to roads, including shoulders and aprons, has made a road unsafe, the Applicant will initiate the process of said repairs within forty-eight (48) hours of written notice from the County and/or VDOT.

29. Applicant Point of Contact - Prior to the first certificate of occupancy permit issued for the Property, the Applicant will provide the County a community point of contact(s) through its "STACK- Public Affairs" department and any other appropriate contact person as determined by the Applicant.

30. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

31. General Development Schedule - ~~If requested by the County annually, the~~ The Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the Property for the next thirty six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer ~~30~~ 31 shall expire upon the full development of the Property.

32. Third Party Contractors - Should the County determine, in its sole discretion, that the size and scope of the proposal associated with data center buildings requires the County to rely upon contracted, or to other contract with, third parties to meet its obligations as they relate to reviewing, permitting and enforcing any aspect of the Project, the Applicant, after approving the costs for said contractors, will reimburse the County's incurred, reasonable costs or fund the County's reasonable estimates for the said third party contractors as set out in the County Code or other requirements. The Applicant will not unreasonably withhold approval of the costs. The Applicant will fund or reimburse the County's reasonable costs through (1) providing funds to the County upfront based on the County's reasonable estimates prior to the third party work and thereafter supplementing the estimated amounts paid, if necessary, by funding the actual, reasonable costs upon completion of the work; or (2) by reimbursing the County after the County has expended funds for the third party work, either, both, or a combination thereof, all as determined by the County. In the alternative, the County (after review and verification) may direct its contractors, vendors, and other third parties providing services in support of the County to present to the Applicant with their invoices directly, which the Applicant will review and approve, and thereafter pay on behalf of the County within thirty (30) days of its receipt. The Applicant will not unreasonably withhold approval of the invoices. Any late fees or costs accrued based upon the Applicant's failure to pay invoices timely presented to it by the County will be the responsibility of the Applicant. The third-party costs paid by the Applicant hereunder will not be refunded under any circumstance, except in the event if the County unreasonably refuses to commence, or complete, once begun, the third-party work on the Property for which the third parties were contracted. This Proffer pertains to the initial development of the data centers building on the Property and construction activities on the Property and shall expire after final bonds for the last data center building constructed on the Property have been released.

33. Generator Testing - The testing of data center building generators shall be limited to weekdays between the hours of 7AM and 6PM.

~~33.~~34. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

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PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: July 18, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 Zoning District shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Machinery sales and service;

d. Railroad sidings;

e. Adult business;

f. Boat sales;

g. Drive-through;

h. Dwelling for watchman or caretaker on-premises;

i. Recycling facilities;

j. Truck stop; and

k. Vehicle fuel sales.

l. Automobile salvage yard or operations.

m. Feed lots.

n. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district.

o. Junkyard.

p. Slaughter and animal product processing.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be

relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 25 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Height shall be measured based on the existing definition of height in the Zoning Ordinance in effect at the time of approval of this rezoning. Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. A maximum of (6) electric substations shall be permitted on the Property without requiring any further conditional use permit(s). In the event seven or more substations are needed on the Property, each additional substation over six (6) shall require a conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

    a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) shall provide written notice to the Zoning Administrator of its intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

    b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety five feet (95') in height. This height limitation shall not apply to transmission structures.

    c. Location - Substations on the Property shall be located adjacent to the new connector Road or in the event the Connector Road is not constructed, adjacent to

where the Connector Road is shown on the GDP. In the event a substation is located to the south of the new Connector Road, or in the event the Connector Road is not constructed, adjacent to where the Connector Road is shown on the GDP, the substation may not be located within five hundred and fifty feet (550') from Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. In the event the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38-22, 38-125, 38-126, and 38-130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

   a. Building Facades

      i. Principal Building Facades - The building exterior façade design shall include the following architectural features:

         1. High albedo or light-colored roof;
         2. Parapets;
         3. Sound enclosures for each generator;
         4. Shrouds for exhaust stacks;
         5. Fenestration;
         6. Varied building color; and

7. Varied building materials.

ii. Notwithstanding the above, building exterior facades (visible from surrounding roads or properties) will be composed of at least one primary and two secondary building material(s) as outlined below:

1. Primary Building Materials may be:

a. Concrete masonry units (split faced or burnished);
b. Precast concrete;
c. Concrete tilt-wall;
d. Glass (clear);
e. Glass (architectural panels);
f. Metal panels; and/or
g. Secondary materials.

2. Secondary Building Materials will be limited to accents or subordinate elements of the façade. Secondary materials may be:

a. Cement fiber board/cementitious siding;
b. Concrete masonry units (flush/plain, split faced, or burnished);
c. Gypsum reinforced fiber concrete;
d. Metal panels;
e. Pre-cast concrete (for trim elements only);
f. Glass (clear); and/or
g. Glass (architectural panels).

iii. Additional materials and features not listed may be permitted if the Zoning Administrator determines that they are substantially similar in appearance and quality of afore listed features and materials

b. Fencing - Security fencing shall be provided around the perimeter of the Property, each data center building, or multiple data center buildings. Security fencing shall be at least eight feet (8') in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

c. Roof Design - The roof shall be light colored.

d. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof. In the event Tax Map Parcels 38-125, 38-126, and/or 38-130 are still zoned A-1 and planned for residential uses screening shall address both visual screening and sound attenuation. In addition, generators that are facing the above mentioned tax map parcels and not screened by buildings shall be screened by a solid wall.

e. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

f. Compliance - Compliance with this Proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area on the Property be less than sixty three (63) acres. The Applicant shall provide a running tabulation of the total tree preservation areas on the Property on each site plan submitted for the Property (even if the site plan submitted does not contain tree preservation area). Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. Monetary Contribution - The Applicant shall make a monetary contribution to Stafford County Board of Supervisors in the amount of one million five hundred thousand dollars ($1,500,000) to be used for fire and rescue purposes. Said contribution shall be paid at the time of issuance of the building permit for the first data center building on the Property.

13. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

14. Sprinkler System - Any data center building constructed on the Property shall be fully fire sprinklered with floor control valve assemblies on each level. Said sprinklers shall be a NFPA 13 standard or the standard in effect at the time of development of each building.

NOISE

15. Data Center Noise - Notwithstanding and in addition to the applicable Noise Ordinance, Stafford County Code Chapter 16, and as may be amended (the "Stafford County Noise Ordinance") any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by County government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be

subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 16 below.

16. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer 15 above shall be reduced by 3 dBA. The term "prominent discrete tone" shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

    a. 5 dB for center frequencies of 500 Hz and above;

    b. 8 dB for center frequencies between 160 and 400 Hz; or

    c. 15 dB for center frequencies less than or equal to 125 Hz.

17. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 15 or Proffer 16 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

18. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 15 and Proffer 16, six (6) months after a final occupancy permit for each data center building is issued and then annually for a period of five (5) years after final occupancy permit for the final data center building on the Property. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter the time of any noise measurement. The Acoustical Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events. During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer 15 and Proffer 16 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level

meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

19. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this Proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 15 and Proffer 16, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

20. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water" and "bridging sewer" for the project. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of this rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and approval of the Water Service Agreement. The Water Service Agreement shall include a capped maximum capacity for bridging water and bridging sewer until reuse water becomes available. The Water Service Agreement shall be approved prior to the issuance of the first occupancy permit (temporary or final) on the Property. For purposes of this Proffer 20 and Proffer 21 "bridging water" shall mean temporary potable water used for data center cooling and "bridging sewer" shall mean the upgrades to the sewer system to support the load from bridging water.

21. Reuse Water - The Applicant agrees that all industrial data center cooling water demands required for the project will utilize reuse water as the sole primary water source once the reuse water system is completed and extended to the Property boundary. Should the reuse water project become delayed or unavailable due to necessary repairs or unforeseen disruptions as outlined in the Water Service Agreement, the Applicant must then obtain

approval from the Stafford County Department of Utilities for any additional bridging water and bridging sewer needs over the maximum allotted in the Water Service Agreement.

22. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

23. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

    a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

    b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

    c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

    d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

24. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

25. Interparcel Connections

a. Tax Map Parcels 38-125 and 38-130 - In the event Tax Map Parcels 38-125, and 38-130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said parcels with the final location to be determined by the Applicant at final site plan.

b. Tax Map Parcel 38-126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38-126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall

be dedicated prior to the issuance of the final site plan approval that includes the easement area.

26. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

27. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

    a. Connector Road: If permitted by the County, VDOT and/or other federal, state or local agencies the Applicant shall make the following transportation improvements on the Connector Road:

        i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

        ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

        iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one

ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard, along the Property's Eskimo Hill Road frontage. In addition, the Applicant shall conduct another traffic impact analysis to determine the impacts to Eskimo Hill Road and provide such improvements recommended from the northern Property boundary on Eskimo Hill Road to the Eskimo Hill Road / Route 1 intersection. Said improvements shall be constructed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on

the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane, extending from Sage Lane to connect to the existing right turn lane at Black Jack Road, prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for the 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount

acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT. Said improvement shall be completed prior to the issuance of the 2,113th VPD on the Property.

28. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 27 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's sole expense. Applicant's request shall be in writing and shall comply in all respects with state, federal, and local laws, and the County's eminent domain practices. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney's Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

28. Construction

a. Construction Mitigation Plan - Prior to final site plan approval for each phase of development of the Property, a construction mitigation plan will be drafted by the Applicant ("Construction Mitigation Plan") and submitted for review and concurrence to the County's Director of Development Services and Director of Capital Projects. The Construction Mitigation Plan will address, at minimum, construction traffic control measures, including any mitigation measures to be implemented during weekday AM and PM peak travel hours and school bus travel times along shared construction truck routes to and from the Property, access points, and dust control.

b. Delivery Notification - The Applicant agrees to provide the County's Director of Development Services & Community Development and Director of Capital Projects with at least forty-eight (48) hours written notice prior to any expected large or oversized deliveries to Property and/or any significant, heavy construction presence on the Property.

c. Public Liaison - The Applicant agrees to designate at least one public liaison and publicize a toll-free phone number and email address during construction on the

Property. At minimum, the information must be published on the Applicant's website and provided to the County's Public Information Officer for publication on the County's website and other social media. The liaison must act as a point of contact between citizens and construction crews. The liaison must be available in person and by phone during active construction hours and must respond to any questions related to the project or Property. The liaison role will commence prior to issuance of a land-disturbing permit and must remain a minimum of six (6) months following the issuance of the final certificate of occupancy for each building constructed on the Property.

d. Joint Construction Traffic Reaction Team - If requested by the County, the Applicant must participate in a Joint Construction Traffic Reaction Team, which may include members of County staff and VDOT, the County Sheriff's Office, and the Virginia State Police to identify and expeditiously resolve or mitigate traffic issues that may arise during the construction on the Property. The Applicant agrees to assist in resolving and implementing solutions to traffic issues.

e. Pavement Damage - At the Applicant's expense, damage to pavement on the roads, including shoulders and aprons, attributable to construction on the Property must be repaired by the Applicant within one hundred and twenty (120) days of the issuance of the final certificate of occupancy for a building on the Property. However, if the Applicant receives notice from the County's Transportation Planner or VDOT staff stating that the damage to roads, including shoulders and aprons, has made a road unsafe, the Applicant will initiate the process of said repairs within forty-eight (48) hours of written notice from the County and/or VDOT.

29. Applicant Point of Contact - Prior to the first certificate of occupancy permit issued for the Property, the Applicant will provide the County a community point of contact(s) through its "STACK- Public Affairs" department and any other appropriate contact person as determined by the Applicant.

30. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

31. General Development Schedule - The Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule

shall forecast the proposed development activities related to the Property for the next thirty six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 31 shall expire upon the full development of the Property.

32. Third Party Contractors - Should the County determine, in its sole discretion, that the size and scope of the proposal associated with data center buildings requires the County to rely upon contracted, or to other contract with, third parties to meet its obligations as they relate to reviewing, permitting and enforcing any aspect of the Project, the Applicant, after approving the costs for said contractors, will reimburse the County's incurred, reasonable costs or fund the County's reasonable estimates for the said third party contractors as set out in the County Code or other requirements. The Applicant will not unreasonably withhold approval of the costs. The Applicant will fund or reimburse the County's reasonable costs through (1) providing funds to the County upfront based on the County's reasonable estimates prior to the third party work and thereafter supplementing the estimated amounts paid, if necessary, by funding the actual, reasonable costs upon completion of the work; or (2) by reimbursing the County after the County has expended funds for the third party work, either, both, or a combination thereof, all as determined by the County. In the alternative, the County (after review and verification) may direct its contractors, vendors, and other third parties providing services in support of the County to present to the Applicant with their invoices directly, which the Applicant will review and approve, and thereafter pay on behalf of the County within thirty (30) days of its receipt. The Applicant will not unreasonably withhold approval of the invoices. Any late fees or costs accrued based upon the Applicant's failure to pay invoices timely presented to it by the County will be the responsibility of the Applicant. The third-party costs paid by the Applicant hereunder will not be refunded under any circumstance, except in the event if the County unreasonably refuses to commence, or complete, once begun, the third-party work on the Property for which the third parties were contracted. This Proffer pertains to the initial development of the data centers building on the Property and construction activities on the Property and shall expire after final bonds for the last data center building constructed on the Property have been released.

33. Generator Testing - The testing of data center building generators shall be limited to weekdays between the hours of 7AM and 6PM.

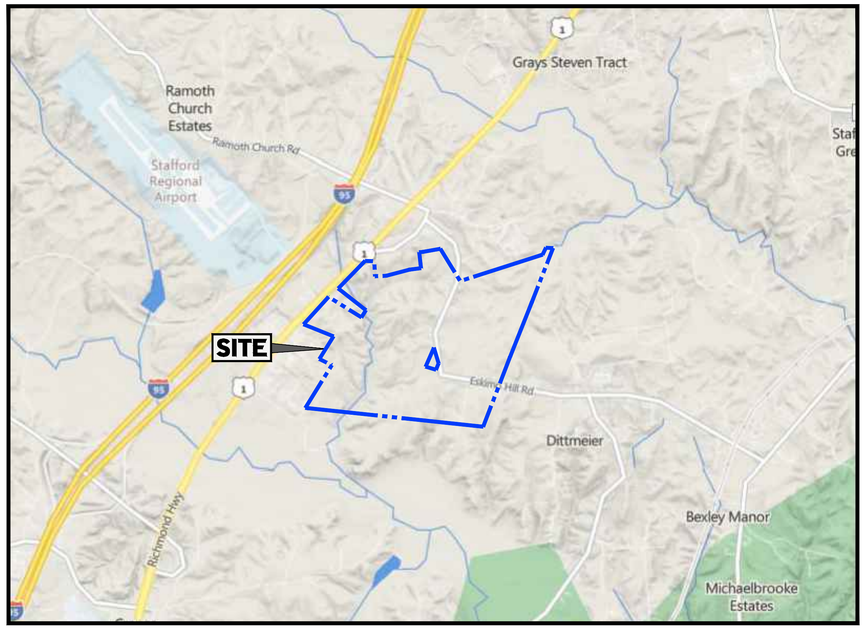
34. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

P1447590.DOCX

GENERALIZED DEVELOPMENT PLAN (GDP)

ZONING RECLASSIFICATION #RC23154931
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 & 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



VICINITY MAP
SOURCE - BING MAPS
SCALE 1" = 2000'

OWNER / APPLICANT
PARCEL 38 124
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

OWNER / APPLICANT
PARCEL 38 29A
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

LAND USE ATTORNEY
WALSH COLUCCI LUBELEY & WALSH
4310 PRINCE WILLIAM PARKWAY; SUITE 300
PRINCE WILLIAM, VA 22192
CONTACT: JONELLE M. CAMERON
703-680-4664

TRANSPORTATION ENGINEER
GOROVE SLADE
4114 LEGATO ROAD; SUITE 650
FAIRFAX, VA 22033
CONTACT: KEVIN SITZMAN, P.E.
571-261-9718

CIVIL ENGINEER
BOHLER ENGINEERING
12825 WORLDGATE DRIVE; SUITE 700
HERNDON, VA 20170
CONTACT: MICHAEL O'SHAUGHNESSY
703-709-9500

NOTE: THIS GDP HAS NOT BEEN REVIEWED FOR FULL COMPLIANCE WITH THE STAFFORD COUNTY ORDINANCE AT THIS TIME. ALL PROPOSED SITE IMPROVEMENTS SHOWN ON THIS PLAN MAY BE AMENDED BY THE OWNERS TO FULFILL REQUIREMENTS OF FINAL ENGINEERING, OR COMPLIANCE WITH CURRENT STATE AGENCY REGULATIONS AND/OR COUNTY DEVELOPMENT REGULATIONS/STANDARDS IN PACE AT THE TIME OF SITE PLAN SUBMISSION.

NOTE: ALL BUFFERYARDS AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH CURRENT STAFFORD COUNTY DEVELOPMENT STANDARDS IN PLACE AT THE TIME OF SITE PLAN SUBMISSION.

NOTE: ALTHOUGH CERTAIN DESIGN FEATURES MAY BE REFERENCED DURING THE REVIEW, THIS REVIEW DOES NOT COVER ENGINEERING DETAILS. THESE DETAILS, INCLUDING BUT NOT LIMITED TO TUM-LANES, TUM LANE STORAGE LENGTHS AND TRANSITIONS, ENTRANCE WIDTH AND RADII, SPACING STANDARDS, SIGHT DISTANCE, OBTAINING OFF-SITE SIGHT DISTANCE EASEMENTS, AUTO TUM, AND ACCESS MANAGEMENT WILL BE ADDRESSED AT A LATER STAGE OF SITE PLAN DEVELOPMENT REVIEW. THE REVIEW WILL BE BASED ON THE CURRENT VDOT STANDARDS AT THE TIME OF DETAILED SITE PLAN SUBMITTAL.

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	C-1
EXISTING CONDITIONS	C-2
GENERALIZED DEVELOPMENT PLAN	C-3
OVERALL ILLUSTRATIVE PLAN	C-4

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY CONSULTING
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	MW / MO
2	02/22/24	COUNTY COMMENTS	MW / NTG
3	04/24/24	COUNTY COMMENTS	MW / NTG

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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	CNDS-0

PROJECT:
GENERALIZED DEVELOPMENT PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

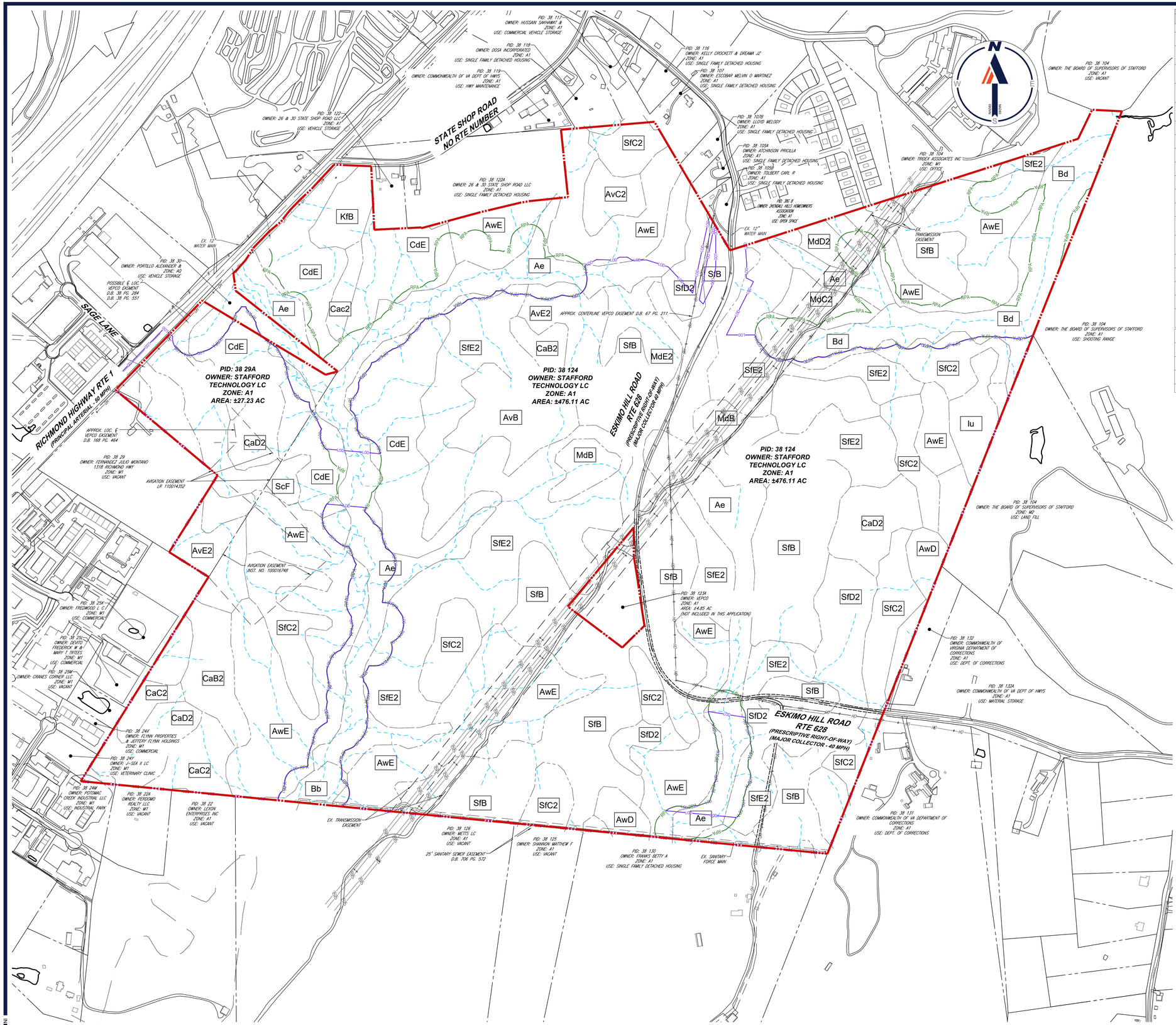
COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
C-1

REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\GDV1 - EXCLUDING VEPCO PARCEL\VAA220232.00-CNDS-0---LAYOUT C1 - COVER SHEET



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ae	Alluvial land, wet	47.4	9.2%
AvB	Aura gravelly fine sandy loam, 2 to 6 percent slopes	7.8	1.5%
AvC2	Aura gravelly fine sandy loam, 6 to 10 percent slopes, eroded	12.5	2.4%
AvE2	Aura gravelly fine sandy loam, 18 to 35 percent slopes, eroded	14.5	2.8%
AwD	Aura-Galestown-Sassafras complex, 6 to 15 percent slopes	4.0	0.8%
AwE	Aura-Galestown-Sassafras complex, 15 to 30 percent slopes	80.7	15.7%
Bb	Bibb fine sandy loam, 0 to 4 percent slopes	0.6	0.1%
Bd	Bladen loam, 0 to 2 percent slopes	20.5	4.0%
BmB	Bourne fine sandy loam, 2 to 6 percent slopes	0.3	0.0%
CaB2	Caroline fine sandy loam, 2 to 6 percent slopes, eroded	12.3	2.4%
CaC2	Caroline fine sandy loam, 6 to 10 percent slopes, eroded	6.4	1.2%
CaD2	Caroline fine sandy loam, 10 to 18 percent slopes, eroded	12.9	2.5%
CdE	Caroline-Sassafras complex, 15 to 30 percent slopes	41.8	8.1%
Iu	Iuka fine sandy loam, local alluvium, 0 to 4 percent slopes	4.5	0.9%
KfB	Kempsville fine sandy loam, gravelly substratum, 2 to 6 percent slopes	3.9	0.8%
MdB	Marr very fine sandy loam, 2 to 6 percent slopes	5.6	1.1%
MdC2	Marr very fine sandy loam, 6 to 10 percent slopes, eroded	3.5	0.7%
MdD2	Marr very fine sandy loam, 10 to 15 percent slopes, eroded	1.7	0.3%
MdE2	Marr very fine sandy loam, 15 to 30 percent slopes, eroded	4.6	0.9%
ScF	Sandy end dlayey land, steep, Sassafras and Caroline materials	8.8	1.7%
SfB	Sassafras fine sandy loam, 2 to 6 percent slopes	84.8	16.4%
SfC2	Sassafras fine sandy loam, 6 to 10 percent slopes, eroded	33.0	6.4%
SfD2	Sassafras fine sandy loam, 10 to 15 percent slopes, eroded	17.9	3.5%
SfE2	Sassafras fine sandy loam, 15 to 35 percent slopes, eroded	85.7	16.6%
Totals for Area of Interest		**515.7**	**100.0%**

LEGEND

- REZONING AREA
- APPROXIMATE LOCATION OF STREAM CENTERLINE PER COUNTY GIS
- AwE — SOIL MAP UNIT LABEL
- SOIL LINE
- RPA — RPA PER TNT
- LOD — LIMITS OF DISTURBANCE (TO BE ADJUSTED AT TIME OF SITE PLAN)

300 150 75 0 300
1"= 300'

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SITE CIVIL AND CONSULTING ENGINEERING
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DATE:	08/01/23
CAD I.D.:	EXST-0

PROJECT:

GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

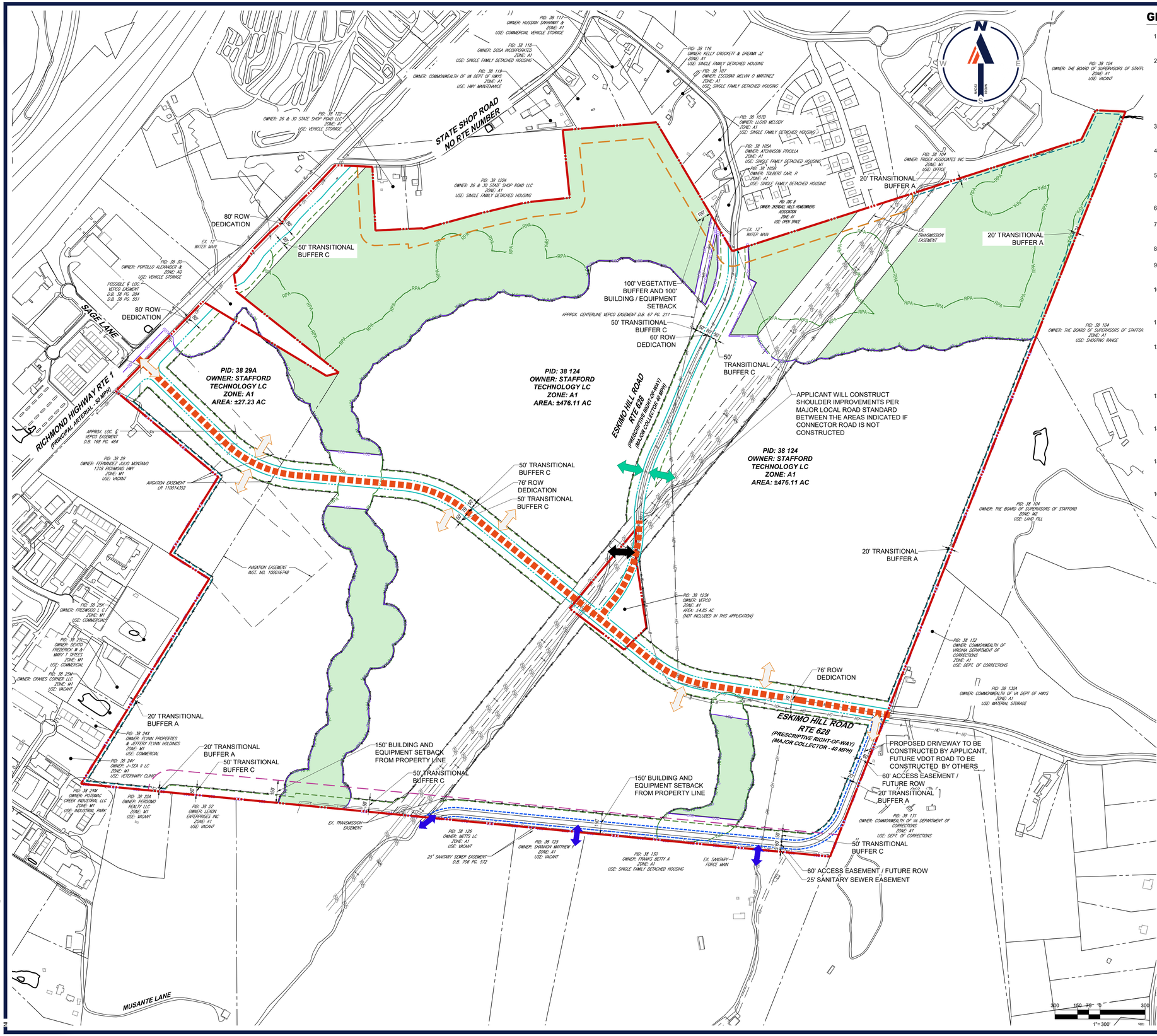
EXISTING CONDITIONS PLAN

SHEET NUMBER:

C-2

REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\SHT_EXCLUDING VEPCO PARCEL\VAA220232.00-EXST-0---LAYOUT: C2 - EXISTING CONDITIONS



GENERALIZED DEVELOPMENT PLAN NOTES

1. THE GENERALIZED DEVELOPMENT PLAN PROPOSES TO REZONE APPROXIMATELY 503.34 ACRES FROM THE A1 ZONING DISTRICT TO THE M-2 ZONING DISTRICT.
2. PUBLIC WATER AND SEWER SERVICE WILL BE AVAILABLE TO THE PROPERTY BY EXTENSION OF EXISTING FACILITIES AND INCORPORATING A PORTION OF THE APPLICATION AREA INTO THE URBAN SERVICES AREA. WATER SERVICE IS AVAILABLE ALONG RICHMOND HIGHWAY AND IN THE ROADWAY OF ESKIMO HILL ROAD. SANITARY SEWER SERVICE IS AVAILABLE ALONG THE SOUTHERN PROPERTY LINE OF THE APPLICATION AREA. ALL NECESSARY APPROVALS FOR CONSTRUCTION OF NECESSARY UTILITY CONNECTIONS WILL BE COORDINATED AND OBTAINED BY THE APPROPRIATE STAFFORD COUNTY AGENCY(S) AT TIME OF SITE PLAN.
3. STORMWATER MANAGEMENT WILL BE PROVIDED PER APPLICABLE STATE AND LOCAL STANDARDS AT TIME OF SITE PLAN.
4. THE PROPERTY CONTAINS NO GRAVES, OBJECTS OR STRUCTURES MARKING BURIAL PLACES AS DETERMINED BY VISUAL SURVEY.
5. THE PROPERTY CONTAINS NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PARTS 16.4, 302.4, AND 355 OR IN VIRGINIA DEPARTMENT OF WASTE MANAGEMENT REGULATIONS.
6. ZONE A FLOODPLAIN INFORMATION PER FEMA FIRM PANEL 5101540143E INFORMATION.
7. RESOURCE PROTECTION AREA IS DELINEATED BY TNT ENVIRONMENTAL DATED JANUARY 21, 2021.
8. THE DEVELOPMENT OF THE PROPERTY MAY BE PHASED THROUGH MULTIPLE SITE PLANS.
9. BUILDING SETBACKS MAY INCLUDE PARKING, FENCE, ACCESSORY BUILDINGS AND OTHER SIMILAR FEATURES.
10. ENTRANCE LOCATIONS SHOWN ARE APPROXIMATE AND TO BE DETERMINED AT TIME OF FINAL SITE PLAN DESIGN. LOCATIONS TO BE IN ACCORDANCE WITH VDOT SPACING REQUIREMENTS. ACCESS POINTS MAY BE ADDED OR ELIMINATED SUBJECT TO VDOT APPROVAL.
11. TRANSITIONAL BUFFERS WILL BE PROVIDED AT TIME OF SITE PLAN IN ACCORDANCE WITH THE REQUIREMENTS OF THE DCSL. THEIR LOCATIONS MAY BE ADJUSTED AT TIME OF SITE PLAN.
12. THIS GDP HAS NOT BEEN REVIEWED FOR FULL COMPLIANCE WITH THE STAFFORD COUNTY ORDINANCE AT THIS TIME. ALL PROPOSED SITE IMPROVEMENTS SHOWN ON THIS PLAN MAY BE AMENDED BY THE OWNERS TO FULFILL REQUIREMENTS OF FINAL ENGINEERING, OR COMPLIANCE WITH CURRENT STATE AGENCY REGULATIONS AND/OR COUNTY DEVELOPMENT REGULATIONS/STANDARDS IN PACE AT THE TIME OF SITE PLAN SUBMISSION.
13. ALL BUFFER YARDS AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH CURRENT STAFFORD COUNTY DEVELOPMENT STANDARDS IN PLACE AT THE TIME OF SITE PLAN SUBMISSION.
14. UNLESS A GREATER BUILDING SETBACK IS SHOWN ON THE GDP, THE BUILDING SETBACKS AT TIME OF SITE PLAN ARE PER THE MINIMUM BUILDING SETBACKS ESTABLISHED BY THE M-2 DISTRICT WITHIN THE ZONING ORDINANCE AND SHOWN BELOW.
15. TREE PRESERVATION AREAS MAY BE ADJUSTED AT TIME OF SITE PLAN PENDING FINAL ENGINEERING, LAND DISTURBANCE FOR UTILITY CROSSINGS OR ROADWAY CONSTRUCTION THROUGH TREE PRESERVATION AREAS MAY OCCUR AT TIME OF SITE PLAN.
16. THE LOCATION OF SECURE PERIMETER FENCING SHOWN IS APPROXIMATE AND MAY BE LOCATED WITHIN BUILDING AND EQUIPMENT SETBACK AREA. THE FINAL LOCATION OF PERIMETER FENCING MAY BE ADJUSTED AND DETERMINED AT THE TIME OF SITE PLAN.

LEGEND

- APPROXIMATE REALIGNMENT OF ESKIMO HILL ROAD, TO BE FULLY DESIGNED AND ADJUSTED AT TIME OF SITE PLAN.
- APPROXIMATE LOCATION OF FUTURE 60' ACCESS EASEMENT AND OR ROW FOR ACCESS TO SOUTHERN PARCELS. DRIVEWAY TO BE CONSTRUCTED BY APPLICANT, FUTURE VDOT ROAD TO BE CONSTRUCTED BY OTHERS
- APPROXIMATE LOCATION OF FUTURE OFFSITE PARCEL ACCESS
- APPROXIMATE LOCATION OF EXISTING PARCEL ACCESS
- APPROXIMATE LOCATION OF PARCEL ACCESS / PRIVATE COMMERCIAL ENTRANCE
- POTENTIAL EMERGENCY ACCESS OR LIMITED ACCESS ENTRANCE
- APPROXIMATE LOCATION OF TREE PRESERVATION AREA(S)
- 20' TRANSITIONAL BUFFER A PER DCSL
- 50' TRANSITIONAL BUFFER C PER DCSL
- 150' BUILDING AND EQUIPMENT SETBACK
- 100' VEGETATIVE BUFFER (EXCLUDING EASEMENTS) AND 100' BUILDING AND EQUIPMENT SETBACK
- ROW DEDICATION (TO OCCUR AT SITE PLAN)
- REZONING AREA (A-1 REZONED TO M-2)
- LIMITS OF DISTURBANCE (TO BE ADJUSTED AT TIME OF SITE PLAN)
- FIELD VERIFIED RESOURCE PROTECTION AREA PER TNT ENVIRONMENTAL
- APPROXIMATE LOCATION OF SECURE PERIMETER FENCING (SEE NOTE 16)

STAFFORD M-2 ZONING DISTRICT REGULATIONS:

- MAXIMUM FLOOR AREA RATIO:	1.0 (21,925,490 SF GFA)
- MINIMUM OPEN SPACE RATIO:	0.25 (5,481,373 SF)
- FRONT YARD:	40 FEET
- SIDE YARD:	40 FEET
- REAR YARD:	40 FEET
- MAXIMUM BUILDING HEIGHT:	105 FEET / 3 STORIES*

*MODIFIED WITH THIS GDP

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SCIENCE
PERMITTING SERVICES
TRANSPORTATION SERVICES
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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	GDVL-0

PROJECT:
GENERALIZED DEVELOPMENT PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

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COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:
GENERALIZED DEVELOPMENT PLAN

SHEET NUMBER:
C-3

REVISION 3 - 04/24/24

Apr 24, 2024
C:\PROJ\AUDATA\BOHLER\2022\CSD\2023\TEMP\ACPUBLISH_487001\VA220232.00-GDVL-0---LAYOUT C-3 - GDP



ILLUSTRATIVE LEGEND:

- PROPOSED BUILDING 105' MAX HEIGHT / 3 STORIES
- TRAVEL WAY
- TREE PRESERVATION AREA
- RETAINING WALLS (MAXIMUM HEIGHT VARIES)
- SWM AREA
- EQUIPMENT AND SERVICE AREA
- SUBSTATION AREA
- BUFFER AREA (FINAL SIZE TO BE DETERMINED AT TIME OF SITE PLAN)
- PARKING AREA
- RESOURCE PROTECTION AREA

300 150 75 0 300
1"= 300'

Apr 23, 2024
I:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\SHEET_VAA220232.00-REND-0_—_LAYOUT C-4 - OVERALL ILLUSTRATIVE

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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CHECKED BY:	NTG
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CAD I.D.:	REND-0

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GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

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12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

OVERALL ILLUSTRATIVE PLAN

SHEET NUMBER:

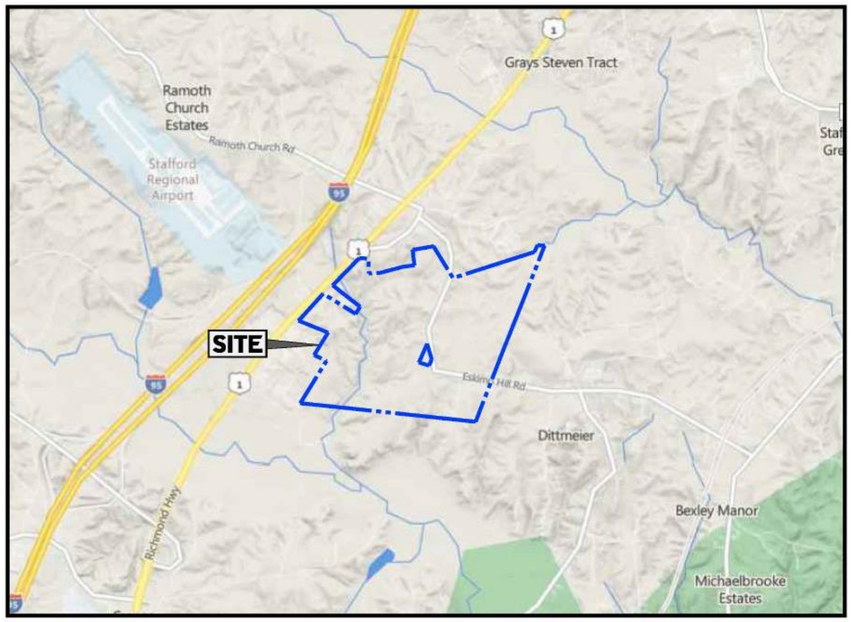
C-4

REVISION 3 - 04/24/24

TRANSPORTATION PLAN

ZONING RECLASSIFICATION #RC23154931
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 & 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



VICINITY MAP
SOURCE - BING MAPS
SCALE 1" = 2000'

OWNER / APPLICANT
PARCEL 38 124
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

OWNER / APPLICANT
PARCEL 38 29A
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

LAND USE ATTORNEY
WALSH COLUCCI LUBELEY & WALSH
4310 PRINCE WILLIAM PARKWAY; SUITE 300
PRINCE WILLIAM, VA 22192
CONTACT: JONELLE M. CAMERON
703-680-4664

TRANSPORTATION ENGINEER
GOROVE SLADE
4114 LEGATO ROAD; SUITE 650
FAIRFAX, VA 22033
CONTACT: KEVIN SITZMAN, P.E.
571-261-9718

CIVIL ENGINEER
BOHLER ENGINEERING
12825 WORLDGATE DRIVE; SUITE 700
HERNDON, VA 20170
CONTACT: MICHAEL O'SHAUGHNESSY
703-709-9500

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	T-1
NETWORK IMPROVEMENT SUMMARY	1
U.S.RTE 1 & HOSPITAL CENTER BLVD IMPROVEMENT	2
U.S.RTE 1 & SAGE LN/CONNECTOR RD IMPROVEMENT	3
U.S.RTE 1 & I-95 SOUTHBOUND RAMPS IMPROVEMENT	4

GOROVE SLADE Transportation Planners and Engineers
4114 Legato Road / Suite 650
Fairfax, VA 22033

REVISIONS

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2	02/22/24	Proffer Revisions	JM / KDS

ZONING SUBMISSION

PROJECT No: VAA220232.00
DRAWN BY: JM
CHECKED BY: KDS
DATE: 02/22/2024

PROJECT:
TRANSPORTATION PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

GOROVE SLADE Transportation Planners and Engineers

COVER SHEET

SHEET NUMBER:
T-1

Legend

- # Existing without Improvements
- # Existing with Improvements by Others
- # Existing with Proposed Improvements
- # Future Intersection

Intersection 1 **(Exhibit 2)**
Hospital Center Boulevard:
- Restripe Eastbound Approach to Provide Dual Left Lanes, One Through Lane, and Dual Rights without replacing Signal Poles.
- Additional Right Turn Lane Proffered by Others (Burns Corner)

Intersection 7
No Improvements

Intersection 8
No Improvements

Intersections 9 to 16:
- Construct Two-lane Connector Roadway
- Construct Site Driveways

Intersection 12
- Construct Westbound Right Turn Lane

Intersection 4
Centreport Parkway:
- Provide Westbound Right Turn Overlap Phase

Intersection 5
Modify Signal Timings

Intersection 2
American Legion Road:
- Install Eastbound Left

Eskimo Hill Road:
- Install Westbound Left

Intersection 3 **(Exhibit 3)**
Install Traffic Signal (and Thru-Cut if approved)
US Route 1:
- Install Southbound Left
- Install Northbound Right
- Install Median
- Restripe Southbound Right Turn Lane to Shared Through-Right Lane

Connector Road:
- Construct Westbound Approach With One Left Turn Lane and One Right Turn Lane

Sage Lane:
- Reconfigure Eastbound Approach to One Left Turn Lane and One Right Turn Lane

Intersection 6 **(Exhibit 4)**
Centreport Parkway:
- Add Channelized Eastbound Right Turn Lane
- Realign Eastbound Centreport Parkway without replacing Signal Poles

Hospital Center Boulevard
US Route 1 (Richmond Highway)
Big Spring Lane
Eskimo Hill Road
State Shop Road
American Legion Road
Sage Lane
SITE
I-95
I-95 NB On Ramp
I-95 NB Off Ramp
I-95 SB Off Ramp
I-95 SB On Ramp
Centreport Parkway

TRANSPORTATION IMPROVEMENT EXHIBIT
NETWORK IMPROVEMENT SUMMARY
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 – 1 OF 4

NOT TO SCALE

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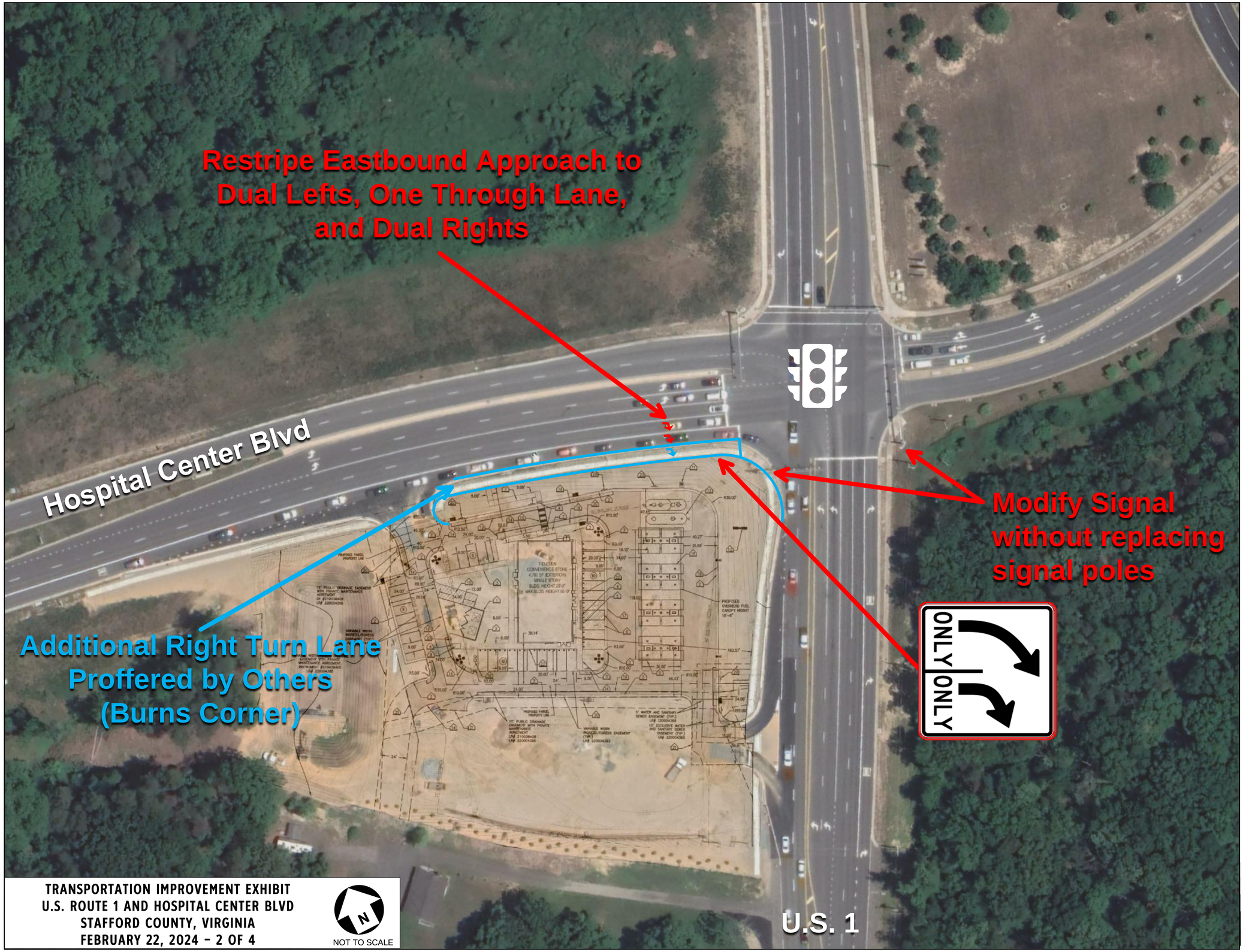

TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND HOSPITAL CENTER BLVD
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 – 2 OF 4

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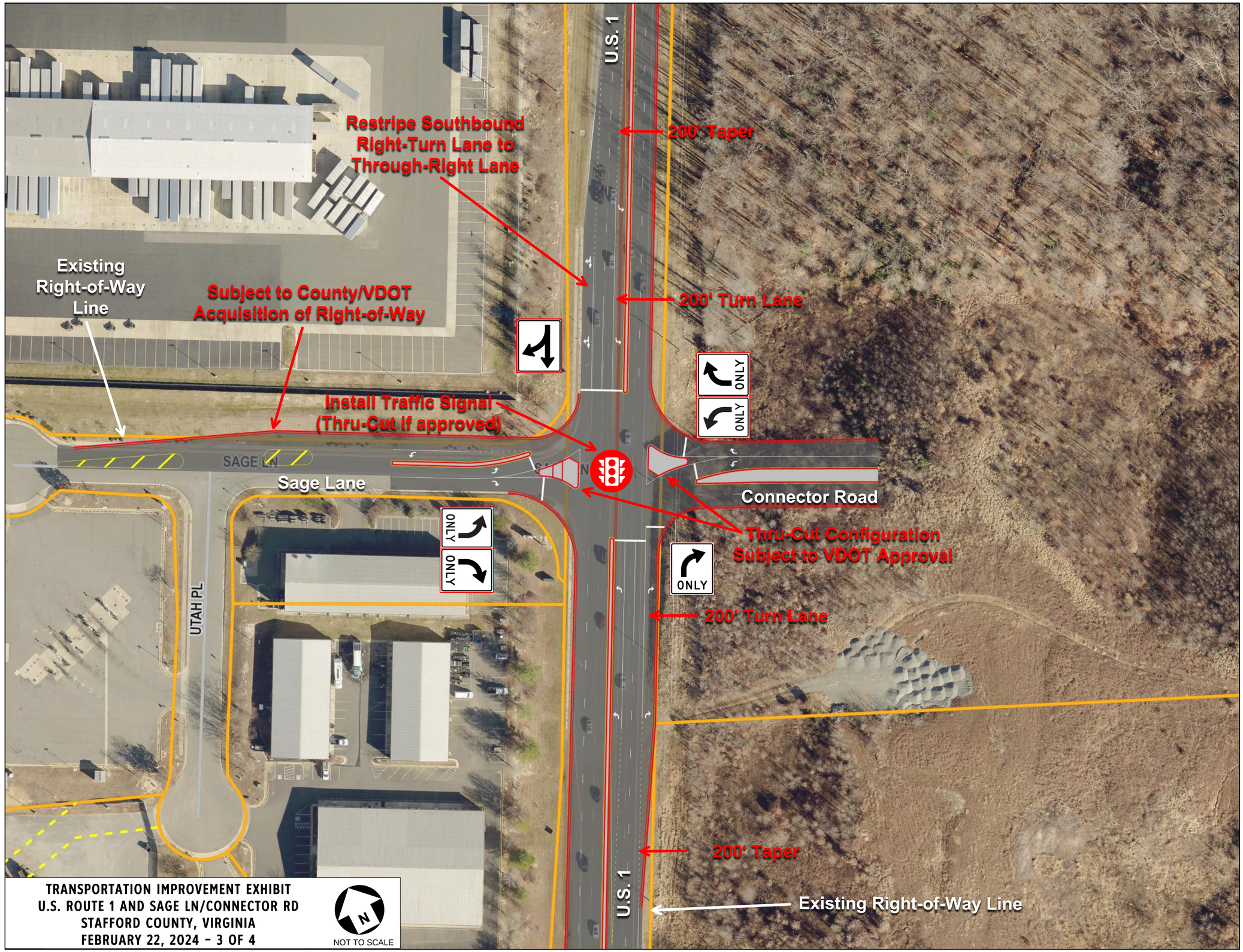
2



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STAFFORD COUNTY, VIRGINIA

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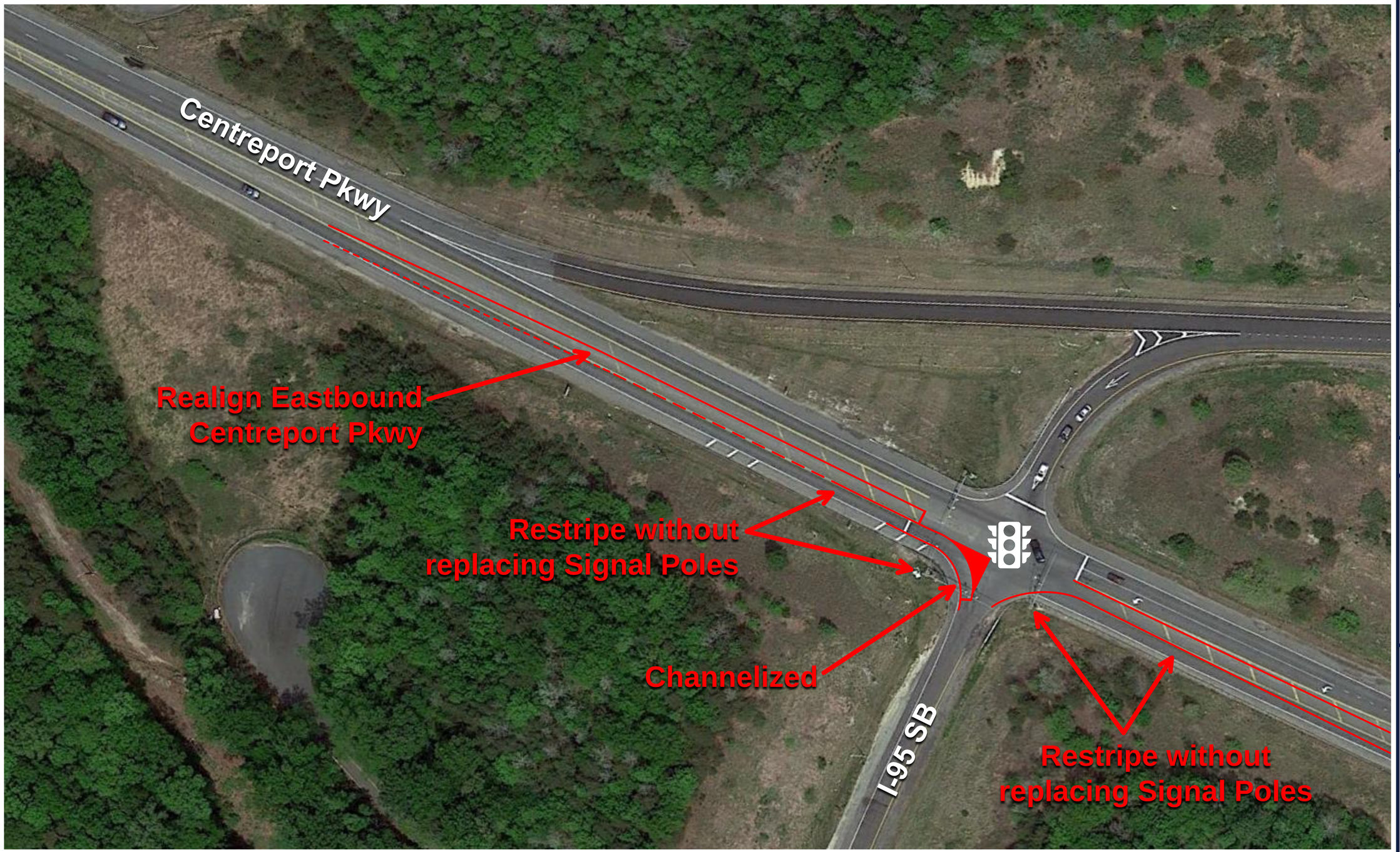
3



TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND I-95 SOUTHBOUND RAMPS
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 - 4 OF 4

N
NOT TO SCALE

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STAFFORD COUNTY, VIRGINIA

GOROVE SLADE
Transportation Planners and Engineers

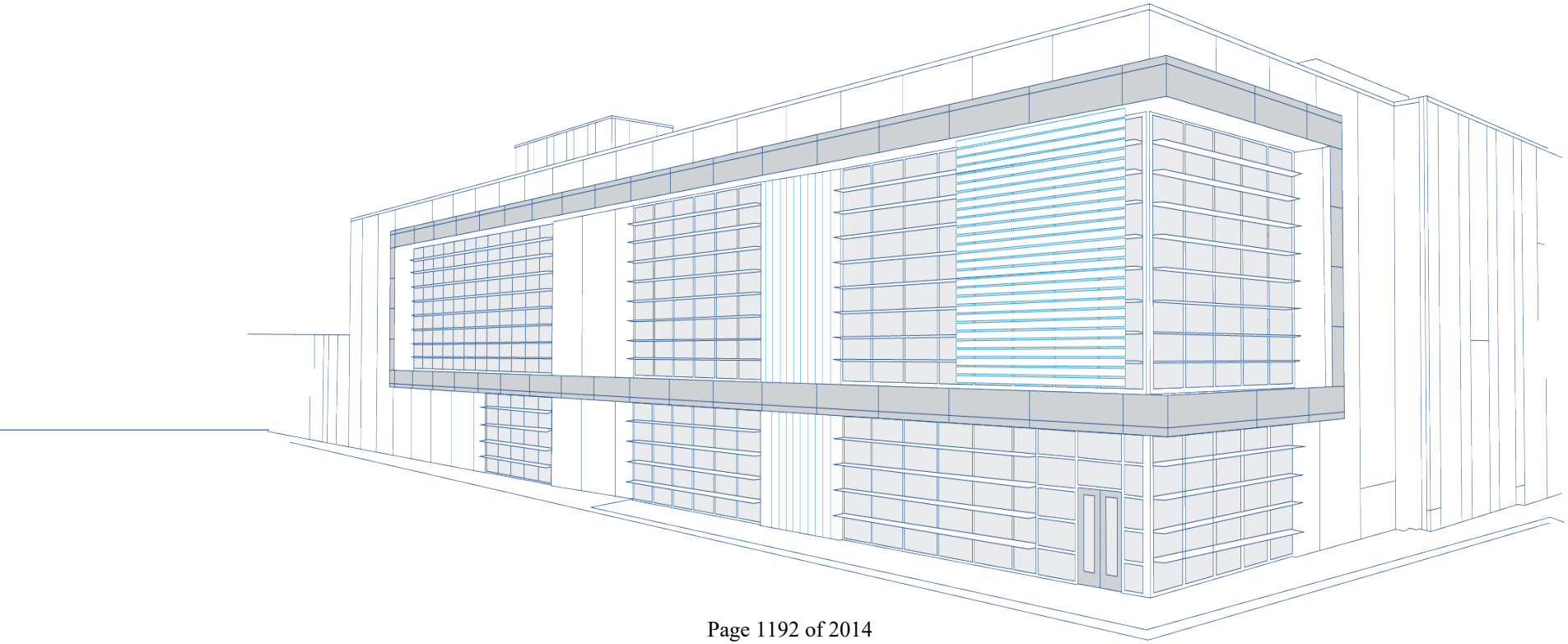
SHEET NUMBER:
4

STACK INFRASTRUCTURE

STAFFORD TECHNOLOGY CAMPUS

DESIGN COMPONENTS

FEBRUARY, 2024



Data Center Design Elements

Data Center Fenestrations, material changes



Change in step-backs, recesses and change in color



Change in height





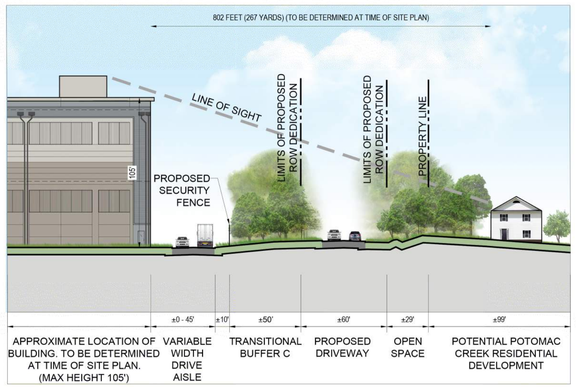
Stafford Technology Campus - Illustrative Plan

VAA220232.00

February 2024

Stafford, Virginia

PETERSON COMPANIES BOHLER



SECTION A-A
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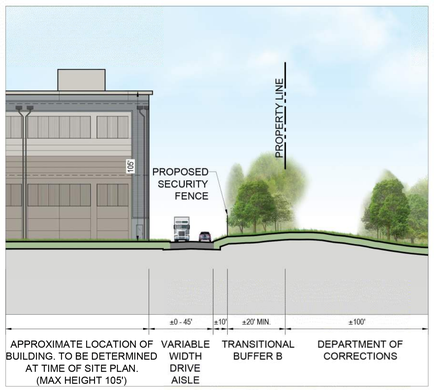


SECTION B-B
SCALE: 1" = 50'

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

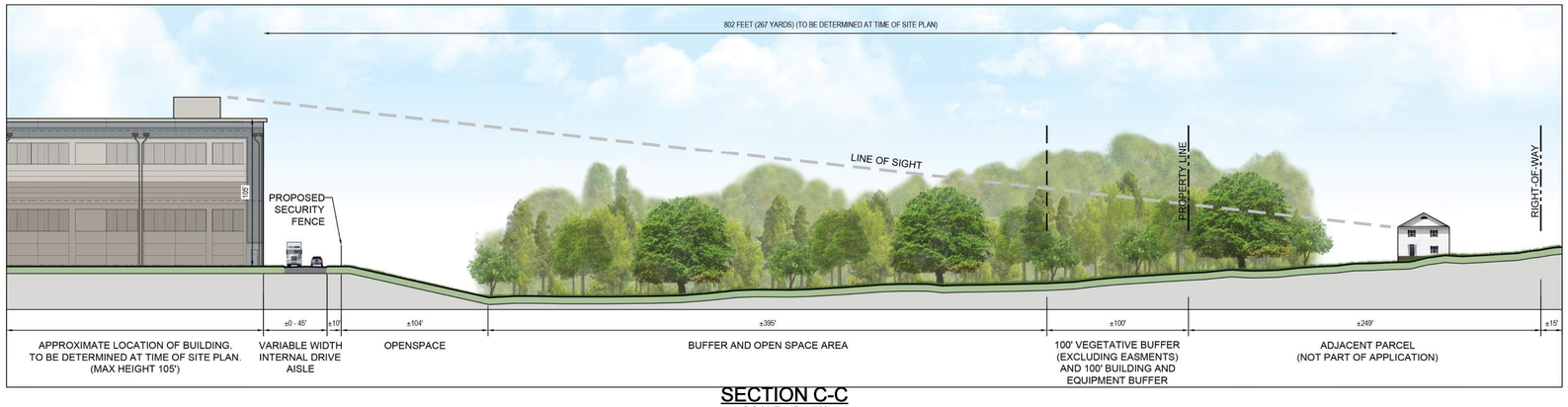
STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

FEBRUARY 2024

STAFFORD, VIRGINIA

PETERSON COMPANIES BOHLER



SECTION C-C
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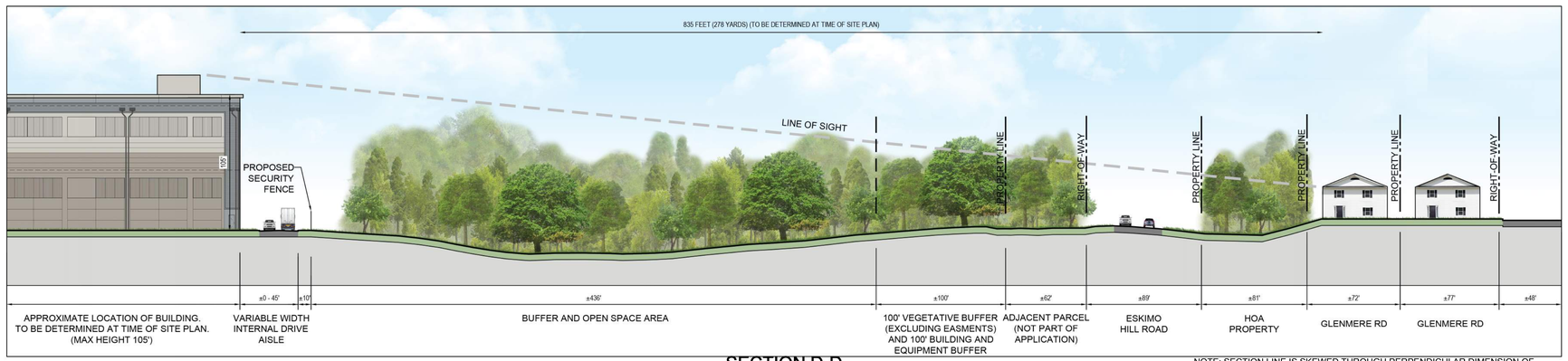
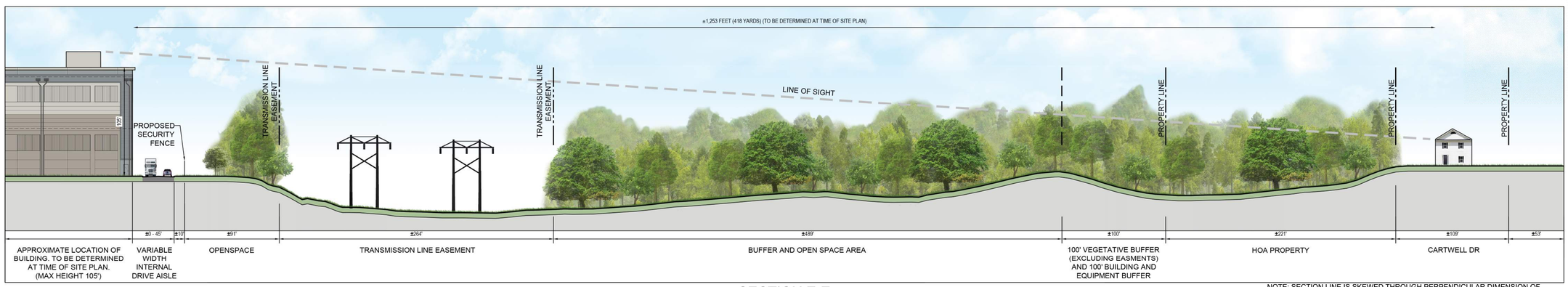


SECTION D-D
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP



SECTION E-E
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

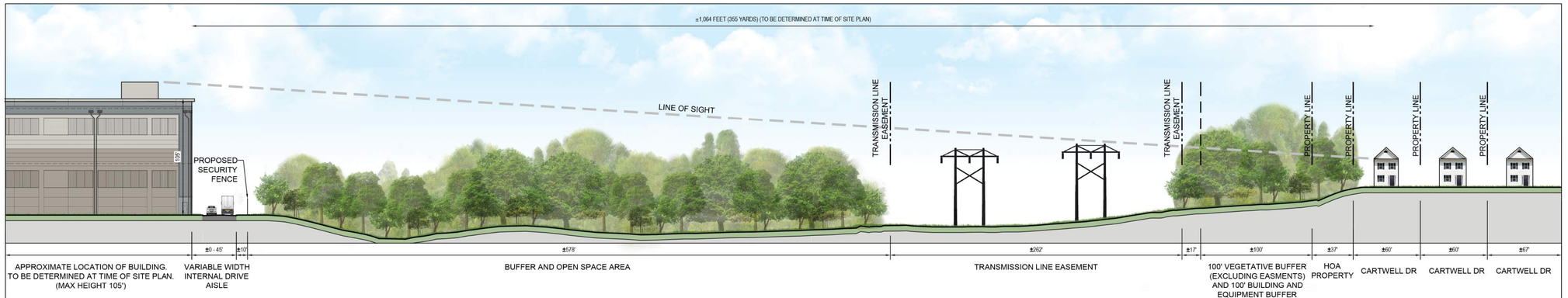
STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

FEBRUARY 2024

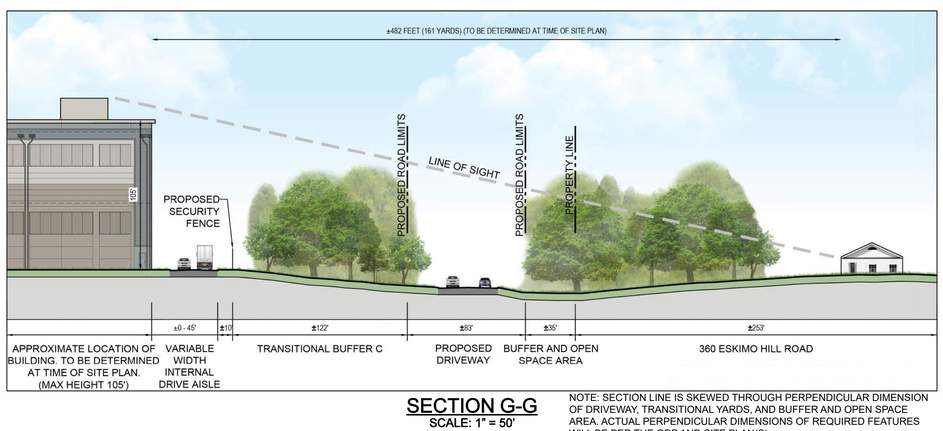
STAFFORD, VIRGINIA

PETERSON COMPANIES BOHLER



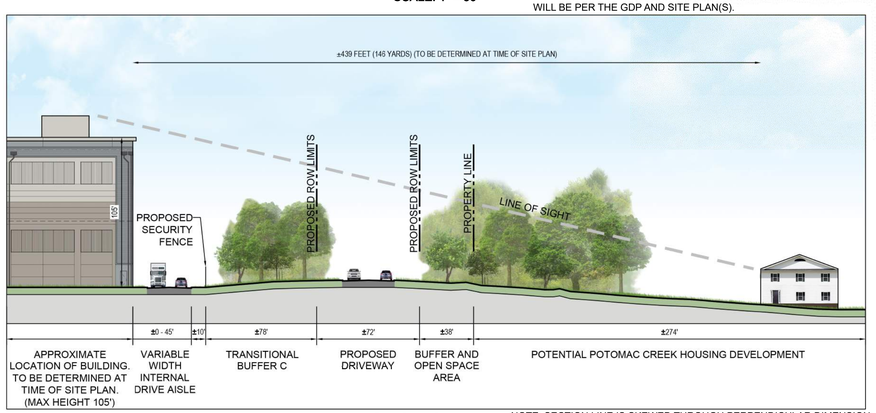
SECTION F-F
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP



SECTION G-G
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP AND SITE PLAN(S).



SECTION H-H
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP AND SITE PLAN(S).

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

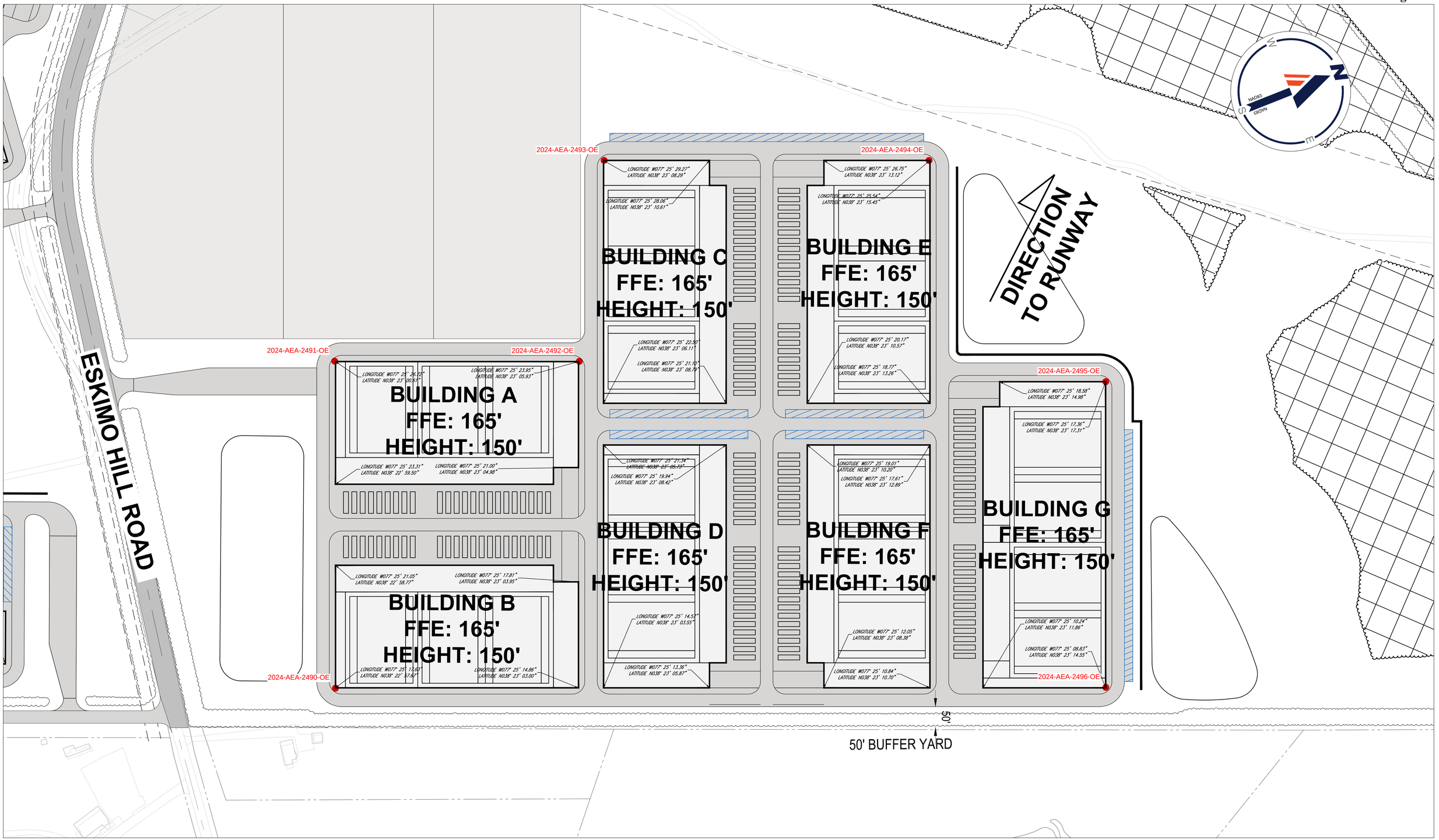
STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

FEBRUARY 2024

STAFFORD, VIRGINIA

PETERSON COMPANIES BOHLER



H:\262\VAA220232.00\CAD\DRAWINGS\EXHIBITS\240202 - FAA DETERMINATION STACK LAYOUT AVIAA220232-EXHB-1----LAYOUT EAST

BOHLER //
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

STAFFORD TECHNOLOGY CAMPUS
FAA DETERMINATION EXHIBIT EAST CAMPUS

STAFFORD, VIRGINIA

2/2/24 | CJM | VAA220232 | Rev 0

100 50 25 0 100
1"= 100'

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2491-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building A East Campus
Location:	Fredericksburg, VA
Latitude:	38-23-00.61N NAD 83
Longitude:	77-25-26.72W
Heights:	165 feet site elevation (SE)
	150 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

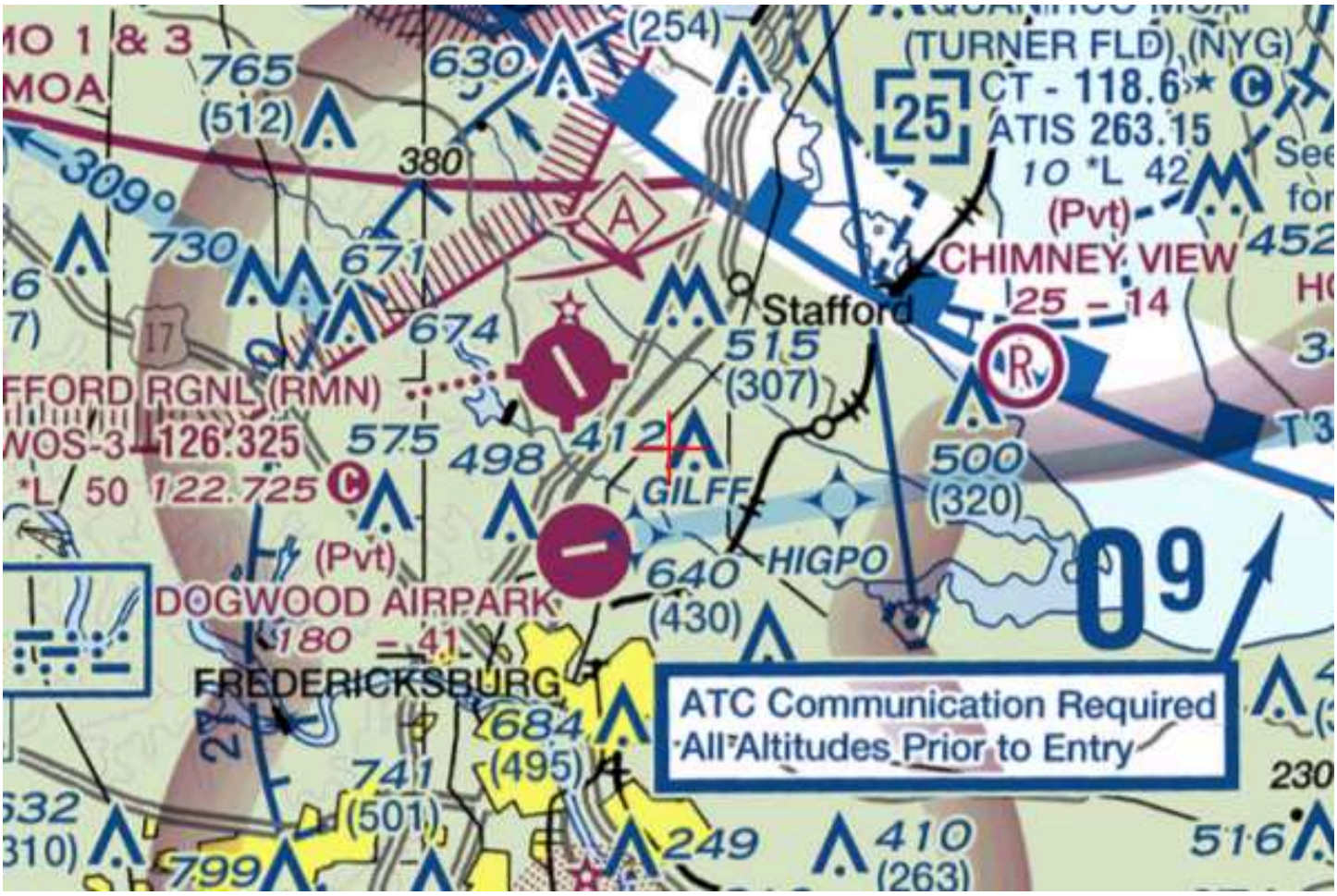
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2491-OE.

Signature Control No: 614890658-618738955 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2491-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2492-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building A East Campus
Location:	Fredericksburg, VA
Latitude:	38-23-05.93N NAD 83
Longitude:	77-25-23.95W
Heights:	165 feet site elevation (SE)
	150 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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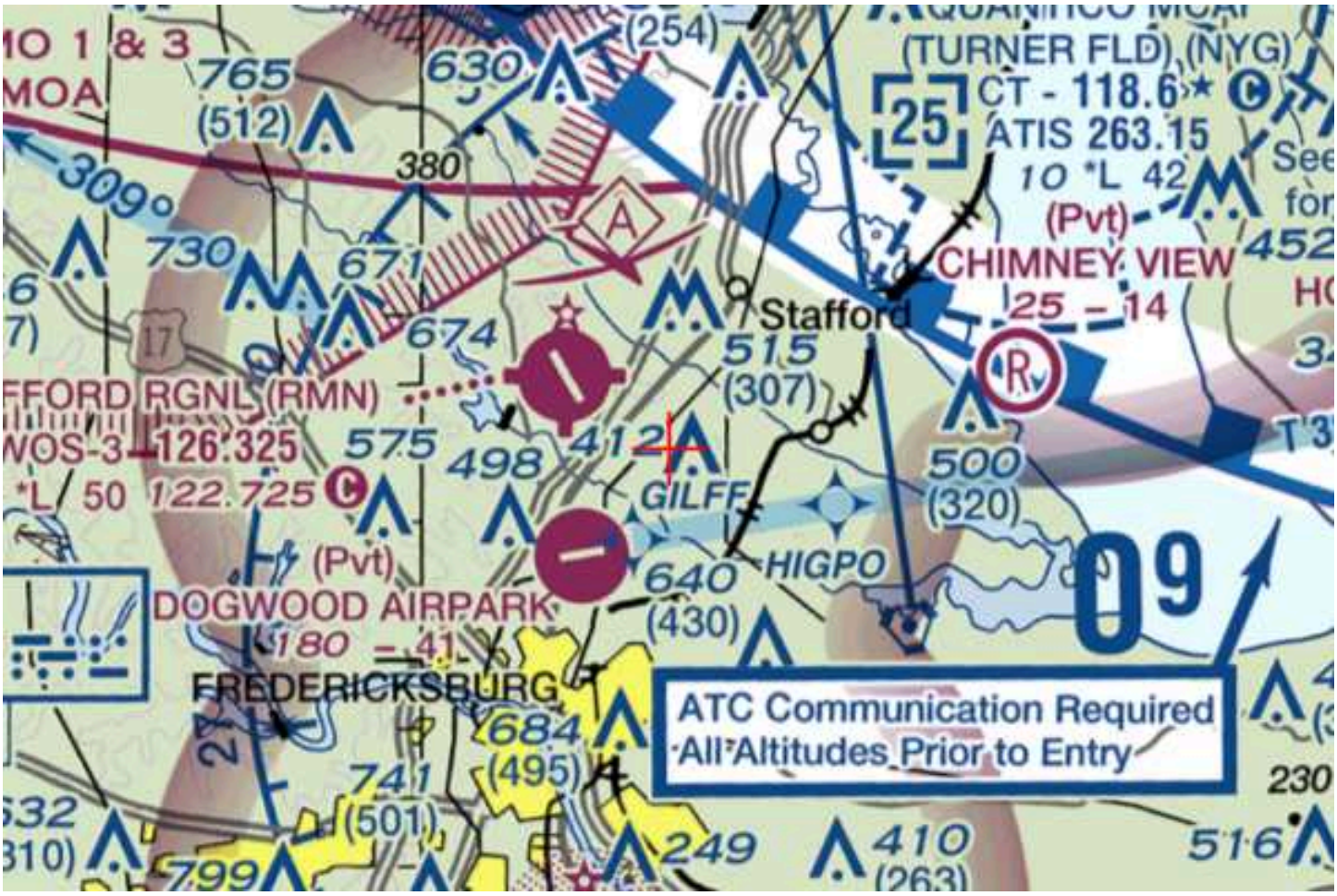
If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2492-OE.

Signature Control No: 614890659-618739010 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2492-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2490-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building B East Campus
Location:	Fredericksburg, VA
Latitude:	38-22-57.67N NAD 83
Longitude:	77-25-17.63W
Heights:	165 feet site elevation (SE)
	150 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

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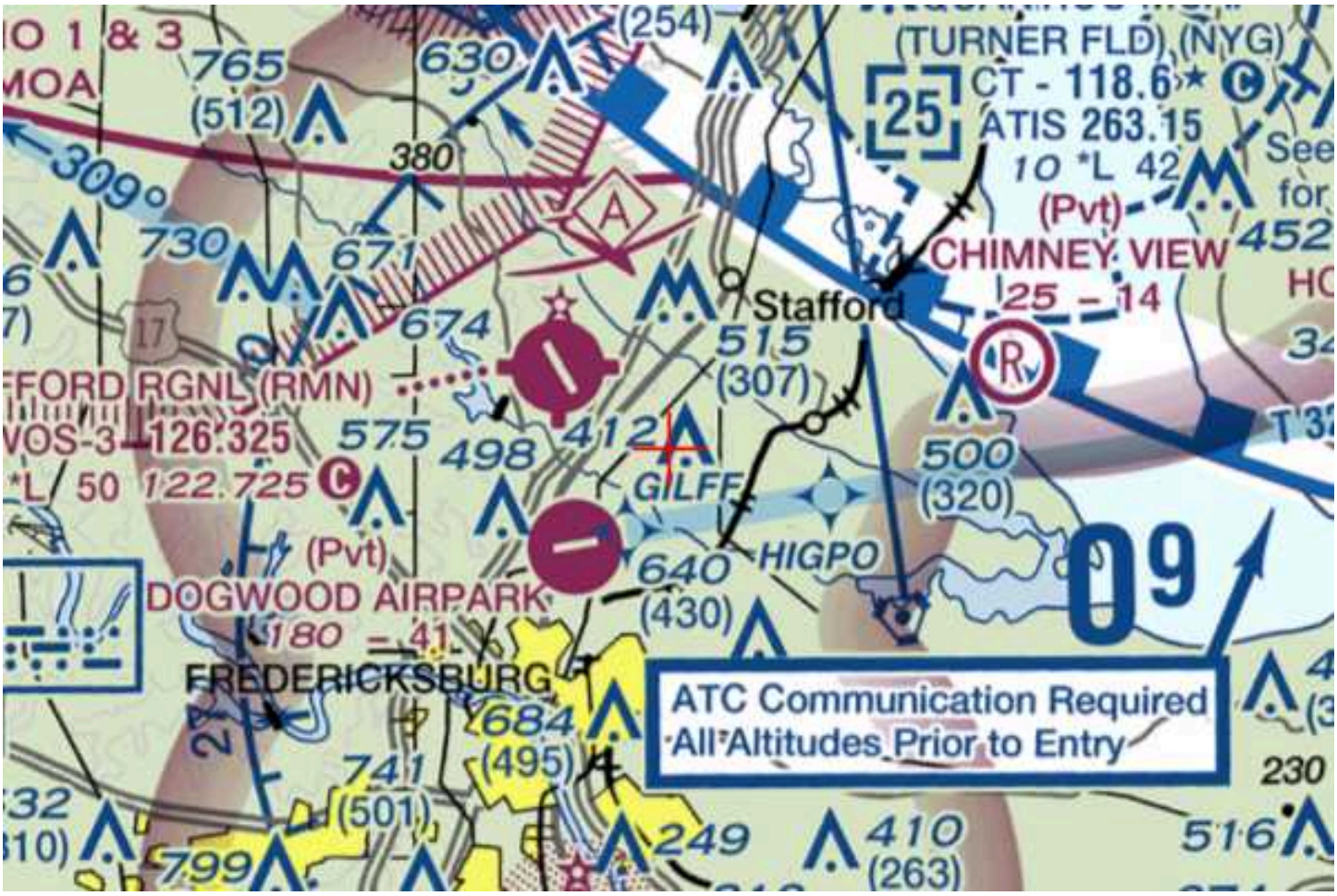
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2490-OE.

Signature Control No: 614890657-618738951 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2490-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2493-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building C East Campus
Location:	Fredericksburg, VA
Latitude:	38-23-08.29N NAD 83
Longitude:	77-25-29.27W
Heights:	165 feet site elevation (SE)
	150 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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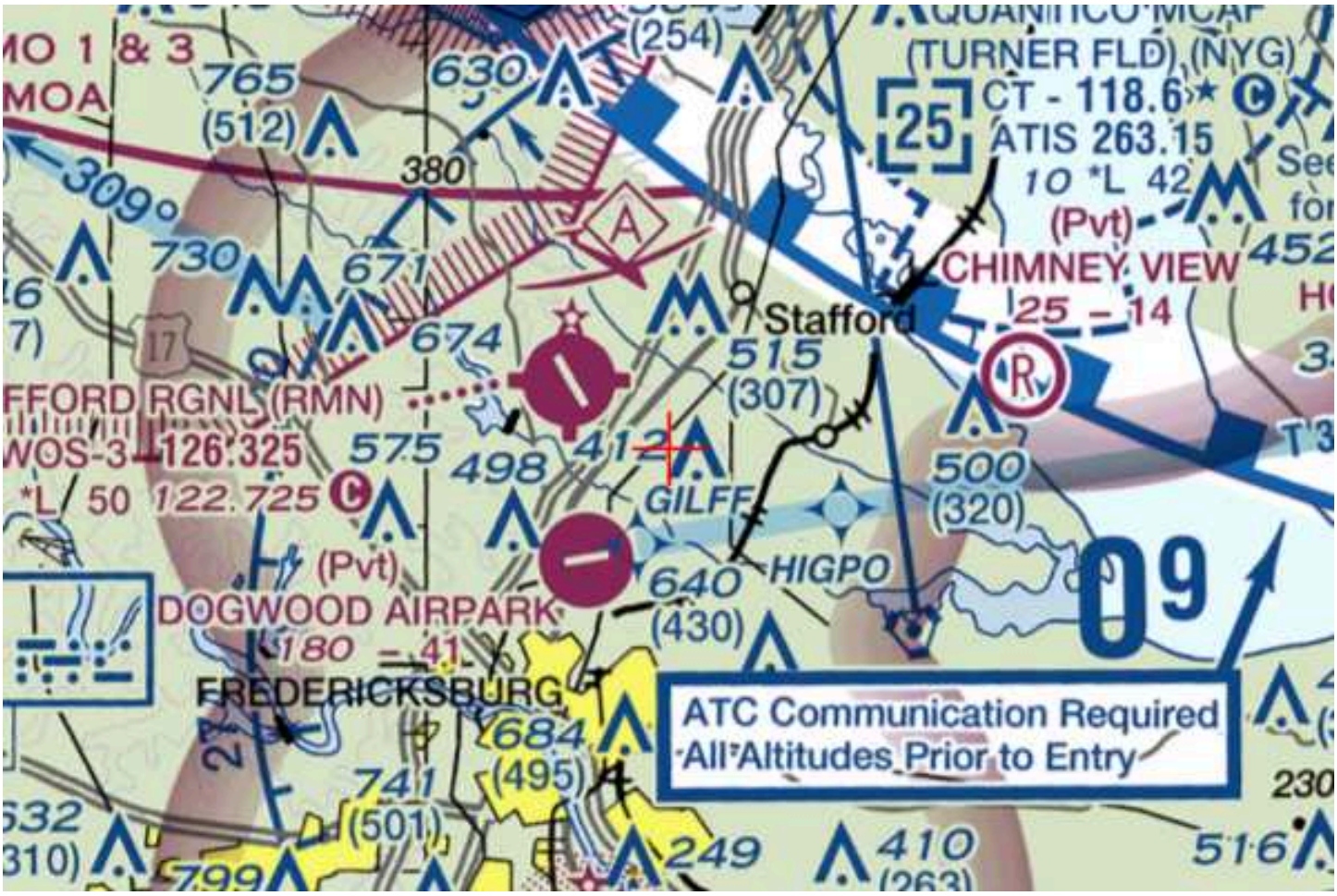
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2493-OE.

Signature Control No: 614890660-618739012 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2493-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2494-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building E East Campus
Location:	Fredericksburg, VA
Latitude:	38-23-15.45N NAD 83
Longitude:	77-25-25.54W
Heights:	165 feet site elevation (SE)
	150 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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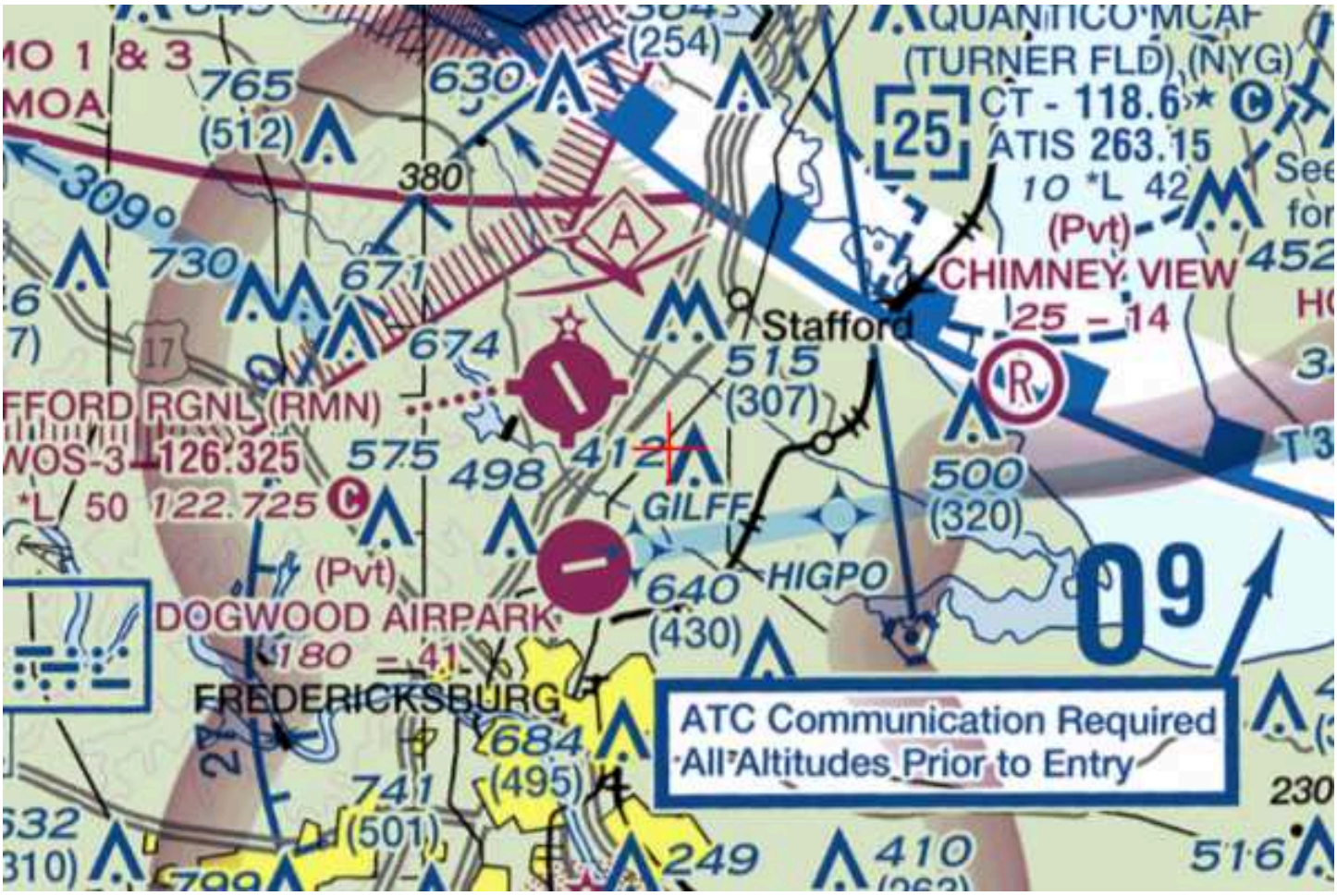
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2494-OE.

Signature Control No: 614890661-618739019 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2494-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2496-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building G East Campus
Location:	Fredericksburg, VA
Latitude:	38-23-14.55N NAD 83
Longitude:	77-25-08.83W
Heights:	165 feet site elevation (SE)
	150 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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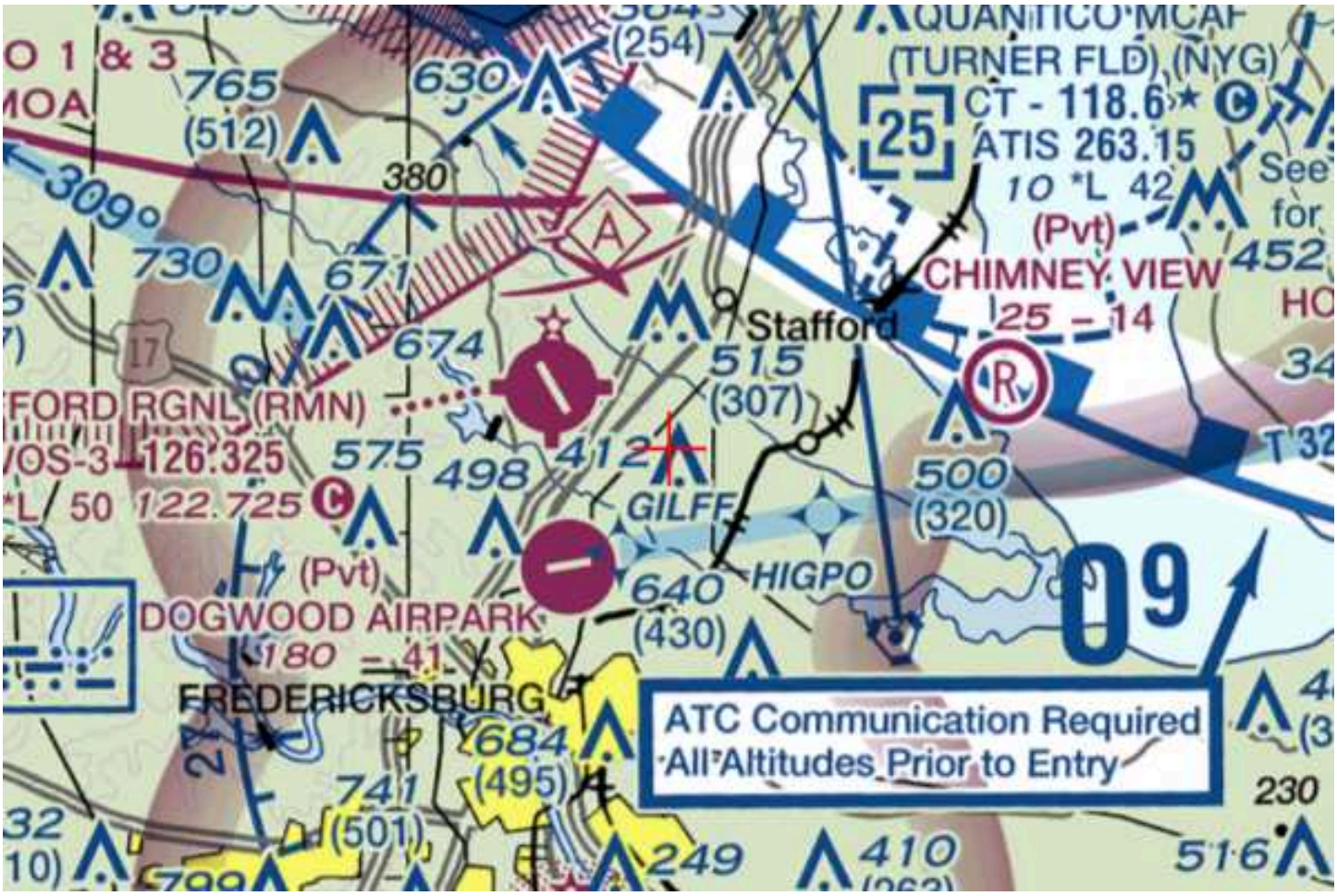
If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2496-OE.

Signature Control No: 614890663-618739075 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2496-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2495-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building G East Campus
Location:	Fredericksburg, VA
Latitude:	38-23-17.31N NAD 83
Longitude:	77-25-17.36W
Heights:	165 feet site elevation (SE)
	150 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

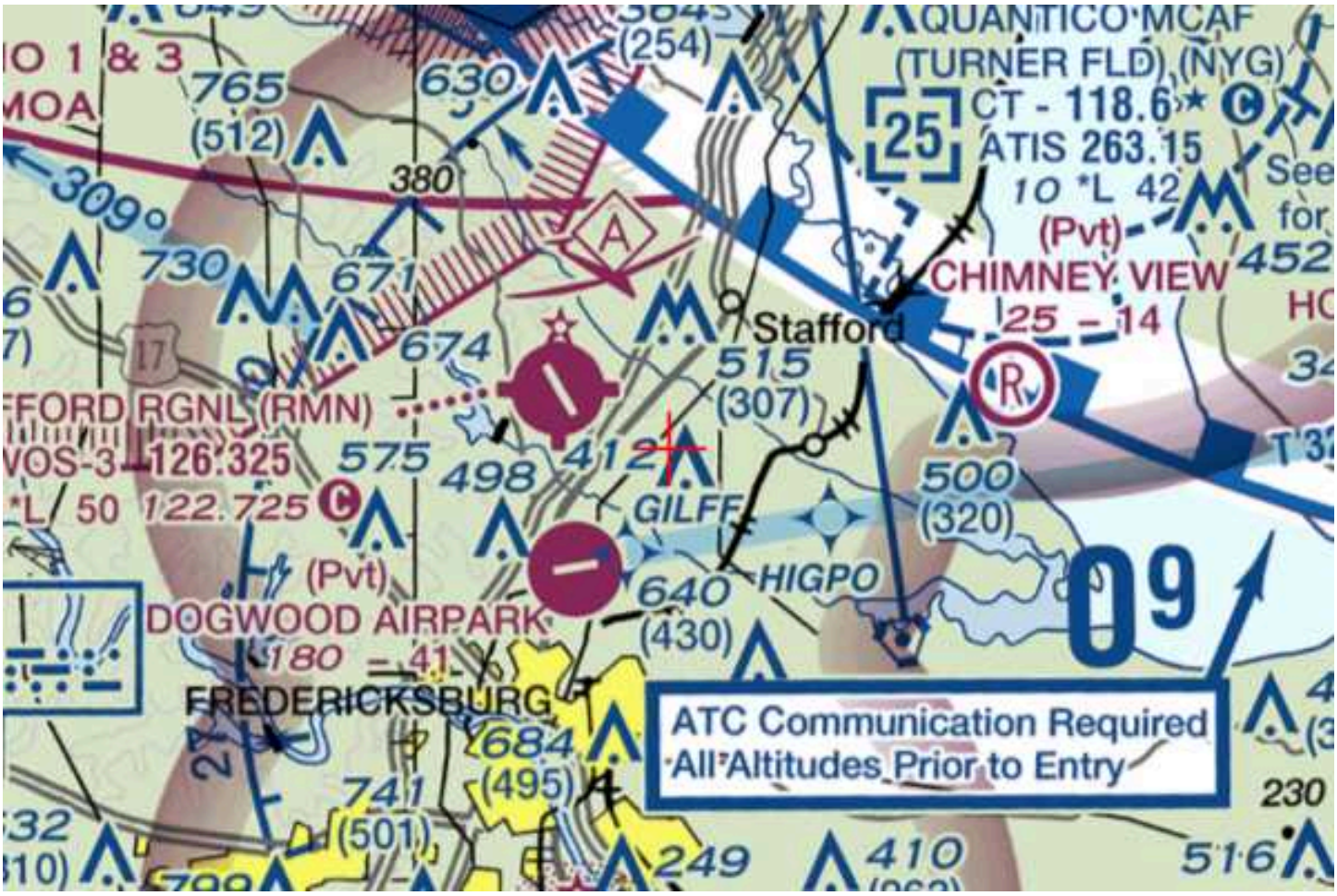
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

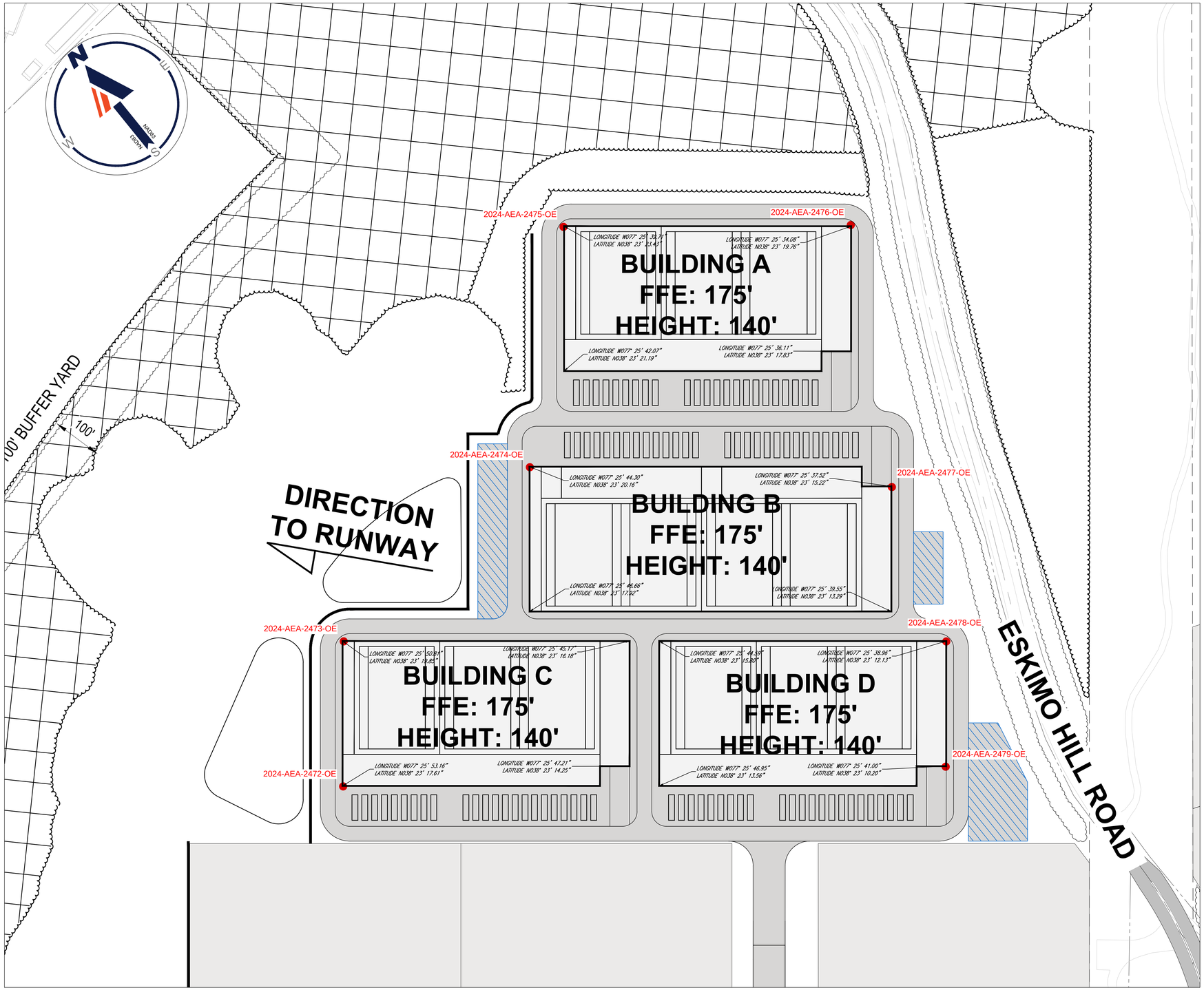
If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2495-OE.

Signature Control No: 614890662-618739056 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2495-OE





H:\2022\VAA220232.00\CAD\DRAWINGS\EXHIBITS\240202 - FAA DETERMINATION STACK LAYOUT A\VAA220232-EXHIB-1-----LAYOUT NORTH

BOHLER //
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

STAFFORD TECHNOLOGY CAMPUS
FAA DETERMINATION EXHIBIT NORTH CAMPUS

STAFFORD, VIRGINIA

2/2/24 | CJM | VAA220232 | Rev 0

100 50 25 0 100
1"= 100'

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2475-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building A North Campus
Location:	Fredericksburg, VA
Latitude:	38-23-23.43N NAD 83
Longitude:	77-25-39.71W
Heights:	175 feet site elevation (SE)
	140 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2475-OE.

Signature Control No: 614889784-618738950 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2475-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2476-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building A North Campus
Location:	Fredericksburg, VA
Latitude:	38-23-19.76N NAD 83
Longitude:	77-25-34.08W
Heights:	175 feet site elevation (SE)
	140 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

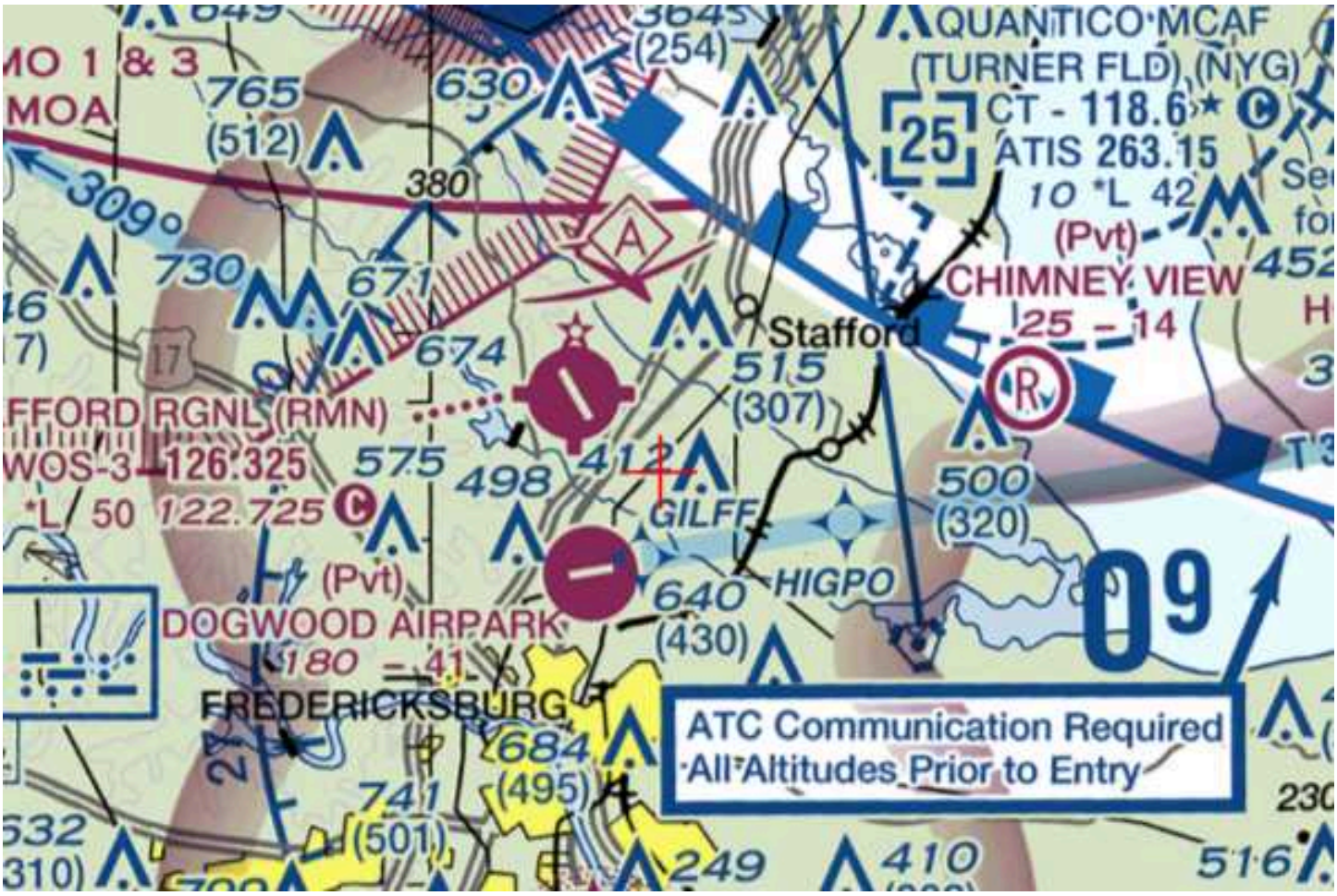
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2476-OE.

Signature Control No: 614889785-618738940 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2476-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2474-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building B North Campus
Location:	Fredericksburg, VA
Latitude:	38-23-20.16N NAD 83
Longitude:	77-25-44.30W
Heights:	175 feet site elevation (SE)
	140 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2474-OE.

Signature Control No: 614889783-618738942 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2474-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2477-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building B North Campus
Location:	Fredericksburg, VA
Latitude:	38-23-15.22N NAD 83
Longitude:	77-25-37.52W
Heights:	175 feet site elevation (SE)
	140 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

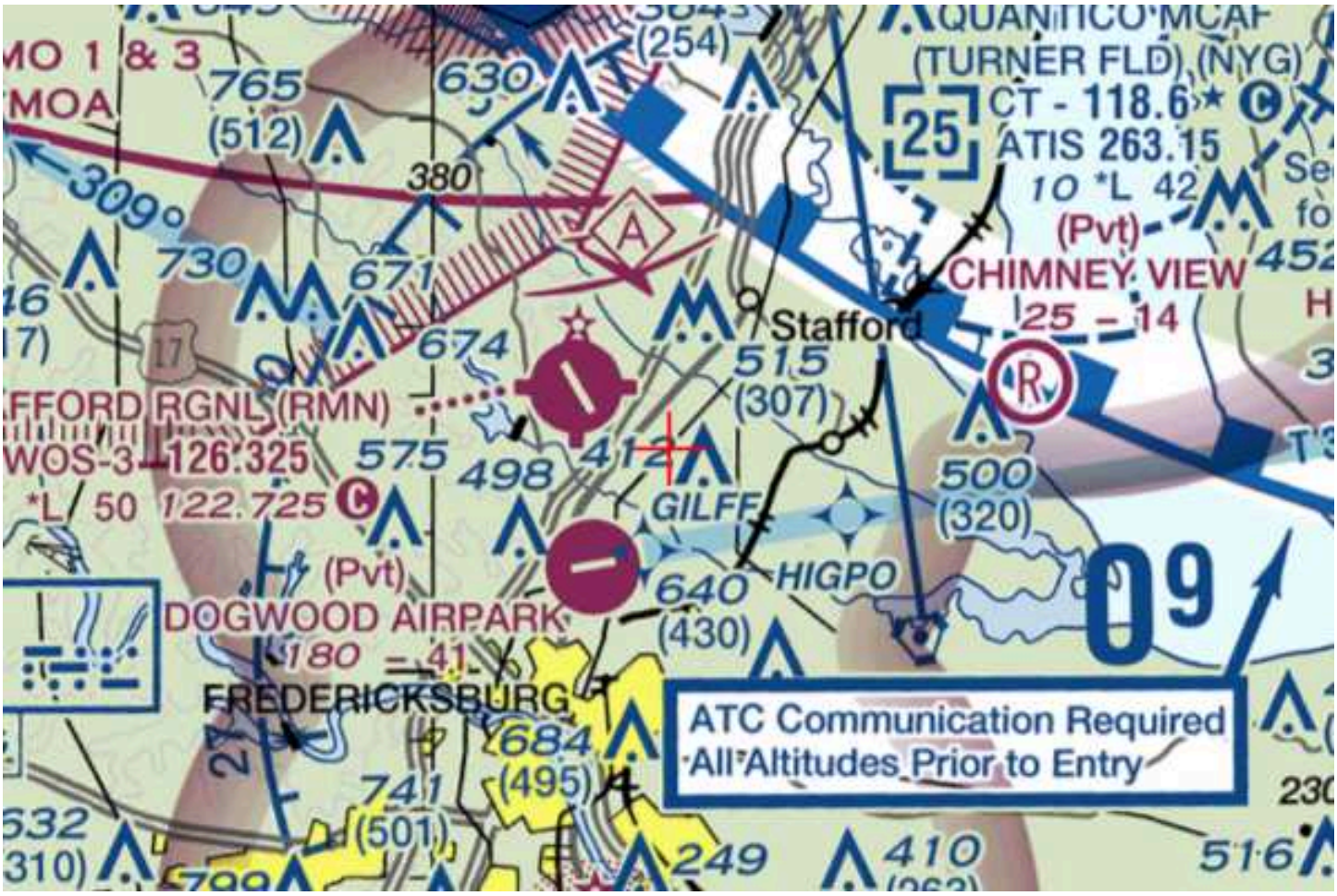
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2477-OE.

Signature Control No: 614889786-618738946 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2477-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2472-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building C North Campus
Location:	Fredericksburg, VA
Latitude:	38-23-17.61N NAD 83
Longitude:	77-25-53.16W
Heights:	175 feet site elevation (SE)
	140 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2472-OE.

Signature Control No: 614889781-618738948 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2472-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2473-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building C North Campus
Location:	Fredericksburg, VA
Latitude:	38-23-19.85N NAD 83
Longitude:	77-25-50.81W
Heights:	175 feet site elevation (SE)
	140 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2473-OE.

Signature Control No: 614889782-618738943 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2473-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2479-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building D North Campus
Location:	Fredericksburg, VA
Latitude:	38-23-10.20N NAD 83
Longitude:	77-25-41.00W
Heights:	175 feet site elevation (SE)
	140 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

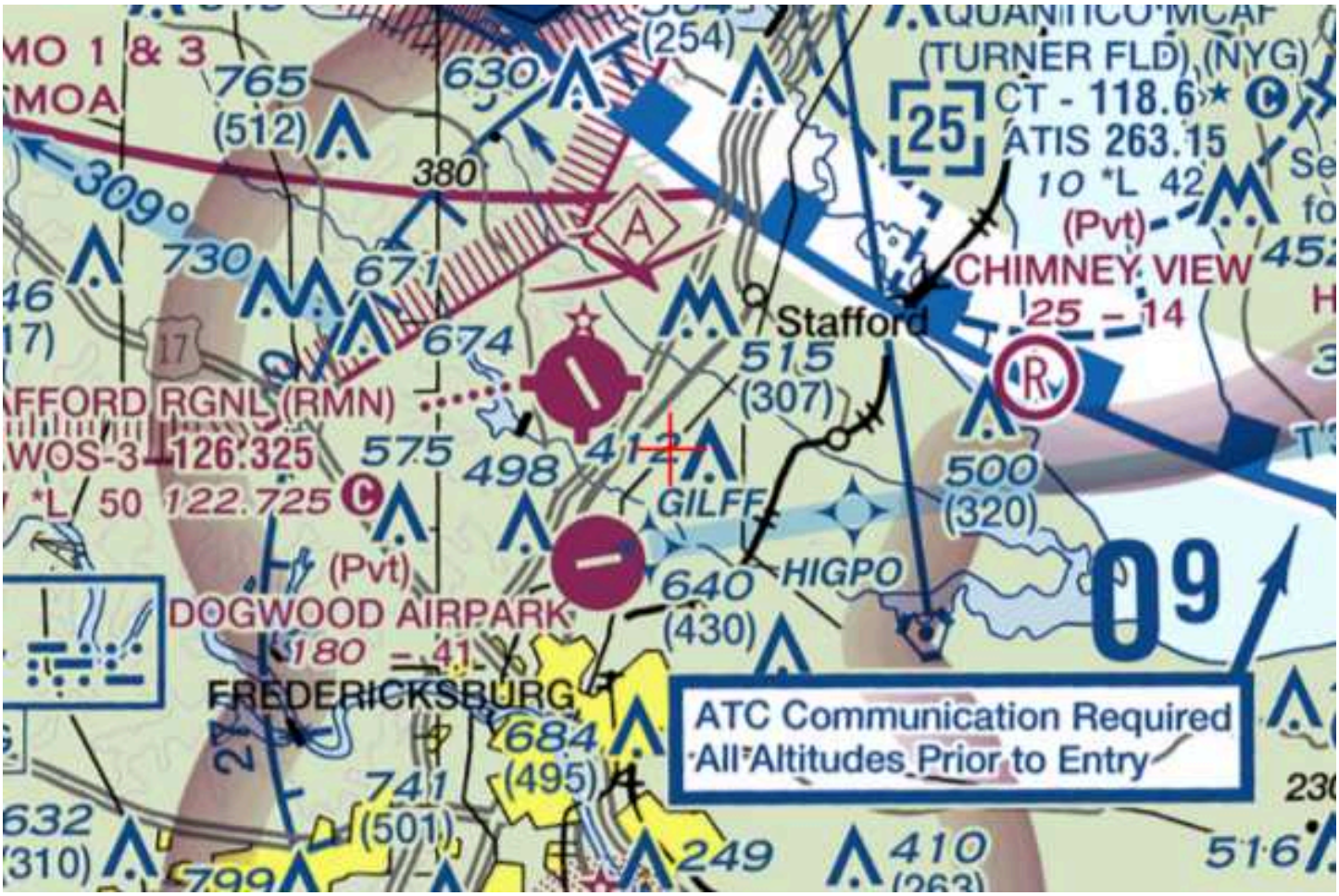
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2479-OE.

Signature Control No: 614889788-618738945 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2479-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2478-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building D North Campus
Location:	Fredericksburg, VA
Latitude:	38-23-12.13N NAD 83
Longitude:	77-25-38.96W
Heights:	175 feet site elevation (SE) 140 feet above ground level (AGL) 315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

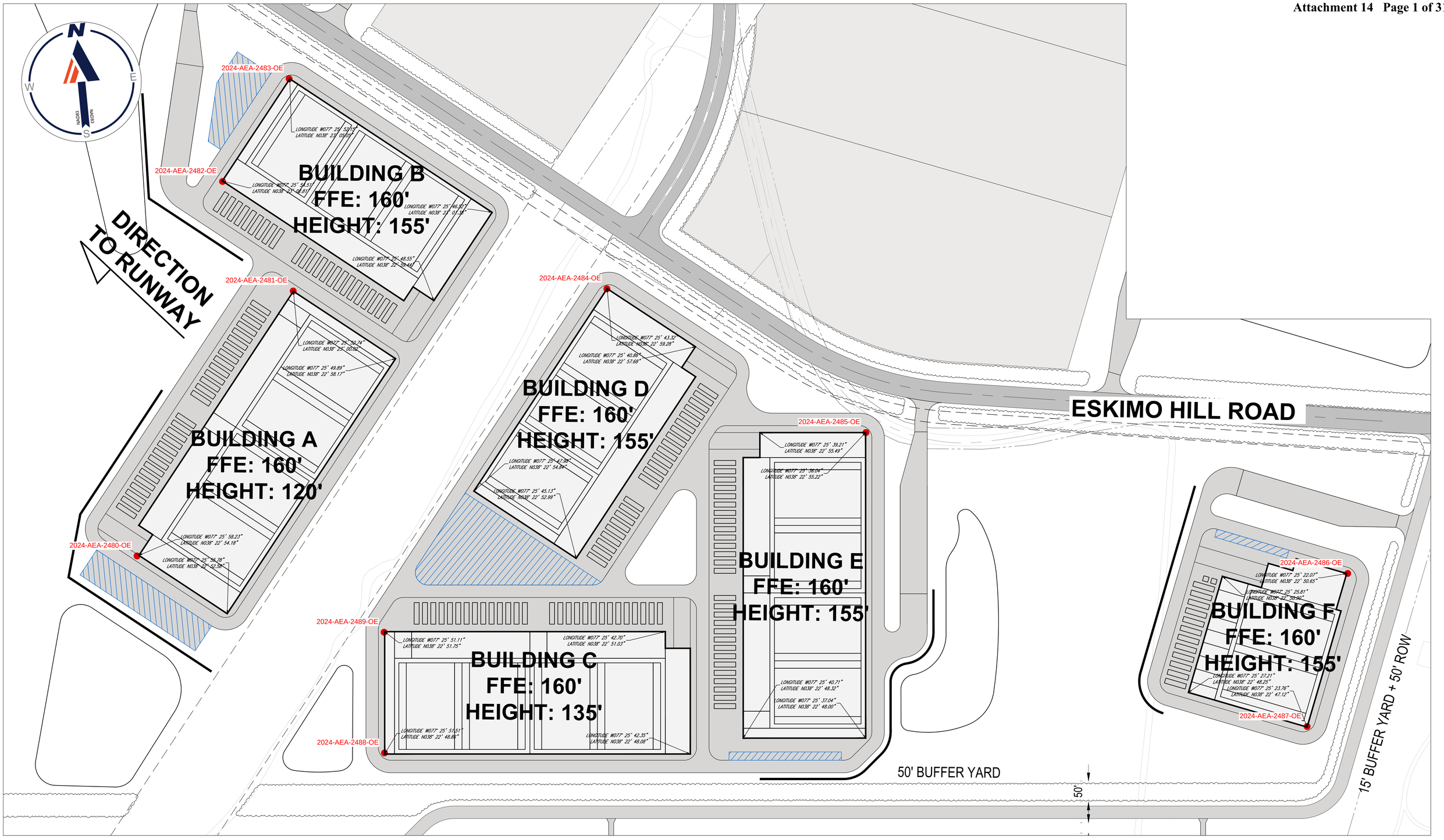
If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2478-OE.

Signature Control No: 614889787-618738954 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2478-OE





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2/2/24 | CJM | VAA220232 | Rev 0

STAFFORD TECHNOLOGY CAMPUS
FAA DETERMINATION EXHIBIT SOUTH CAMPUS

STAFFORD, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2481-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building A South Campus
Location:	Fredericksburg, VA
Latitude:	38-23-00.02N NAD 83
Longitude:	77-25-52.74W
Heights:	160 feet site elevation (SE)
	120 feet above ground level (AGL)
	280 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2481-OE.

Signature Control No: 614890427-618738956 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2481-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2480-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building A South Campus
Location:	Fredericksburg, VA
Latitude:	38-22-54.18N NAD 83
Longitude:	77-25-58.23W
Heights:	160 feet site elevation (SE)
	120 feet above ground level (AGL)
	280 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2480-OE.

Signature Control No: 614890426-618738941 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2480-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2483-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building B South Campus
Location:	Fredericksburg, VA
Latitude:	38-23-05.05N NAD 83
Longitude:	77-25-52.15W
Heights:	160 feet site elevation (SE)
	155 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

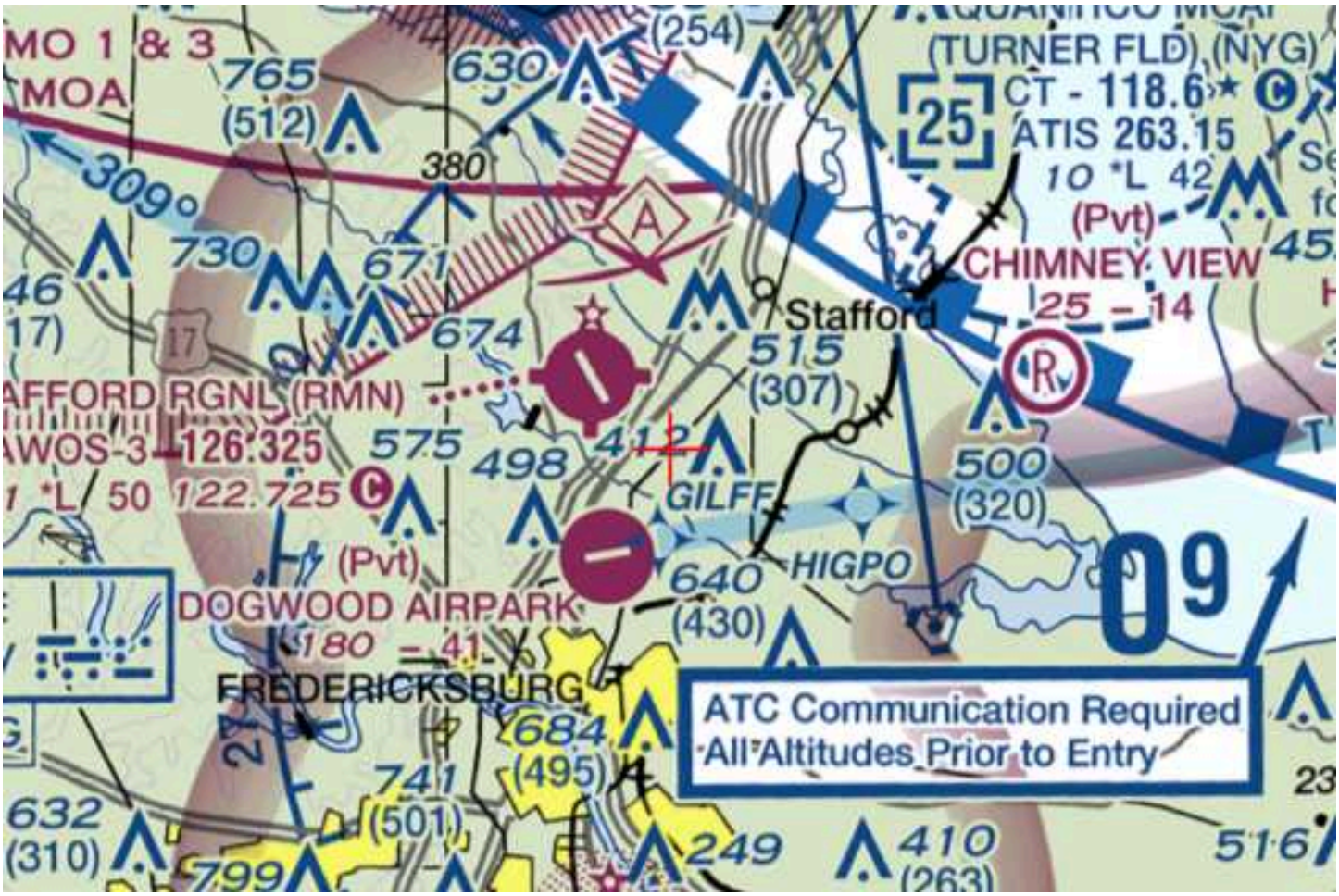
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2483-OE.

Signature Control No: 614890429-618738944 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2483-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2482-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building B South Campus
Location:	Fredericksburg, VA
Latitude:	38-23-02.81N NAD 83
Longitude:	77-25-54.51W
Heights:	160 feet site elevation (SE)
	155 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

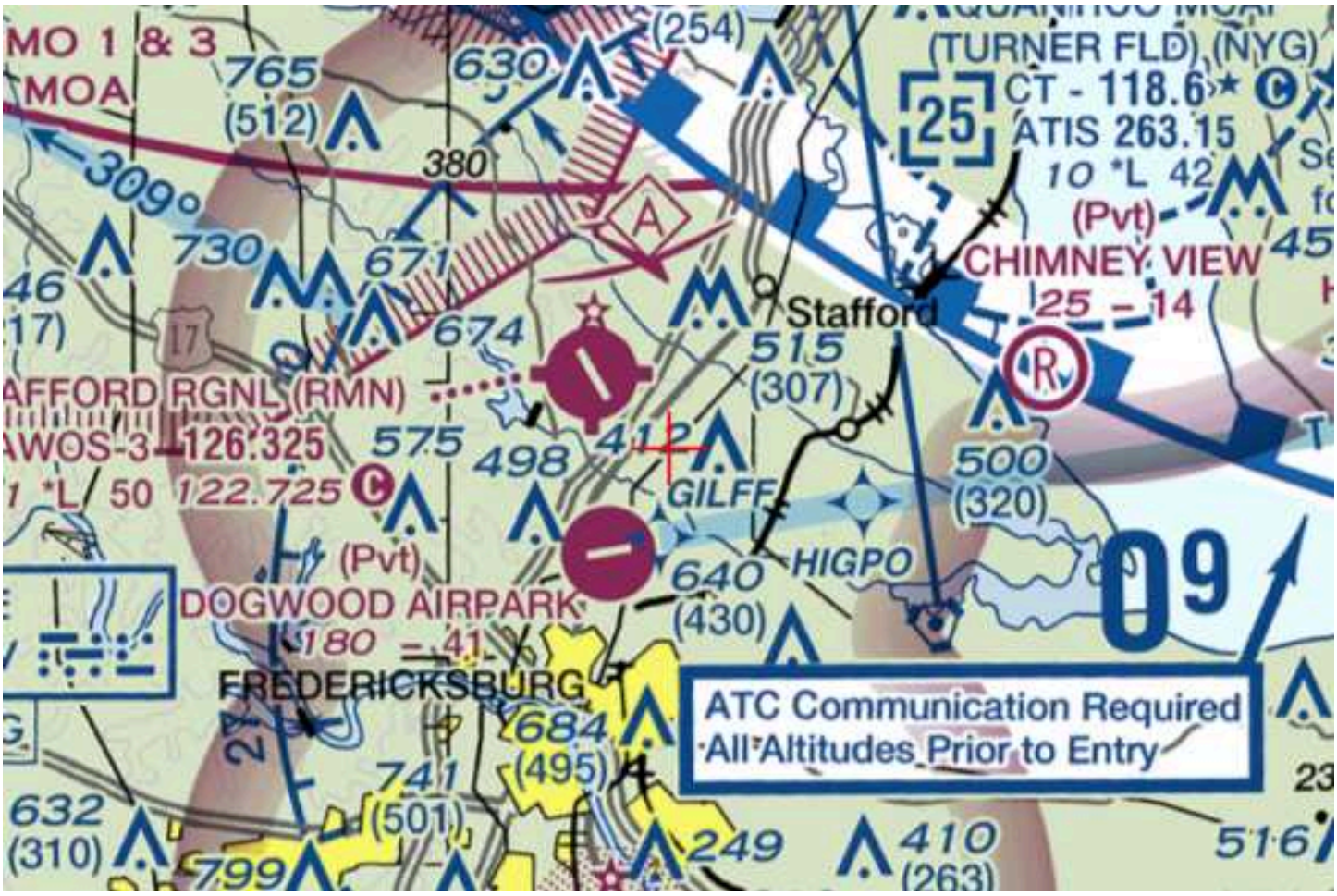
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2482-OE.

Signature Control No: 614890428-618738953 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2482-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2489-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building C South Campus
Location:	Fredericksburg, VA
Latitude:	38-22-51.75N NAD 83
Longitude:	77-25-51.11W
Heights:	160 feet site elevation (SE)
	135 feet above ground level (AGL)
	295 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2489-OE.

Signature Control No: 614890435-618738949 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2489-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2488-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building C South Campus
Location:	Fredericksburg, VA
Latitude:	38-22-48.86N NAD 83
Longitude:	77-25-51.51W
Heights:	160 feet site elevation (SE)
	135 feet above ground level (AGL)
	295 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2488-OE.

Signature Control No: 614890434-618738959 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2488-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2484-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building D South Campus
Location:	Fredericksburg, VA
Latitude:	38-22-59.28N NAD 83
Longitude:	77-25-43.32W
Heights:	160 feet site elevation (SE)
	155 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2484-OE.

Signature Control No: 614890430-618738957 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2484-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2485-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building E South Campus
Location:	Fredericksburg, VA
Latitude:	38-22-55.22N NAD 83
Longitude:	77-25-36.04W
Heights:	160 feet site elevation (SE)
	155 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

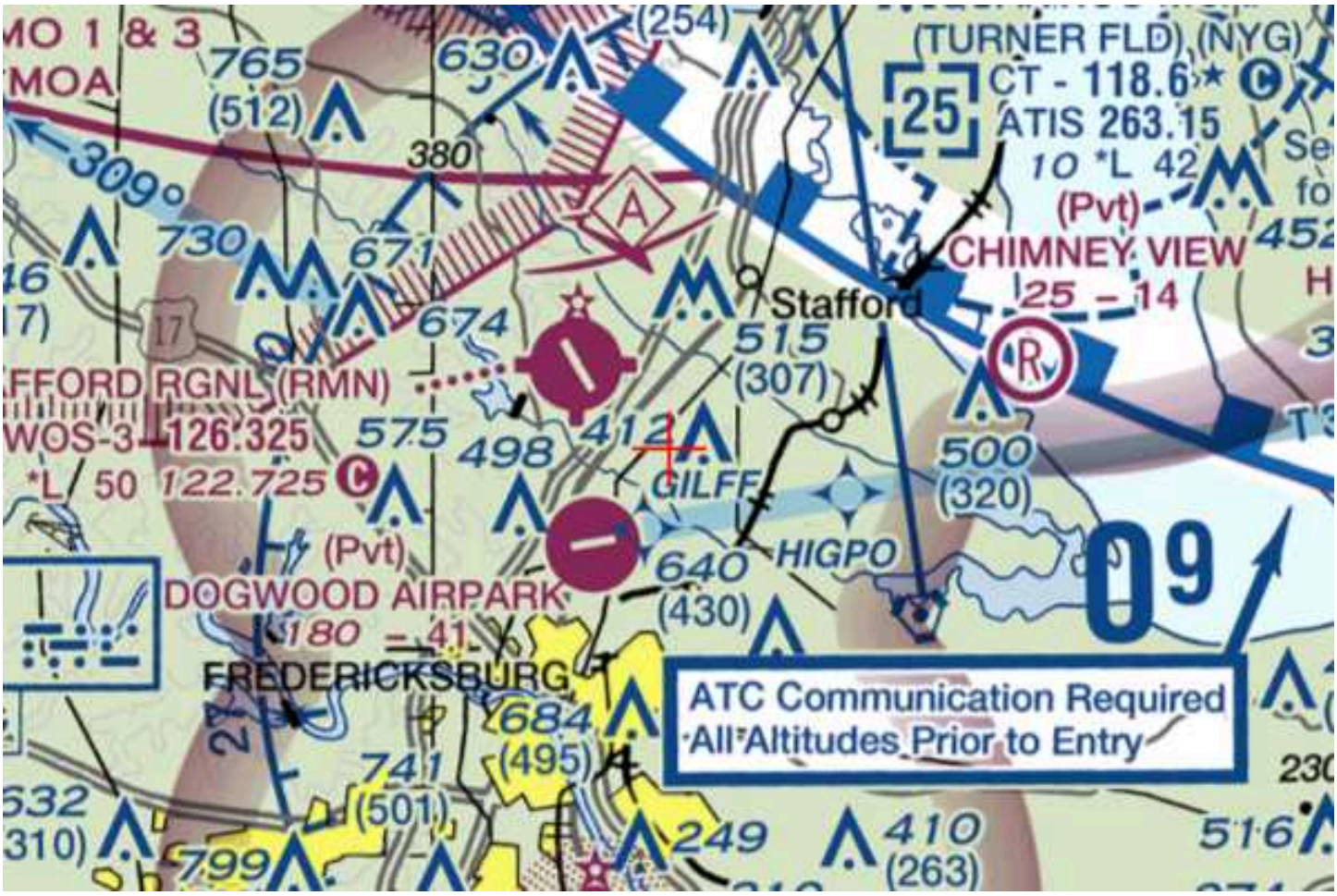
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2485-OE.

Signature Control No: 614890431-618738952 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2485-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2487-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building F South Campus
Location:	Fredericksburg, VA
Latitude:	38-22-47.12N NAD 83
Longitude:	77-25-23.76W
Heights:	160 feet site elevation (SE)
	155 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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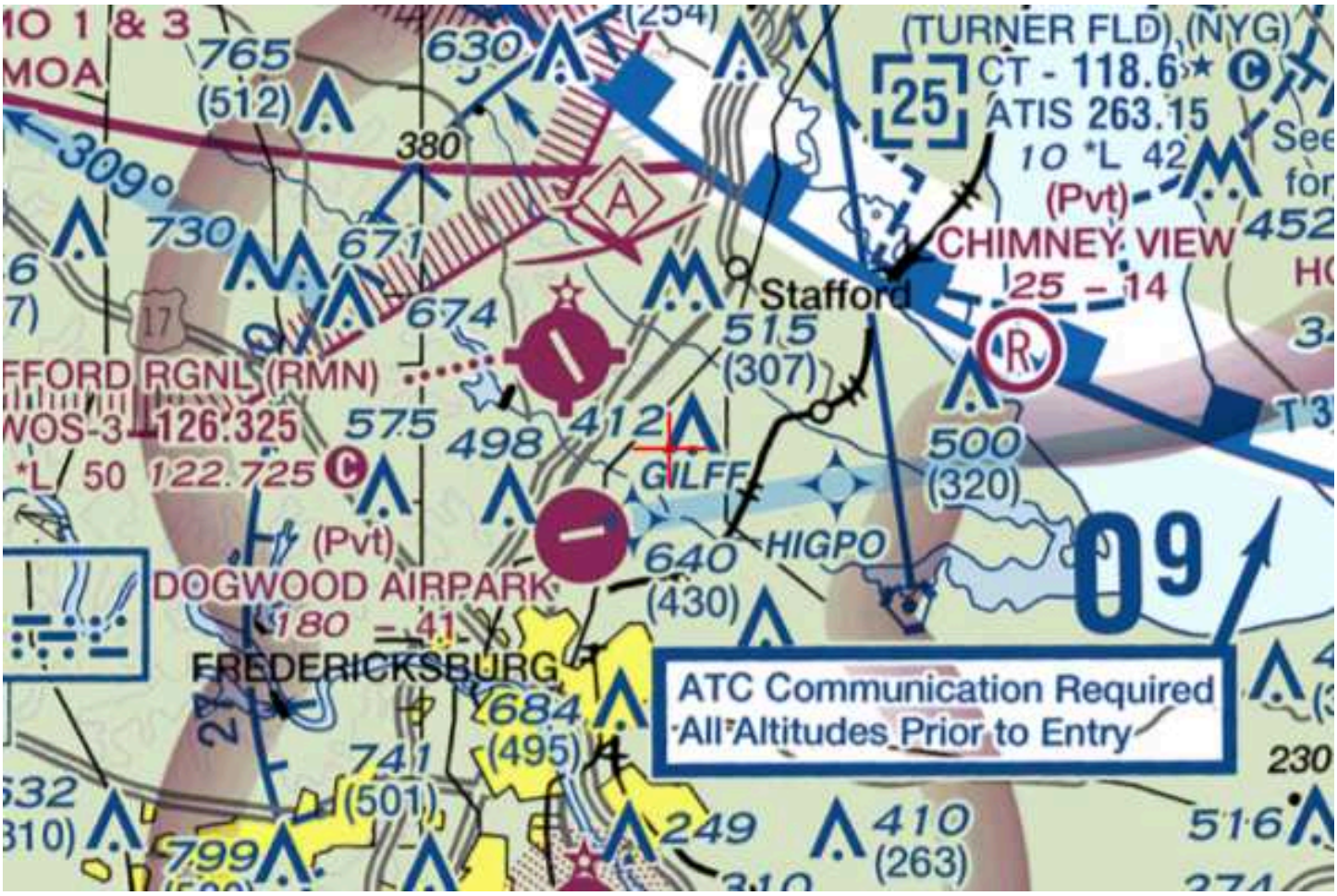
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2487-OE.

Signature Control No: 614890433-618738947 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2487-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2486-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building F South Campus
Location:	Fredericksburg, VA
Latitude:	38-22-50.65N NAD 83
Longitude:	77-25-22.07W
Heights:	160 feet site elevation (SE)
	155 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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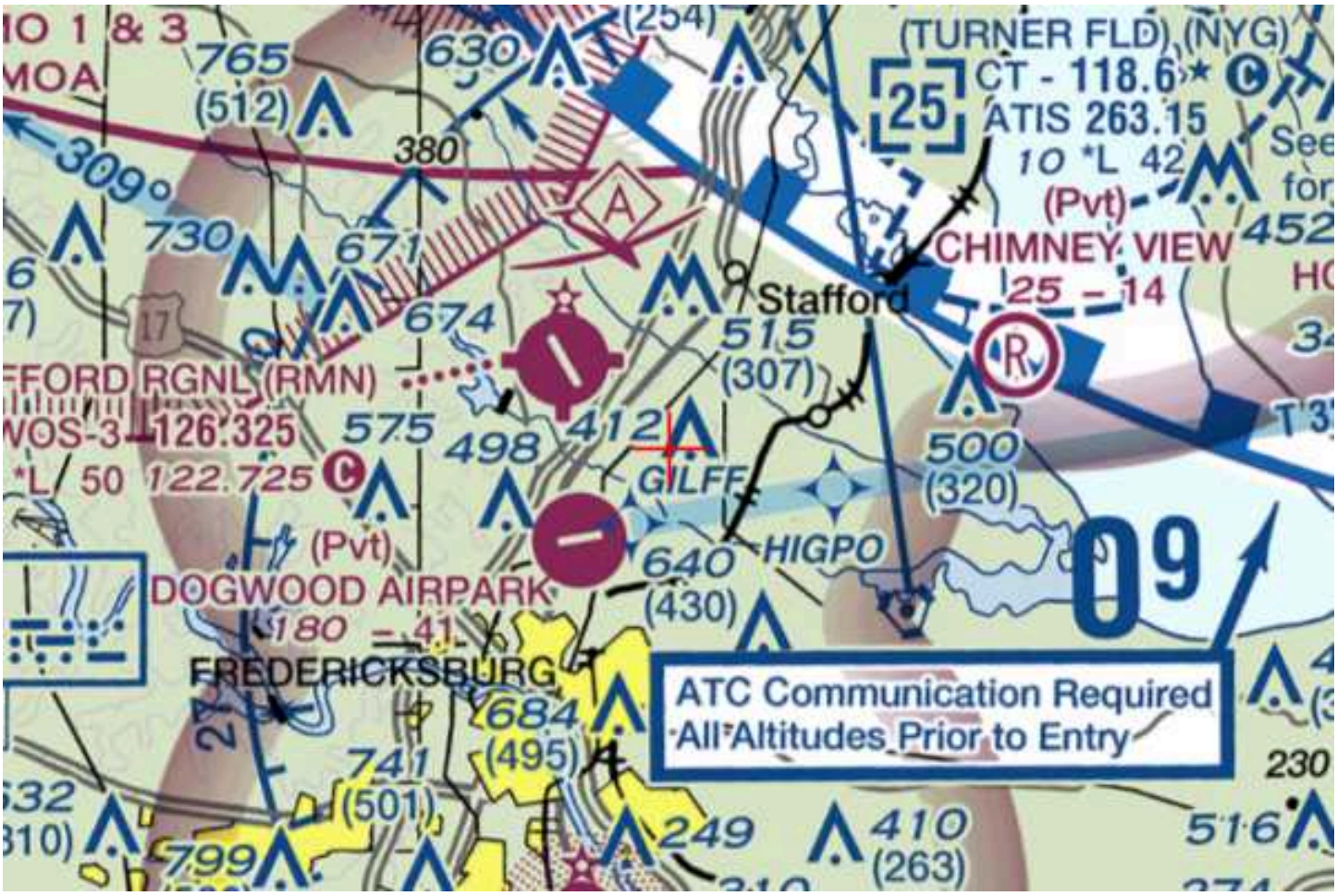
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

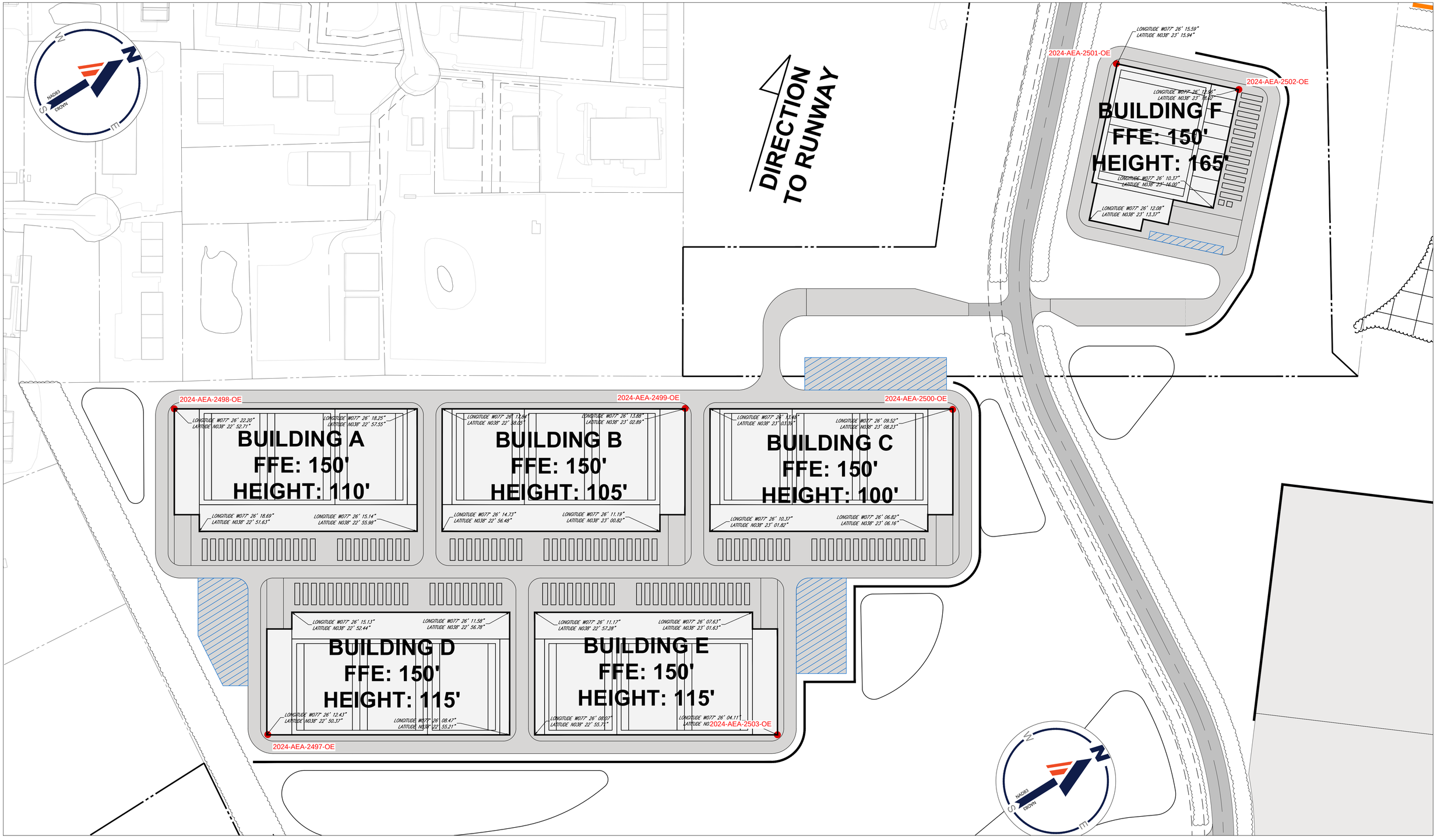
If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2486-OE.

Signature Control No: 614890432-618738958 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2486-OE





2/2/24 | CJM | VAA220232 | Rev 0

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

STAFFORD TECHNOLOGY CAMPUS
FAA DETERMINATION EXHIBIT WEST CAMPUS

STAFFORD, VIRGINIA

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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2498-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building A West Campus
Location:	Fredericksburg, VA
Latitude:	38-22-52.71N NAD 83
Longitude:	77-26-22.20W
Heights:	150 feet site elevation (SE)
	110 feet above ground level (AGL)
	260 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

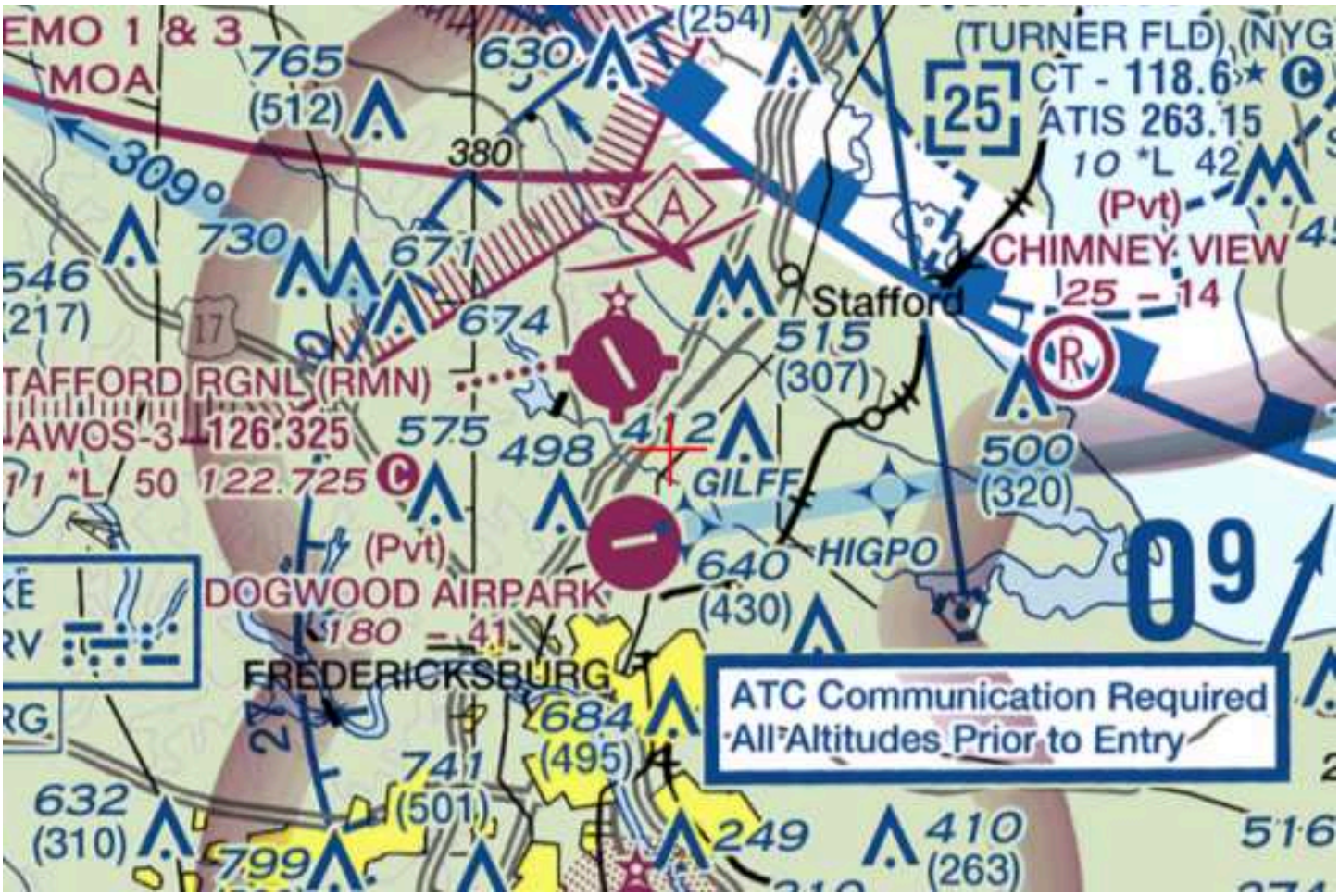
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2498-OE.

Signature Control No: 614890850-618739079 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2498-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2499-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building B West Campus
Location:	Fredericksburg, VA
Latitude:	38-23-02.89N NAD 83
Longitude:	77-26-13.88W
Heights:	150 feet site elevation (SE)
	105 feet above ground level (AGL)
	255 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

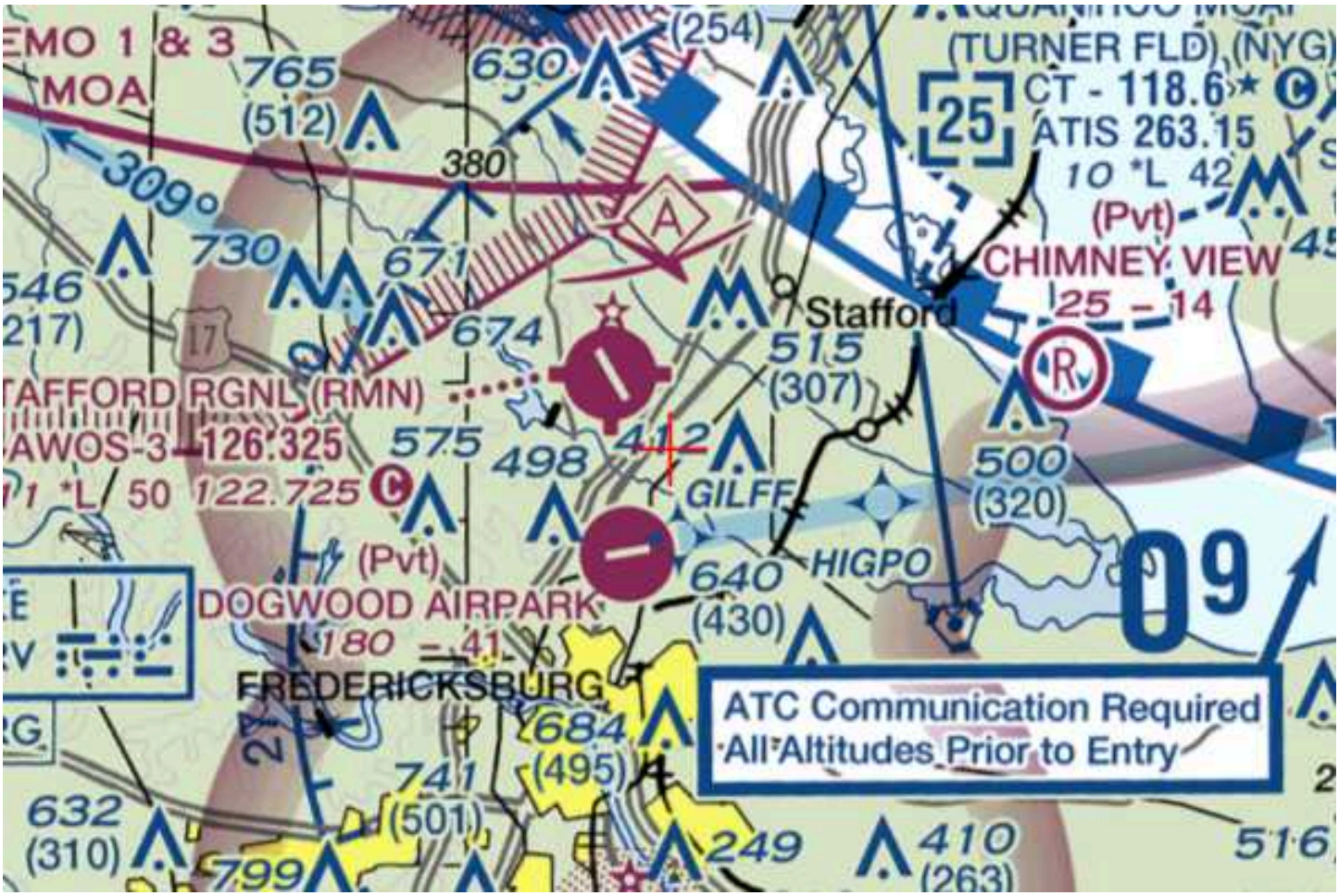
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2499-OE.

Signature Control No: 614890851-618739080 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2499-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2500-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building C West Campus
Location:	Fredericksburg, VA
Latitude:	38-23-08.23N NAD 83
Longitude:	77-26-09.52W
Heights:	150 feet site elevation (SE)
	100 feet above ground level (AGL)
	250 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
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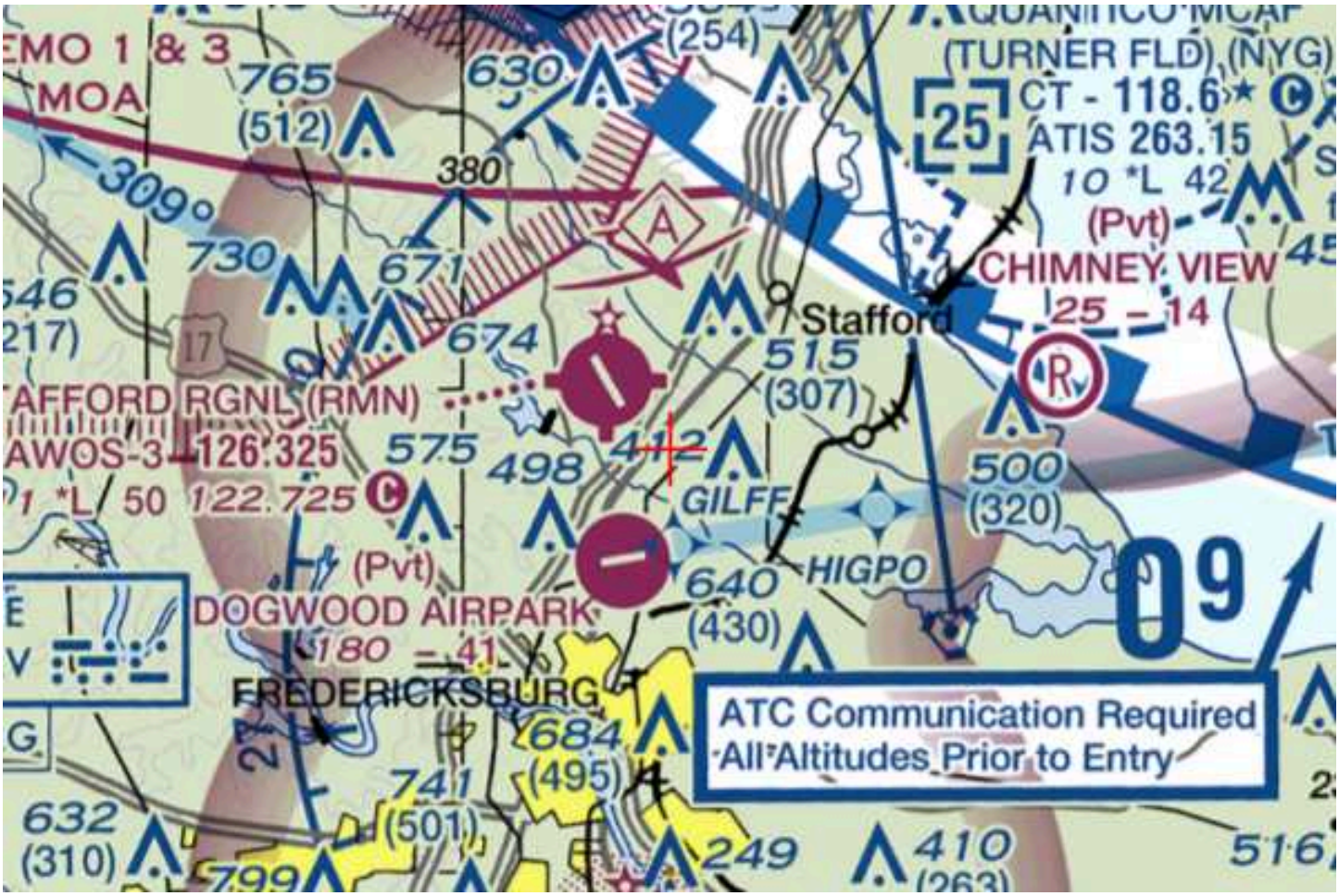
If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2500-OE.

Signature Control No: 614890852-618739085 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2500-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2497-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building D West Campus
Location:	Fredericksburg, VA
Latitude:	38-22-50.37N NAD 83
Longitude:	77-26-12.43W
Heights:	150 feet site elevation (SE)
	115 feet above ground level (AGL)
	265 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

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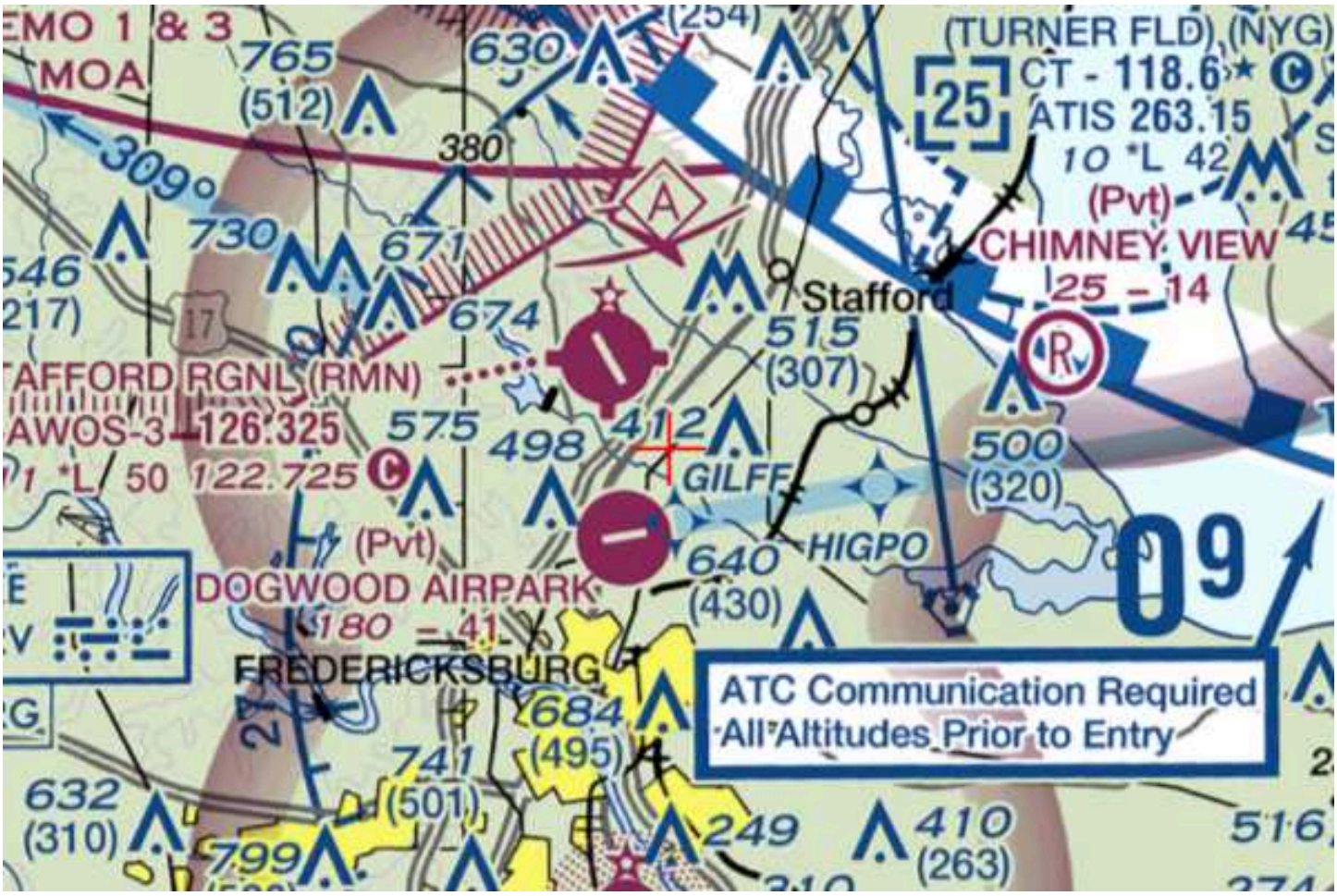
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2497-OE.

Signature Control No: 614890839-618739076 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2497-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2503-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building E West Campus
Location:	Fredericksburg, VA
Latitude:	38-23-00.55N NAD 83
Longitude:	77-26-04.11W
Heights:	150 feet site elevation (SE)
	115 feet above ground level (AGL)
	265 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

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__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 10/11/2025 unless:

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(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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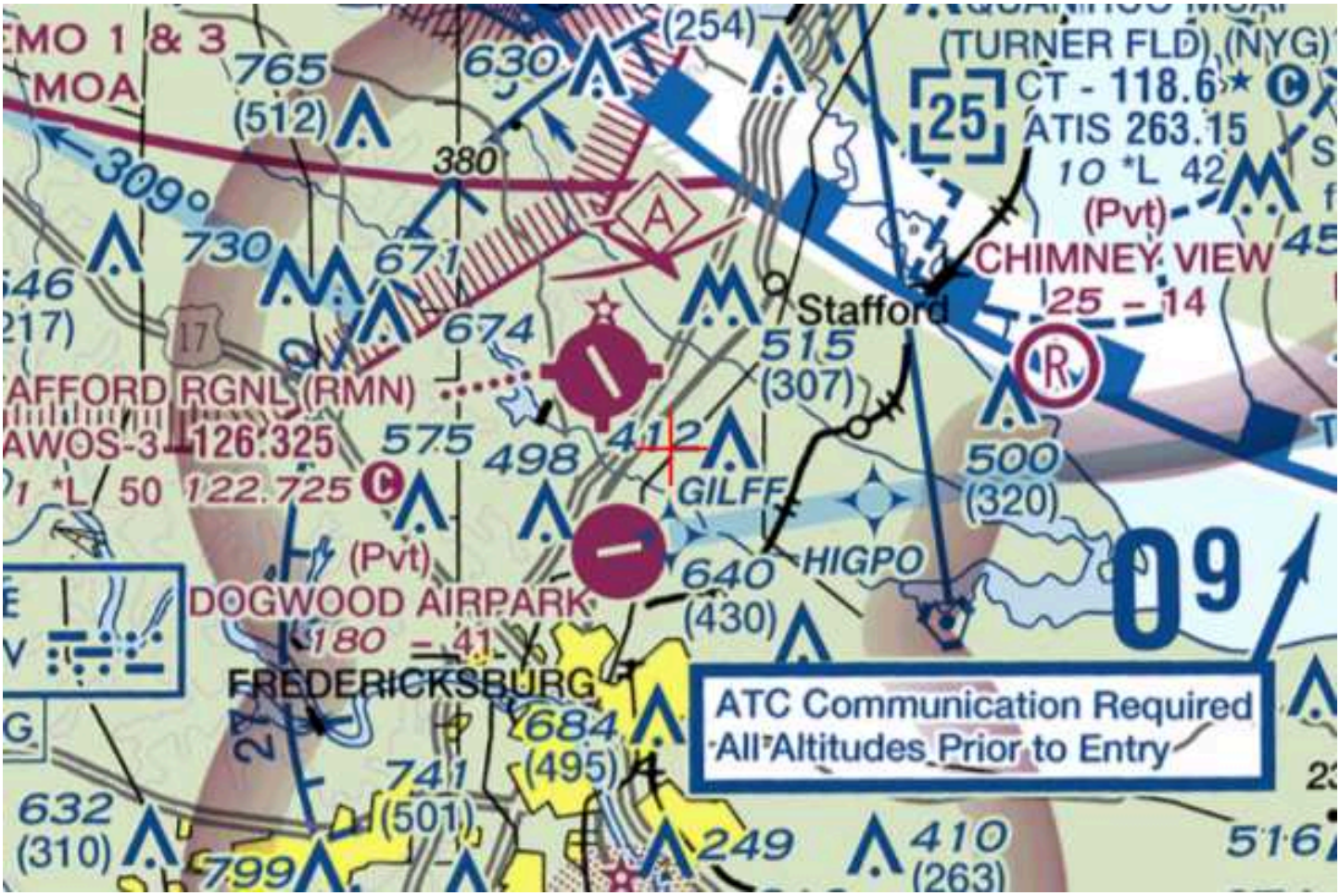
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2503-OE.

Signature Control No: 614890855-618739086 (DNE)
Kelly Nelson
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2024-AEA-2503-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AEA-2501-OE

Issued Date: 04/11/2024

Ben Yazman
STACK Infrastructure
1700 Broadway Suite 1750
Denver, CO 80290

**** NOTICE OF PRELIMINARY FINDINGS ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Building F West Campus
Location:	Fredericksburg, VA
Latitude:	38-23-15.94N NAD 83
Longitude:	77-26-15.59W
Heights:	150 feet site elevation (SE)
	165 feet above ground level (AGL)
	315 feet above mean sea level (AMSL)

Initial findings of this study indicate that the structure as described exceeds obstruction standards and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities. Pending resolution of the issues described below, the structure is presumed to be a hazard to air navigation.

See Attachment for Additional information.

NOTE: PENDING RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE, THE STRUCTURE IS PRESUMED TO BE A HAZARD TO AIR NAVIGATION. THIS LETTER DOES NOT AUTHORIZE CONSTRUCTION OF THE STRUCTURE EVEN AT A REDUCED HEIGHT. ANY RESOLUTION OF THE ISSUE(S) DESCRIBED ABOVE MUST BE COMMUNICATED TO THE FAA SO THAT A FAVORABLE DETERMINATION CAN SUBSEQUENTLY BE ISSUED.

IF MORE THAN 60 DAYS FROM THE DATE OF THIS LETTER HAS ELAPSED WITHOUT ATTEMPTED RESOLUTION, IT WILL BE NECESSARY FOR YOU TO REACTIVATE THE STUDY BY FILING A NEW FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.

If we can be of further assistance, please contact our office at (404) 305-6430, or kelly.r.nelson@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AEA-2501-OE.

Signature Control No: 614890853-618738469 (NPF)
Kelly Nelson
Specialist

Attachment(s)
Additional Information

Additional information for ASN 2024-AEA-2501-OE

A full list of acronyms and abbreviations is available at the FAA's public website at https://oeaaa.faa.gov/oeaaa/downloads/external/content/FAA_Acronyms.pdf.

The proposed building, at a height of 165 feet (ft.) above ground level (AGL) / 315 ft. above mean sea level (AMSL) would be located approximately 1.12 nautical miles (NM) southeast of the Stafford Regional (RMN), Stafford, VA, Airport Reference Point (ARP).

The proposed building has been identified as an obstruction under the standards of Title 14, Code of Federal Regulations (CFR), Part 77, as applied to RMN as follows:

Section 77.17 (a) (3). A height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria). Impacts are as follows:

At 315 AMSL, 4D, Stafford Rgnl (RMN) Stafford, VA. Obstacle penetrates RWY 15 40:1 departure surface 52 feet. Qualifies as low, close-in penetration with climb gradient termination altitude 200 feet or less above DER, requiring TAKEOFF MINIMUM AND (OBSTACLE) DEPARTURE PROCEDURES, AMDT 1, TAKEOFF OBSTACLE NOTE: RWY 15, BUILDING 3684 feet from departure end of runway, 1398 feet LEFT of centerline, 165 AGL / 315 AMSL, NEH 263 AMSL (4D/2C).

Section 77.19 (e): Transitional Surface. These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. The proposals would exceed the RWY 15/33 Transitional Surface by 21 ft.

Options include the following:

1. Agree to reduce the height of the structure to 113 ft. AGL / 263 ft. AMSL and receive a favorable determination without a marking and lighting recommendation. This option would eliminate all impacts.

2. Agree to reduce the height of the structure to 144 ft. AGL / 294 ft. AMSL and receive a favorable determination with a marking and lighting recommendation. This option would eliminate all VFR impact.

3. To pursue favorable determinations at the originally submitted height, further study would be necessary. Further study may include possible distribution for public comment and will extend the study period. The outcome cannot be predicted prior to completion of this process.

4. Request termination of the study.

Submit your response by email to Kelly.r.nelson@faa.gov. If the FAA does not receive a response to this letter within 60 days, the study will expire as noted on Page 1.

Stafford County
Planning Commission Meeting
Agenda Item Report
Meeting Date: June 12, 2024
PUBLIC HEARINGS

Subject:	
PLANNING AND ZONING; CONSIDER A PROPOSED ZONING RECLASSIFICATION, WITH PROFFERS, FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT ON TAX MAP PARCEL NOS. 38-124 AND 38-29A (PROJECT KNOWN AS RC23154931; STAFFORD TECHNOLOGY CAMPUS) Proposed Ordinance O24-20 **(Time Limit: September 20, 2024)** **BACKGROUND SUMMARY:** Approves zoning reclassification.	
Committee/Commission Recommendation:	
Fiscal Impact:	**District:**
	Falmouth
Overview:	
Consider a request for a proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124 (Property), consisting of 503.84 acres to permit a data center, public facilities/utilities, and related accessory uses.	
Discussion/Analysis:	
The General Development Plan (GDP) submitted by the applicant depicts the site layout for the proposed development. The GDP contemplates 23 buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change. Each building would consist of two or three levels that total 60 to 65 feet in height for 2-level buildings, and up to 110 feet for 3-level buildings. In a data center, each floor is roughly 30 feet high to account for required cooling systems. The maximum building height in M-2 is 65 feet. Any structures exceeding this height would require a conditional use permit (CUP). The applicant has listed the height exception in the proffer statement as a permitted component of the project. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the buildings up to 110 feet tall without the need for a CUP.	

The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Site topography includes sloping terrain. There are several perennial streams, wetlands, and CRPA buffer areas across the site. The northeast corner of the site drains to the northeast towards Accokeek Creek. The remainder of the site drains to the south towards Potomac Creek. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west. The undeveloped parcel to the south has an approved subdivision plan for 24 dwelling units (Potomac Creek Overlook).

The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.

The GDP identifies up to six electric sub-stations proposed on the site. The substations will connect to the adjacent high voltage power line that bisects the site. Note that an electric substation is identified as a use that requires a conditional use permit in the M-2 zoning district. The applicant has listed the use in the proffer statement as a permitted use. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the substation without the need for a CUP.

The GDP identifies tree preservation areas and landscape buffers on the site. To screen the project from residential uses to the north, tree preservation zones are identified. These areas provide a buffer ranging from 400 to 1,000 feet in width. Mature trees that exist in this area would be preserved. Transitional buffers would be 20 feet on the east adjacent to the landfill and corrections facility and 50 feet on the south side where planned residential development exists. Street buffers 50 feet in width are proposed along Eskimo Hill Road and the new road connection. To provide level development pads for this type of use, retaining walls are proposed around the perimeter of each development area due to the sloping terrain.

The Property contains an archeological resource in the northwest corner: DHR ID #44ST0680. The site consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. The site is not proposed to be developed. It is identified on the GDP as being within a proposed tree preservation area.

The project will be required to be served by the public water and sewer system. The Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements, which will require a service agreement with the County.

A detailed staff report and analysis is included in Attachment 1. The applicant is proposing proffers to help mitigate potential impacts (Attachment 5).

Attachments:

1. O24-20 Attachment 1.pln PC Staff Report
2. O24-20 Attachment 2.pln Impact Statement 04-20-24

3. O24-20 Attachment 3.pln Proposed O24-20 - REZONING APPROVAL
4. O24-20 Attachment 4.pln Proposed R24-189 - REZONING DENIAL
5. O24-20 Attachment 5.pln Proffer Statement 05-15-24
6. O24-20 Attachment 6.pln Generalized Development Plan 04-20-24
7. O24-20 Attachment 7.pln Transportation Plan (February 2024)
8. O24-20 Attachment 8.pln Design Elements (February 2024)
9. O24-20 Attachment 9.pln Cross section Exhibits (February 2024)
10. O24-20 Attachment 10.pln Boundary Survey 9-11-23
11. O24-20 Attachment 11.pln VDOT Comments_RC23154931_05-24-24
12. O24-20 Attachment 12.pln Traffic Impact Study 9-8-23
13. O24-20 Attachment 13.pln Utility Impact Assessment 9-11-23
14. O24-20 Attachment 14.pln Application Stafford Technology Campus REZONING 2-27-23

Summary/Conclusion:

Although there are several positive aspects, staff recommends deferral of the application (RC23154991), as there are unresolved issues that should be considered, as specified in the staff report. The issues for consideration by the Commission include:

- VDOT comments request modifications to several of the mitigation measures and request other additional information.
- The realignment of Eskimo Hill Road is shown through an off-site property owned by VEPCO. Furthermore, the parcel is zoned A-1, Agricultural and may not be able to be subdivided to provide for right-of-way and meet the minimum 6 acre per lot density requirement.
- Proffers leave open the possibility that the connector road may not be constructed, leaving uncertainty as to how impacts to Eskimo Hill Road would be mitigated.
- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Staff would recommend a more direct inter-parcel connection to parcels to the south be considered.
- The electric substations may be in conflict with the Airport Compatibility guidelines in the Comprehensive Plan and as a result, operations of the Stafford Regional Airport. Further evaluation of this issue is recommended.
- The exception to the maximum building heights may be too open-ended, creating potential visual impacts on adjacent properties.
- Although there is a commitment to utilizing re-use water when available, the proffers do not establish a timeframe for completion or restrict the amount of development that might use potable water. This would be a concern if the reuse line construction experiences delays.
- Staff would recommend additional sound measurement criteria, including sound measurements at specific months of the year and several years after occupancy.

Strategic Priorities:

Reviewed By:

Michael J. Zuraf, AICP, Director of Planning and Zoning

Board of Supervisors

Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica Gary
Crystal L. Vanuch
Dr. Pamela Yeung

F. Craig Meadows
Interim County Administrator

PLANNING COMMISSION STAFF REPORT

Meeting Date: June 12, 2024

Project: ***RC23154931; Zoning Reclassification – Stafford Technology Campus***

Request: The Planning Commission is to consider a request for a proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124 (Property).

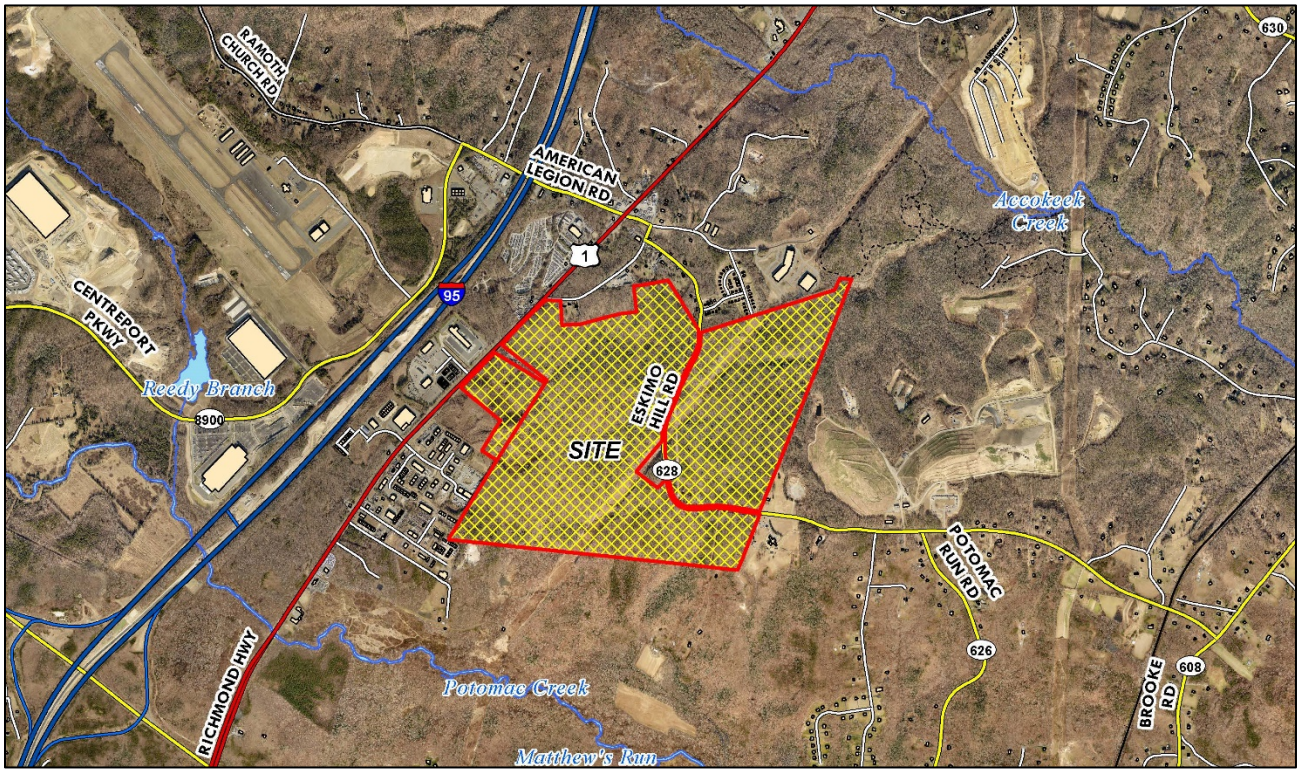
Tax Map Parcels: 38-29A & 38-124	**Acreage:** 503.84 Acres
Location: East side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road (Falmouth Election District)	**Application Date:** March 2, 2023 (Complete Application: September 11, 2023)
Advertisement Dates: May 29, 2024 and June 5, 2024	**Time Limit:** September 20, 2024 (PC 100-day limit) September 11, 2024 (BOS)
Applicant: Stafford Technology, LC	**Owner:** Stafford Technology, LC
Agent/Primary Contact: Jonelle Cameron & Jessica Pfeiffer, Walsh, Colucci, Lubeley, & Walsh PC	
Current Use: Undeveloped	**Proposed Use:** Data center, public facilities/utilities, and related accessory uses.
Future Land Use Designation: Central Stafford Targeted Development Area	**Zoning Overlay Districts:** AD, Airport Impact Overlay District
Staff Recommendation: Deferral	**Staff Project Manager:** Michael Zuraf

STAFF REPORT SECTIONS

LOCATION
PROJECT SUMMARY
SITE CHARACTERISTICS, & ZONING
STAFF ANALYSIS SUMMARY
ZONING HISTORY
ZONING ORDINANCE EVALUATION CRITERIA
SUMMARY OF POSITIVE AND NEGATIVE FEATURES
RECOMMENDATION
APPENDIX – STAFF ANALYSIS
IMPACT ON PUBLIC FACILITIES AND SERVICES EVALUATION
COMPREHENSIVE PLAN EVALUATION

LOCATION:

Location: The site is located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road.



Location Map

PROJECT SUMMARY:

The applicant is requesting a zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, consisting of 503.84 acres to permit a data center, public facilities/utilities, and related accessory uses.

Generalized Development Plan (GDP) - Attachment 6

The GDP submitted by the applicant depicts the site layout for the proposed development. The GDP contemplates twenty-three (23) buildings, anticipated as a data center campus totaling up to 5.8 million square feet of floor area. The buildings are clustered in buildable areas on the site, avoiding the Critical Resource Protection Areas within the site. The buildings typically include an area along one side where backup generators would be located. The GDP shows representative potential building locations and layouts. With a project of this size, the applicant cannot commit to specific number of buildings and building location and size as future tenant needs may change.

Each building would consist of two or three levels that total 60 to 65 feet in height for 2-level buildings, and up to 110 feet for 3-level buildings. In a data center, each floor is roughly 30 feet high to account for required cooling systems. The maximum building height in M-2 is 65 feet. Any structures exceeding this height would require a conditional use permit (CUP). The applicant has listed the height exception in the proffer statement as a permitted component of the project. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the buildings up to 110 feet tall without the need for a CUP.

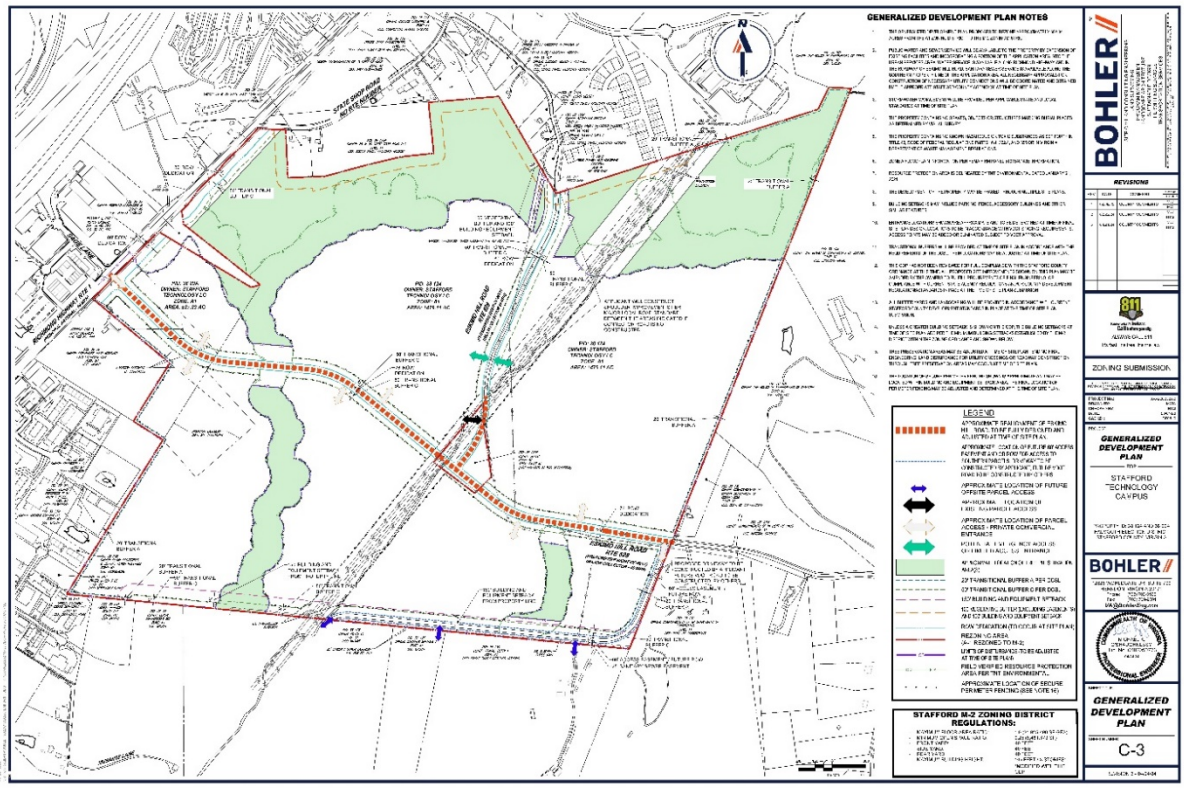
The site is bisected by Eskimo Hill Road and has frontage on Richmond Highway. The applicant is proposing to construct a new road extension from Richmond Highway across from Sage Lane, running east to connect into Eskimo Hill Road. Entrances into the data center pods are proposed off of this new road and existing Eskimo Hill Road.

The GDP identifies up to six (6) electric substations proposed on the site. The substations will connect to the adjacent high voltage power line that bisects the site. Note that an electric substation is identified as a use that requires a conditional use permit in the M-2 zoning district. The applicant has listed the use in the proffer statement as a permitted use. Acceptance of these proffers by approval of this request would allow the applicant to proceed with constructing the substations without the need for a CUP.

The GDP identifies tree preservation areas and landscape buffers on the site. To screen the project from residential uses to the north, tree preservation zones are identified. These areas provide a buffer ranging from 400 to 1,000 feet in width. Mature trees that exist in this area would be preserved. Transitional buffers would be 20 feet on the east adjacent to the landfill and corrections facility and 50 feet on the south side where planned residential development exists. Street buffers 50 feet in width are proposed along Eskimo Hill Road and the new road connection. To provide level development pads for this type of use, retaining walls are proposed around the perimeter of each development area due to the sloping terrain.



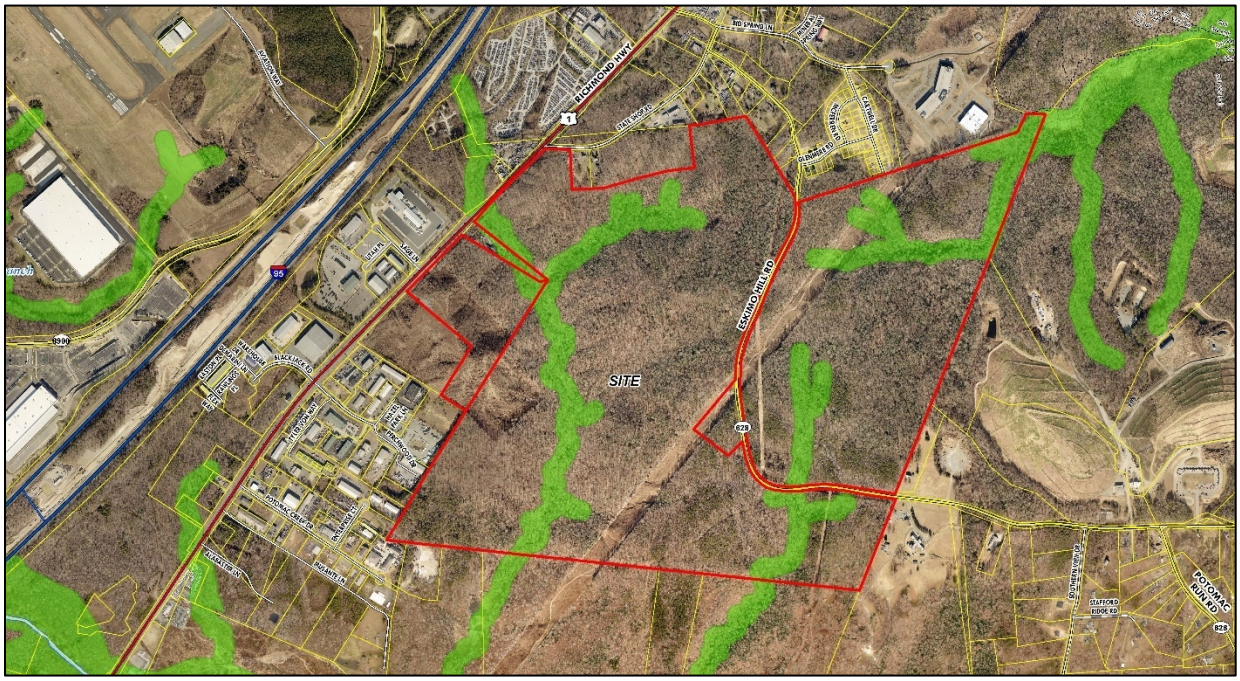
Generalized Development Plan – Concept Plan



Generalized Development Plan – Buffers and Preservation Areas

SITE CHARACTERISTICS AND ZONING:

The subject property totals 503.84 acres. The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Site topography includes sloping terrain. There are several perennial streams, wetlands, and CRPA buffer areas across the site. The northeast corner of the site drains to the northeast towards Accokeek Creek. The remainder of the site drains to the south towards Potomac Creek. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west. The undeveloped parcel to the south has an approved subdivision plan for 24 dwelling units (Potomac Creek Overlook). A Comprehensive Plan Amendment application has also been submitted for that same parcel.

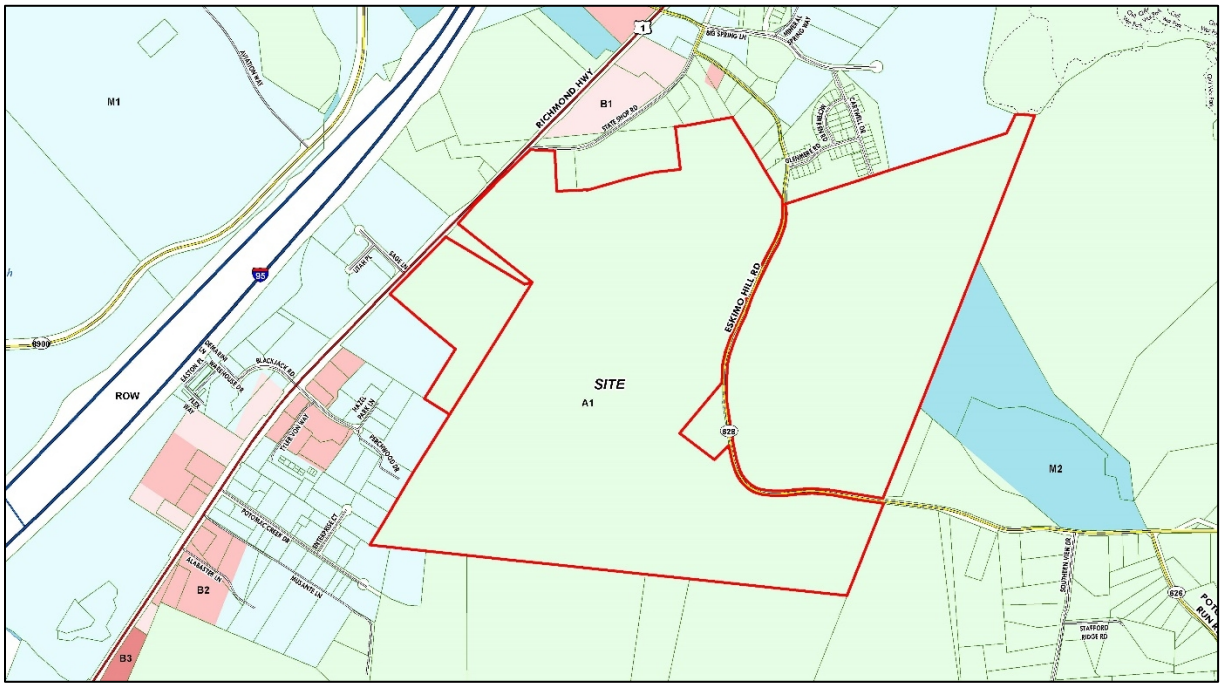


Existing Conditions - Aerial View

Cultural Resources

The Property contains an archeological resource in the northwest corner: DHR ID #44ST0680. The site consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. The site is not proposed to be developed. It is identified on the GDP as being within a proposed tree preservation area.

Zoning Classification: A-1, Agricultural



Zoning Map

Abutting Properties:

Location	**Zoning**	**Existing Use**	**Comprehensive Plan**
North	A-1, Agricultural M-1, Light Industrial	Undeveloped Residential	Central Stafford Targeted Development Area (TDA) (Business and Industry Future Land Use)
South	A-1, Agricultural M-1, Light Industrial	Residential Undeveloped	Central Stafford TDA (Business and Industry Future Land Use) Agricultural/Rural
East	A-1, Agricultural M-2, Heavy Industrial	Landfill Corrections Facility	Agricultural / Rural
West	A-1, Agricultural M-1, Light Industrial	Industrial Auto salvage yard Undeveloped	Central Stafford TDA (Business and Industry Future Land Use)

STAFF ANALYSIS

Approval of the reclassification would allow for the development of a data center campus with up to 5.8 million square feet of floor area. Proffers included with the request would:

- Require the development to be served by a water reuse line, once constructed to the site;
- Require the construction of several transportation improvements including a new east-west connector road between Eskimo Hill Road and Richmond Highway, as identified in the Comprehensive Plan;
- Ensure building design provide certain design features; and
- Requires sound studies and testing to ensure compliance with noise standards.

The proposed M-2 zoning is in general conformance with the recommended Future Land Use designation of Business and Industry. The applicant is also requesting the Comprehensive Plan be amended to include the same Business and Industry designation on the entire site. This staff report identifies positive and negative features with this proposal, including several issues that have yet to be resolved. At this point, staff recommends deferral until the outstanding issues are resolved.

Comprehensive Plan

Land Use: The Comprehensive Plan identifies the western half of the Property within the Central Stafford Targeted Development Area, and designated as Business and Industry Future Land Use. The eastern portion of this site is designated as Agricultural/Rural and outside of the Urban Services Area. A data center campus would be an appropriate use in a Business and Industry future land use area. The concurrent Comprehensive Plan Amendment request would need to be approved for the entire site to be in conformance with the Future Land Use Plan. The site is surrounded by other industrial uses and non-residential uses such as the regional landfill, corrections facility and auto salvage yard. Several single-family residences are located to the north and south, including an approved 24 lot subdivision to the south. The Comprehensive Plan does not contemplate additional residential development on surrounding parcels.

Transportation: The proposal would significantly reduce the vehicle trips to and from the site. The data center is estimated to generate approximately 4,356 vehicle trips per day (VPD). A Traffic Impact Analysis (TIA) submitted with the proposal identified several mitigation measures which are being proffered as part of the project, and identified on the Transportation Plan (Attachment 7). Some additional mitigation is still being recommended. The project would also implement recommendations from the Transportation Plan, including right-of-way dedication and construction of a new east-west connector road from Richmond Highway to Eskimo Hill Road. Staff has cited concerns with unknown impacts should the road not be constructed.

Building Design: Representative images depicting the required design features of the buildings has been provided within the application (Attachment 8). The architectural standards in the Neighborhood Design Standards (NDS) Plan does not address data center uses. The proffers require buildings incorporate a variety of façade design treatments.

Public Facilities

The site is partially located within the Urban Services Area, with the remainder proposed to be added. The project will be required to be served by the public water and sewer system. A data center use requires more water than other commercial and industrial development. To limit impacts on the County's potable water resources, the Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements. The line is proposed to be constructed from the Aquia Wastewater Treatment Plant. The applicant is working on a water service agreement with the Utilities Department to outline how and when the reuse line will be constructed. The agreement would require approval by the Board of Supervisors. Temporary use of potable water will be required as the reuse line may take several years to complete. The proffers do not set a limit on the number of buildings that can utilize potable water. Staff recommends some limit be established. In addition, the applicant is proposing to construct other off-site potable water improvements that the buildings will still require.

Proposed Proffers

The Proffer Statement is included in Attachment 5. The Applicant is proposing the following proffers which would:

- require the Property be developed in general accordance with the generalized development plan (GDP);
- prohibit several uses that would otherwise be permitted in the M-2 zoning district;
- calculate floor area and open space requirements on a cumulative basis and not within each subdivided parcel;
- permit building heights of 105 feet, above the 65-foot maximum permitted in the zoning ordinance;
- permit electric substations on the property, with height and location standards;
- require a 150-foot data center building setback from the southern property line with 50-foot buffer, unless any of the parcels are rezoned for a non-residential use;
- require data center building facade design variety;
- require security fence to be at least 7 feet in height, if provided;
- require screening of roof-top mechanical equipment;
- establish tree preservation areas;
- establish fire and rescue standards;
- require the following sound standards:
  - for prominent discreet tones, the Sound Standard shall be reduced by 3 dB(A);
  - require sound measurements six (6) months after final occupancy permit to confirm compliance;
  - require a sound analysis prior to the approval of each final site plan for the property;
- require the following transportation improvements:
  - provide access to properties to the south;
  - construct a two-lane public connector road from Eskimo Hill Road to Richmond Highway;
  - dedicate right-of-way along Eskimo Hill Road;
  - construct shoulder improvements on Eskimo Hill Road if the connector road is not

permitted by the County or VDOT;
  - modify traffic signal timings and provide lane restriping at the I-95 ramps on Centerport Parkway;
  - modify signal timings at Richmond Highway and Centerport Parkway;
  - provide intersection improvements to Richmond Highway and Hospital Center Boulevard;
  - provide several improvements to the Richmond Highway and Sage Lane / Connector Road intersection;
  - provide right-of-way dedication along Richmond Highway;
- limit the combined uses on the property to no more than 4,356 vehicle trips per day;
- develop a construction management plan;
- develop an emergency management action plan; and
- provide an annual general development schedule if requested by the County.

ZONING HISTORY

The Property has been zoned A-1, Agricultural since before 1978, and no proffers exist for the site. A preliminary subdivision plan for 145 residential lots was approved in 2005 and is still valid. No development has occurred for this project.

ZONING ORDINANCE EVALUATION CRITERIA:

County Code Sec. 28-206 lists 12 criteria to be considered at each public hearing for reclassification.

1. Compliance of the request with the stated requirements of the district or districts involved – *The request is in compliance with most of the stated requirements of the M-2 Zoning District. An accepted proffer would permit the maximum building heights to be exceeded.*

2. The existing use and character of the property and the surrounding property – *The property is undeveloped and wooded. A high voltage transmission line and easement bisects the site. Several perennial streams run through the property. General surrounding uses include: Residential and undeveloped uses to the north and south; the regional landfill and corrections facility to the east; and industrial, auto salvage yard, and undeveloped land to the west.*

3. The suitability of the property for various uses – *The size of the site makes the site suitable for various commercial and industrial uses. The proximity to industrial uses, the landfill, and corrections facility, and airport approach pattern make the site less conducive for residential uses.*

4. The trend of growth and development in the surrounding area – *General surrounding uses include: Residential and undeveloped uses to the north and south; The regional landfill and corrections facility to the east; and Industrial and auto salvage yard uses to the west side of the property.*

5. The current and future requirements of the County for land – *A new road segment recommended in the Comprehensive Plan is proposed to be constructed as part of the project. Right-of-way is also proposed to be dedicated to allow for future improvements to Richmond Highway and Eskimo Hill Road.*

6. The transportation requirements of the project and the County, and the impact of the proposed land-use on the County's transportation network –*The proposed development is proffering to mitigate many of the identified impacts and provide recommended road network improvements. Some additional mitigation measures are still recommended.*

7. Requirements for schools, parks, recreational lands and facilities, and other public services, potentially generated by the proposed classification –*The use would require new public water and sewer infrastructure to serve the site. The rezoning would reduce the potential demand on schools, parks and other facilities as the potential for residential development would be negated.*

8. The conservation of property values in the surrounding area – *The proposed amendment should not have a negative effect on any property values in the surrounding area. The use will be required to be screened and/or setback from the closest adjacent residential uses, as identified in the GDP.*

9. The preservation of natural resources and the impact of the proposed uses on the natural environment – *The site is wooded. The development plan identifies that the Resource Protection Areas along the perennial streams will be preserved and a tree preservation area will retain the northern portion of the site in open space, including an identified cultural resource.*

10. The most appropriate use of land – *The proposed data center campus is an appropriate use of the land. The Future land Use map in the Comprehensive Plan recommends Business and Industry land use. The surrounding land uses and characteristics make the land suitable for a data center. The data center use generates much lower traffic impacts than other industrial uses.*

11. The timing of the development of utilities and public facilities, and the overall public costs of the development – *The applicant is proffering to construct at their expense the transportation improvements and several of the utility improvements. The proposed water reuse line will be constructed with private funding however the timing of completion is unknown. Other site improvements will be borne by the applicant.*

12. The consistency, or lack thereof, of the proposed rezoning with the Stafford County Comprehensive Plan as in effect at that time – *The proposed data center is consistent with the recommended Business and Industry Future Land Use on this site. Approval of the concurrent Comp Plan Amendment would make the entire site consistent. The use would mitigate many of the identified transportation impacts and implements recommendations from the Transportation Plan. However, additional mitigation measures are still being recommended. The proposed building facades would be required to incorporate design features to ensure varied façade details.*

SUMMARY OF POSITIVE AND NEGATIVE FEATURES:

POSITIVE:

1. Use consistent with the recommended Business and Industry land use and the full site would be in compliance if the concurrent Comp Plan amendment is approved.
2. The data centers are an appropriate use within the Airport Overlay district.
3. Data centers would be consistent with the adjacent industrial and public facility uses.
4. Buffers and building setbacks would limit visual impacts to the adjacent residential uses.
5. Siting near electric transmission lines limit the need to extend additional transmission lines.
6. The substations would be centrally located on the site, minimizing visual impacts to adjacent properties.
7. Ensures the data centers will use reuse water when available, negating any potential impacts to the County's potable water supply.
8. The planned connector road is generally consistent with a recommended road connection in the Transportation Plan, improving access to the data centers.
9. Promotes Economic Development goals of bringing high paying jobs to the County.

NEGATIVE:

1. Several transportation issues remain unresolved.
2. The electric substations may be in conflict with the Airport Compatibility guidelines.
3. Taller maximum building heights may create potential visual impacts on adjacent properties.
4. There are no limitations to the amount of potable water that may be used for data center cooling, or corresponding timeframes for the completion of the water reuse line.
5. Sound measurement proffers may not provide adequate standards.

RECOMMENDATION:

Although there are several positive aspects, staff recommends deferral of the application (RC23154991), as there are unresolved issues that should be considered.

The issues for consideration by the Commission include:

- VDOT comments request modifications to several of the mitigation measures and request other additional information.
- The realignment of Eskimo Hill Road is shown through an off-site property owned by VEPCO. Furthermore, the parcel is zoned A-1, Agricultural and may not be able to be subdivided to provide for right-of-way and meet the minimum 6 acre per lot density requirement.
- Proffers leave open the possibility that the connector road may not be constructed, leaving uncertainty as to how impacts to Eskimo Hill Road would be mitigated.
- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Staff would recommend a more direct inter-parcel connection to parcels to the south be considered.

- The electric substations may be in conflict with the Airport Compatibility guidelines in the Comprehensive Plan and as a result, operations of the Stafford Regional Airport. Further evaluation of this issue is recommended.
- The exception to the maximum building heights may be too open-ended, creating potential visual impacts on adjacent properties.
- Although there is a commitment to utilizing re-use water when available, the proffers do not establish a timeframe for completion or restrict the amount of development that might use potable water. This would be a concern if the reuse line construction experiences delays.
- Staff would recommend additional sound measurement criteria, including sound measurements at specific months of the year and several years after occupancy.

APPENDIX

IMPACT ON PUBLIC FACILITIES AND SERVICES:

Transportation

The site is located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road. Richmond Highway is a 4-lane undivided facility with a posted speed limit of 55 miles per hour in this location and 19,500 average annual daily vehicle trips. Eskimo Hill Road is a 2-lane undivided facility with a posted speed limit of 40 miles per hour in this location and 3,500 average annual daily vehicle trips.

A Transportation Impact Analysis (TIA) has been provided to evaluate the overall impacts to the transportation network (Attachment 12). The submittal of a TIA is required when the estimated trip generation for the proposed use exceeds 1,000 vehicle trips per day (VPD). The TIA estimates the development would generate approximately 4,356 VPD. The TIA evaluated impacts on the signalized and unsignalized intersection along Richmond Highway from Hospital Center Boulevard, south to Centreport Parkway, and along Eskimo Hill Road and the proposed new connector road.

The County Comprehensive Plan Policy 7.7.7 addresses development impacts on the road network, and states:

> *Transportation facility improvements to be constructed with development projects should be designed to maintain a Level of Service (LOS) C for impacted intersections and/or road segments. Where achieving a LOS C is not practical given exiting transportation deficiencies, improvements should be designed to not further degrade the LOS.*

The TIA has been provided to VDOT for their review. VDOT's latest comments are provided in Attachment 11. They have several unresolved comments. The following points provide a general overview of their comments:

- Concern with the proposed mitigation at Richmond Highway and Hospital Center Boulevard;
- Requested additional studies for the proposed connector road intersection with Richmond Highway;
- Additional mitigation measures suggested at this same intersection;
- Impacts to Richmond Highway / Eskimo Hill intersection not mitigated; and
- Additional mitigation measures recommended along Richmond Highway at the Centreport Parkway and Enon Road intersections.

In consideration of the County's Comprehensive Plan Policy and comments from VDOT, the cited issues should be addressed. Attachment 15 includes a letter from the applicant in response to the VDOT comments. It notes that they intend on submitting a revised TIA by the public hearing date.

Transportation recommendations in the Comprehensive Plan recommend: (1) A future 2-lane road from Eskimo Hill Road to Richmond Highway; (2) A future 6-lane divided upgrade for Richmond Highway; and (3) A future 2-lane upgrade to Eskimo Hill Road. The applicant is proffering to construct the connector road and dedicate right-of-way consistent with the Comprehensive Plan recommendations.

Staff has identified the following concerns with the proposed transportation improvements:

- The realignment of Eskimo Hill Road is shown through an off-site property owned by VEPCO. Furthermore, the parcel is zoned A-1, Agricultural and may not be able to be subdivided and meet the minimum 6 acre per lot density requirement.
- Proffers leave open the possibility that the connector road may not be constructed, leaving uncertainty as to how impacts to Eskimo Hill Road would be mitigated.
- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers. Staff would recommend a more direct inter-parcel connection to parcels to the south be considered.

Utilities

The site is partially located within the Urban Services Area, with the remainder proposed to be added. The project will be required to be served by the public water and sewer system. A data center use requires more water than other commercial and industrial development. To limit impacts on the County's potable water resources, the Applicant is proposing to connect the buildings to a future water reuse line to meet cooling requirements. The line is proposed to be constructed from the Aquia Wastewater Treatment Plant. The applicant is working on a water service agreement with the Utilities Department to outline how and when the reuse line will be constructed. The agreement would require approval by the Board of Supervisors. Temporary use of potable water will be required as the reuse line may take several years to complete. The proffers do not set a limit on the number of buildings that can utilize potable water. Staff recommends some limit be established. In addition, the applicant is proposing to construct other off-site potable water improvements that the buildings will still require.

Schools

There would be a potential reduction in impacts to the County School System as the previously approved subdivision of 145 dwelling units would be void with the approval of this reclassification.

Parks & Recreation

There would be a potential reduction in impacts on the County Park system as the previously approved subdivision of 145 dwelling units would be void with the approval of this reclassification.

Fire and Rescue

The Property is within the first response area of the Courthouse Fire and Rescue Station (No. 2), which is located approximately 3 miles from the Property to the north on Courthouse Road. The applicant addressed all comments provided by Fire and Rescue during the application review.

Noise Impacts

Data centers include the potential for creating noise impacts. The facilities require consistent climate control which is handled with cooling systems that operate more frequently, especially in warmer months. The uses can generate consistent low-level sound that can be audible from adjacent properties. In addition, backup generators are a necessary component to ensure consistent power. These only operate during power outages and for periodic testing.

To mitigate this issue, the applicant is proposing proffers to: Require the Sound Standard be reduced by 3 dB(A) for prominent discreet tones; Require sound measurements six (6) months after final occupancy permit to confirm compliance; and Require a sound analysis prior to the approval of each final site plan for the property.

Light Impacts

No significant impacts are noted. The proposed site lighting would be installed in compliance with Section 28-87 of the Zoning Ordinance, for Outdoor Lighting Standards.

COMPREHENSIVE PLAN EVALUATION:

Future Land Use Plan

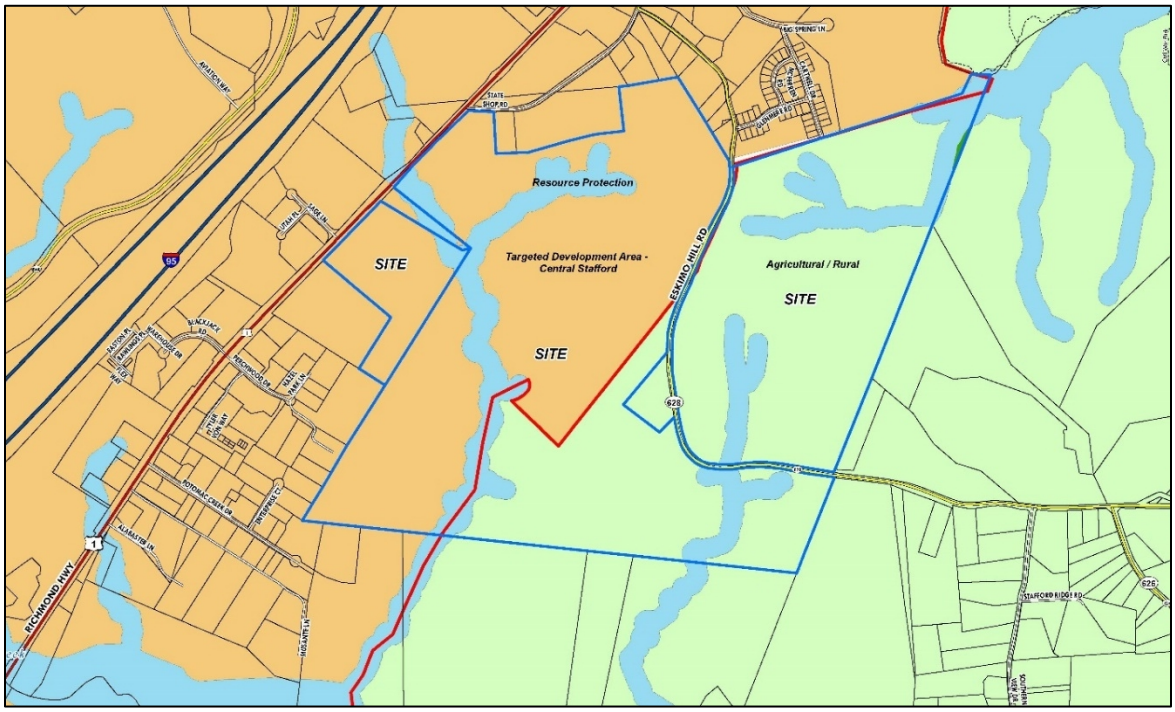
Future Land Use:

The Comprehensive Plan identifies the western half of the Property within the Central Stafford Targeted Development Area, and designated as Business and Industry Future Land Use. The eastern portion of this site is designated as Agricultural/Rural and outside of the Urban Services Area. In addition, Resource Protection is identified where CRPA buffers are present. The property is subject to a concurrent Comp Plan Amendment to amend the future land use in the eastern half to include it in the Central Stafford TDA with Business and Industry land use.

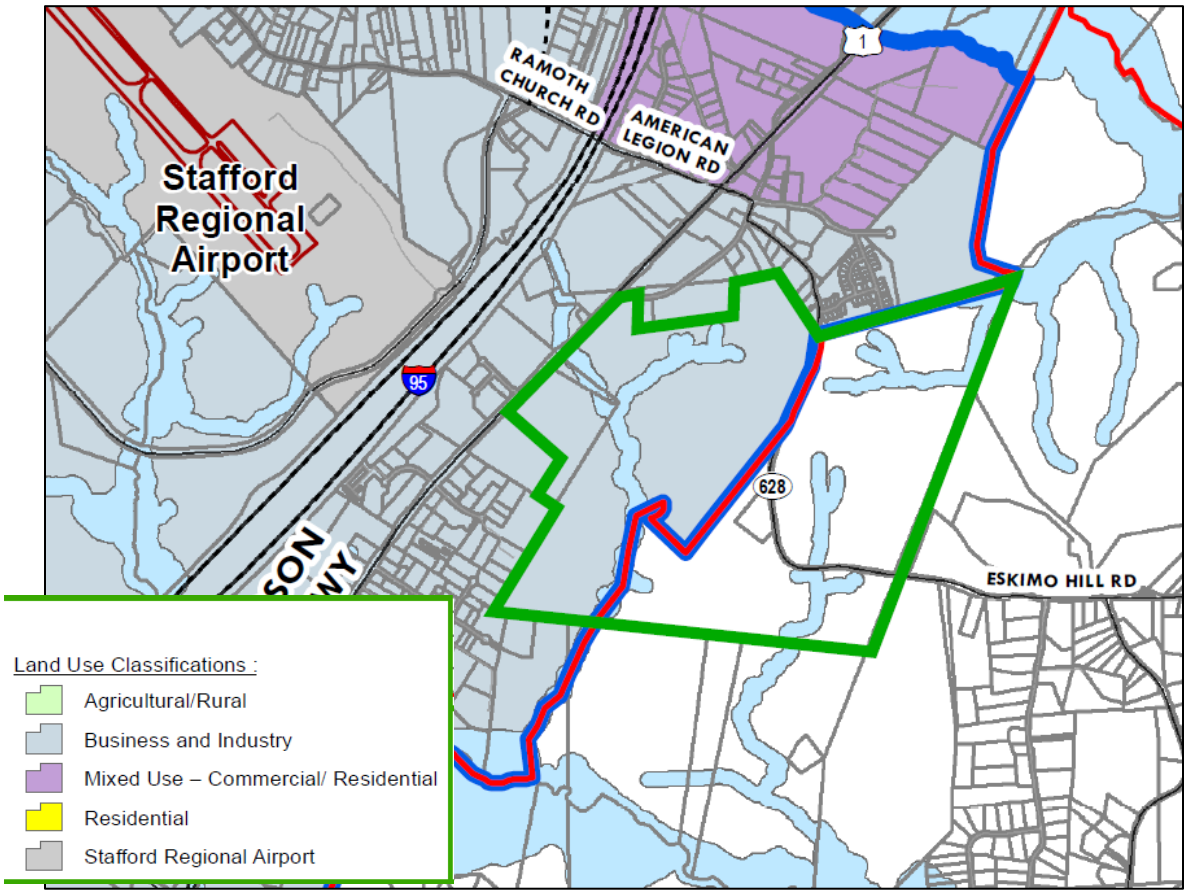
Targeted Development Areas (TDAs) are areas of the County where a significant amount of development or redevelopment is expected to occur. More specifically, TDAs emphasize where development will be targeted, and may include a mix of development such as residential, mixed-use, commercial, and industrial. Designated TDA areas are where concentrated urban or higher density suburban development is most appropriate.

The proposed data center use is consistent with this specific Business and Industry land use recommendation. The Business and Industry land use designation in the Comprehensive Plan describes Business and Industry areas as: *Areas of the county where large-scale business and industry activities are encouraged. These areas are to be the primary economic engines for the*

County. Such businesses and industries would primarily serve markets that stretch beyond the County borders. The general character of the area is primarily industrial, including two industrial parks, an auto salvage yard, regional landfill, and corrections facility. There are also some residential development to the north and a few existing residences and planned residential to the south. The design of the site provides enhanced buffers and setbacks from the closest residential uses.



Future Land Use Map



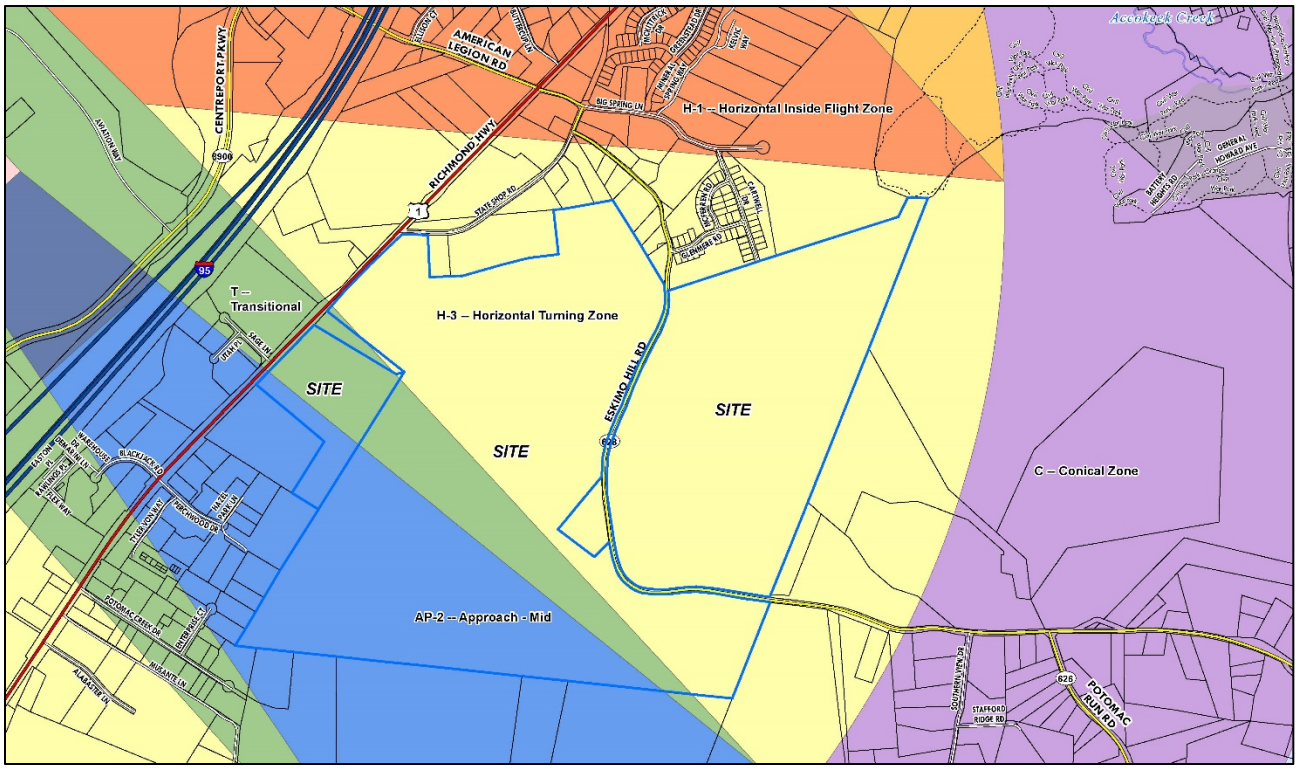
Central Stafford TDA Future Land Use Concept Plan

Airport Land Use Compatibility

The site is within the Airport Impact Overlay for Stafford Regional Airport, and is specifically located within the AP-2, Approach-Mid Zone, T, Transitional Zone, and H-3, Horizontal Turning Zone. The plan addresses airport compatible land uses, an identifies if uses are Compatible, require Additional Review or are Not Compatible, based on the different zoned around the airport.

Data centers are not specifically defined in the compatibility table but may be most similar to Light industrial / storage warehouse. This use is defined as needing Additional Review in the AP-2 zone, Additional Review in the T zone, and Compatible in the H-3 zone.

The electric substations are classified as Vertical Infrastructure. This use is defined as Not Compatible in the AP-2 zone, Not Compatible in the T zone, and Additional Review in the H-3 zone.



Airport Land Use Compatibility Zones

Design Standards

Representative images depicting the required design features of the buildings has been provided within the application (Attachment 8). The architectural standards in the Neighborhood Design Standards (NDS) Plan does not address data center uses. The proffers require buildings incorporate a variety of façade design treatments, as the following images illustrate.

Data Center Fenestrations, material changes



Change in step-backs, recesses and change in color



Change in height



STAFFORD TECHNOLOGY CAMPUS
IMPACT STATEMENT
April 24, 2024

INTRODUCTION

The applicant, Stafford Technology LC (the "Applicant") is the owner of the properties identified as Tax Map Number 38 124 and Tax Map Number 38 29A which are comprised of approximately 503.84 acres (collectively the "Property"). The proposal is to reclassify the Property from A-1, Agricultural, to M-2, Heavy Industrial.

The Applicant's proposal includes a phased data center campus which will contain approximately 5.8 million square feet of data center uses at full buildout. An Overall Illustrative Plan is included with the GDP package and shows how the property could potentially be developed.

CAPACITY

Highways. Access to the Property will be provided from both Richmond Highway and a Connector Road that will extend from Eskimo Hill Road to Richmond Highway. A traffic impact analysis was submitted with this application. Based on the traffic impact analysis, the proposal is anticipated to generate approximately 523 net new total trips during the AM peak hour, 175 net new trips during the PM peak hour and 4,356 net new trips during a typical weekday. The Traffic Impact Analysis concluded that

> *Based on the capacity and queueing analysis results, the proposed development will not have a substantial impact to the surrounding transportation and roadway network under 2030 conditions, assuming that all planned designs and recommended mitigation measures discussed in this report are implemented.*

The following is a list of proffered transportation improvements based on the recommendations outlined in the Traffic Impact Analysis.

a. <u>Connector Road</u>

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard, along the Property's Eskimo Hill Road frontage. In addition, the Applicant shall conduct another traffic impact analysis to determine the impacts to Eskimo Hill Road and provide such improvements recommended from the northern Property boundary on Eskimo Hill Road to the Eskimo Hill Road / Route 1 intersection. Said improvements shall be constructed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for the 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT. Said improvement shall be completed prior to the issuance of the 2,113th VPD on the Property.

Utilities. The Property will be served by public water and sewer. The Applicant is in discussions with the County's Department of Utilities to review the utility infrastructure and looking at ways in which the surrounding infrastructure can be improved through a partnership with the Applicant. The Applicant has provided a proffer for public utilities.

- Water – The Property is partially located within the Central and Falmouth Pro Rata Water Pressure Zones. Public water for the Property will be provided by existing public water infrastructure and the proposed new public water infrastructure, including recycled water infrastructure. The need to upgrade offsite water infrastructure will be determined prior to the issuance of site plan approval. More information, including gallons per day, can be provided in connection with site plan and building permit review.

- Sewer – The Property is partially located within the Potomac Creek Sewershed. Public sewer for the Property not currently located within the Potomac Creek Sewershed is proposed to be provided by extending sewer infrastructure to the unserved area of the Property and expanding the Urban Service Area. More information, including gallons per day, can be provided in connection with site plan and building permit review.

Storm Drainage. The proposed development of the Property will be constructed in accordance with local, state and federal regulations. For stormwater management purposes, the Virginia Department of Environmental Quality regulations for both quality and quantity will be met as required by local and state code. Final design for both quality and quantity treatment will be shown in connection with site plan review.

Schools. The Property currently has an approved residential subdivision plan. The existing approved use on the site has an impact to the schools. However, the proposed reclassification will have no impact on the school facilities in Stafford County and therefore, is a reduced impact to the County school system over what is currently permitted on the Property by-right.

Recreational Facilities. The Property currently has an approved residential subdivision plan. The existing approved use on the site has an impact to recreational facilities. However, the proposed reclassification will have no impact on the recreational facilities in Stafford County and therefore, is a reduced impact over what is currently permitted on the Property by-right.

ENVIRONMENTAL IMPACT

TNT Environmental, Inc. ("TNT") has determined the boundaries of the jurisdictional wetlands and other waters of the U.S. (i.e., streams) on the referenced study area with a wetland delineation, which was confirmed by the U.S. Army Corps of Engineers through a preliminary jurisdictional determination (PJD) dated January 13, 2023. Additionally, Critical Resource Protection Area

("CRPA") core components on and within 100 feet of the study area were evaluated to determine the extent of the CRPA on the project study area. Based upon this wetland delineation, there are three main wetland and stream systems that run across the study area and tie into larger waterways offsite.

Based on TNT's field work, the limits of the field-verified CRPA on the study area are shown on the Generalized Development Plan. In accordance with Section 28-62 of the Stafford County Zoning Ordinance, the perennial streams (i.e., unnamed perennial tributaries to Potomac Creek) and all wetlands and ponds that are contiguous and connected by surface flow to the perennial streams are components of the CRPA, and the field-verified CRPA extends 100 feet landward of these features. The CRPA delineation will be submitted during the site plan stage and confirmed upon approval of an Environmental Site Assessment ("ESA") by Stafford County. Wetland and stream areas outside of the CPRA may be disturbed and mitigated per all Federal and State requirements at the time of site plan.

The U.S. Department of Agriculture ("USDA"), Natural Resources Conservation Service ("NRCS"), Web Soil Survey ("WSS") depicts that the site is underlain primarily by Alluvial land (Ae), Aura gravelly sandy loam (AvB, AvC2, and AvE2), Aura-Galestown-Sassafras complex (AwD, AwE), Bibb fine sandy loam (Bb), Bladen loam (Bd), Bourne fine sandy loam (BmB), Caroline fine sandy loam (CaB2, CaC2, and CaD2), Caroline- Sassafras complex (CdE), Luka fine sandy loam (Iu), Kempsville fine sandy loam (KfB), Marr very fine sandy loam (MdB, MdC2, MdD2, and MdE2), Sandy and clayey land (ScF), and Sassafras fine sandy loam (SfB, SfC2, SfD2, and SfE2). Alluvial land (Ae), Bibb fine sandy loam (Bb), Bladen loam (Bd), and Luka fine sandy loam (Iu) are classified by the NRCS as hydric. The GDP identifies the location of the soil map units.

FISCAL IMPACT

The proposed development will have a positive fiscal impact on Stafford County, as follows.

- It is anticipated that there will be approximately 130 data center jobs with each of the five phases.
- The real property investment is anticipated to be $1.5 billion.
- The business personal property investment is estimated to be $3.024 billion in data center equipment.
- The state and local tax revenue for construction for each phase is anticipated to be $36.9 million.
- The annual fiscal impact to Stafford County for each 1.2 million square foot phase is estimated to be $27.78 million annually.

- The tax revenue once all five phases are developed is estimated to be $127 million annually.

HISTORIC SITES

There is one historical site that has been identified on the property, Site 44ST0680. The site is located on Parcel 38 124 and consists of a relatively large prehistoric resource procurement camp of unknown temporal affiliation. This site is not proposed to be developed and will remain undisturbed. Site 44ST0680 is potentially eligible for listing in the NRHP under Criteria D.

IMPACT ON ADJACENT PROPERTY

The proposed development will have minimal impact on the adjacent properties. The development is near the County's law enforcement academy shooting range and landfill, which are located to the east of the Property. There are also M-1 zoned properties adjacent to the Property along Richmond Highway. To mitigate any potential impacts, the Applicant has provided 100 ft. buffers adjacent to the residential developments to the north and south, proffered to Design Standards for data center buildings visible from Eskimo Hill Road, Richmond Highway and adjacent residential zoned, and proffered minimum noise requirements.

NOISE, DUST & SMOKE EMISSIONS

Any noise emissions shall comply with the applicable provisions of Chapter 16 of the Stafford County Code of Ordinances. Similarly, any dust and smoke emissions shall comply with the applicable State and Federal standards in final buildout, and to the Virginia Erosion and Sediment Control Handbook ("VESCH") during construction.

P1418929.DOCX

O24-20

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

ORDINANCE

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the day of 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

AN ORDINANCE TO AMEND AND REORDAIN THE STAFFORD COUNTY ZONING ORDINANCE BY AMENDING THE ZONING DISTRICT MAP TO RECLASSIFY FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT TAX MAP PARCEL NOS. 38-29A AND 38-124, ALL LOCATED WITHIN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology, LC submitted application RC23154931, requesting a zoning reclassification from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, all located within the Falmouth Election District; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that the requested zoning amendment is compatible with the surrounding land uses and meets the criteria for a rezoning in Stafford County Code Sec. 28-206; and

WHEREAS, the Board finds that public necessity, convenience, general welfare, and good zoning practices require adoption of this Ordinance to reclassify the subject property;

NOW, THEREFORE, BE IT ORDAINED by the Stafford County Board of Supervisors on this the day of 2024, that the Stafford County Zoning Ordinance be and it hereby is amended and reordained by amending the Zoning District Map to reclassify from the A-1, Agricultural Zoning District to the M-2, Light Industial Zoning District Tax Map Parcel Nos. 38-29A and 38-124, in the location shown on the plat entitled "Boundary Survey Stafford Technology LC" prepared by Bohler Engineering & Design Studio, dated March 22, 2023 and sealed August 29, 2023, with proffers entitled "Proffer Statement" dated April 24, 2024 and completely signed , 2024.

FCM:MJZ:ss

R24-189

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION

At a regular meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the day of 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. R. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO DENY A REQUEST TO RECLASSIFY FROM THE A-1, AGRICULTURAL ZONING DISTRICT TO THE M-2, HEAVY INDUSTRIAL ZONING DISTRICT TAX MAP PARCEL NOS. 38-29A AND 38-124, LOCATED WITHIN THE FALMOUTH ELECTION DISTRICT

WHEREAS, Stafford Technology, LC submitted application RC23154931, requesting a zoning reclassification from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-29A and 38-124, located within the Falmouth Election District; and

WHEREAS, the Board carefully considered the recommendations of the Planning Commission and staff, and the public testimony, if any, received at the public hearing; and

WHEREAS, the Board finds that the requested zoning amendment is incompatible with the surrounding land uses and does not meet the criteria for a rezoning in Stafford County Code Sec. 28-206; and

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the day of 2024, that application RC23154931 be and it hereby is denied.

FCM:MJZ:ss

PROFFER STATEMENT

RC23154931, Stafford Technology Campus

Applicant:	Stafford Technology LC
Record Owner:	Stafford Technology LC
Property:	Tax Map Parcels 38 124 and 38 29A Approximately 503.84 acres (hereinafter, the "Property")
Project Name:	Stafford Technology Campus
Reclassification Request:	From A-1, Agricultural, to M-2, Heavy Industrial

Date: April 24, 2024

The undersigned hereby proffers that the use and development of the subject Property shall be in strict conformance with the following conditions, which shall supersede all other proffers made prior hereto. In the event the above-referenced Reclassification is not granted as applied for by the Applicant, these proffers shall be withdrawn and are null and void. The headings of the proffers set forth below have been prepared for convenience or reference only and shall not control or affect the meaning or be taken as an interpretation of any provision of the proffers. Any improvements proffered herein below shall be provided at the time of development of the portion of the site served by the improvement, unless otherwise specified. The terms "Applicant" and "Developer" shall include all future owners and successors in interest. The proffers shall run with the Property and be binding upon all future assignees, successors, grantees or lessees therefore, except as otherwise specifically set forth herein.

References in this Proffer Statement to plans and exhibits shall include the following:

A. Generalized development plan entitled "Generalized Development Plan (GDP) - Stafford Technology Campus," prepared by Bohler Engineering dated August 1, 2023, last revised April 24, 2024 (sheet 3 of 4) (the "GDP").

B. Transportation Plan entitled "Transportation Plan for Stafford Technology Campus," prepared by Gorove Slade, dated September 8, 2023, last revised March 8, 2024.

USE AND DEVELOPMENT

1. Generalized Development Plan - The subject Property shall be developed in general conformance with the GDP, subject to changes approved by the County in connection with site plan review.

2. Uses - All uses permitted in the M-2 zoning district shall be permitted on the Property, except the following uses shall be prohibited:

a. Automobile assembling, disassembling, painting, upholstering, repairing, rebuilding, reconditioning, body and fender work, truck repairing or overhauling, tire retreading or battery manufacture;

b. Building materials sales and service yards;

c. Machinery sales and service;

d. Railroad sidings;

e. Adult business;

f. Boat sales;

g. Drive-through;

h. Dwelling for watchman or caretaker on-premises;

i. Recycling facilities;

j. Truck stop; and

k. Vehicle fuel sales.

l. Automobile salvage yard or operations.

m. Feed lots.

n. Heavy industrial and heavy manufacturing uses not otherwise listed for the M-2 district.

o. Junkyard.

p. Slaughter and animal product processing.

3. Site Layout - For purposes of the final site plan (which will supersede the GDP after County approval), proposed parcel lines, parcel sizes, building envelopes and footprints, access points, building sizes, building locations, waste facilities, parking areas, recreational and open space areas, public road locations, private driveways, road and travelway locations, buffers, interparcel connectors, RPAs and wetland areas, utility locations, storm water management facilities, and dimensions of undeveloped areas shown on the GDP may be

relocated and/or amended from time to time by the Applicant to address changes in market conditions, final development, engineering, and design requirements and/or compliance with federal or state agency regulations including, but not limited to, Virginia Department of Transportation ("VDOT"), Virginia Department of Environmental Quality, Army Corps of Engineers, etc.

4. Maximum Lot Coverage - Floor area (1.0) and open space (0.25) requirements on the Property shall be calculated on a cumulative basis and not on a percentage of each subdivided parcel. A tabulation shall be provided on all site plans related to the Property depicting overall floor area and open space. In no event shall the maximum FAR on the Property allow for more than 4,365 average vehicle trips per day as calculated in Proffer 21 below.

5. Height - The maximum height of any data center building on the Property may be one hundred and five feet (105'). Roof structures, mechanical equipment, equipment platforms, parapet walls, screen walls, elevator shafts, stair wells, penthouses, antennas and/or enclosures may exceed one hundred and five feet (105'). Approval of this rezoning shall not require any further conditional use permit for an increase in the height.

6. Electric Substations - Subject to Comprehensive Plan Compliance Review approval(s), there may be electric substations on the Property to serve uses on the Property. Electric substations shall not require any further conditional use permit. In addition, electric substations on the Property shall be subject to the following standards:

    a. Decommissioning of Electric Facilities - No less than ninety (90) days prior to the planned abandonment of the electric transmission and substation facilities located on the Property (the "Electric Facilities"), the Applicant (or future owner of the Electric Facilities) will provide written notice to the County of its intent to abandon such use. Within one-hundred eighty (180) days of the notice of abandonment, the Applicant (or future owner of the Electric Facilities) will dismantle the Electric Facilities and restore the Property to its natural state pursuant to the prevailing industry standards.

    b. Height - Structures associated with the Electric Facilities within the substation pad areas shall not exceed ninety five feet (95') in height. This height limitation shall not apply to transmission structures.

    c. Location - Substations on the Property shall be located adjacent to the new connector Road. In the event the substation is located to the south of the new Connector Road, the substation may not be located within five hundred and fifty feet (550') `from Tax Map Parcels 38 22, 38 125, 38 126, and 38 130. In the event

the aforementioned parcels are zoned for to any nonresidential zoning category this Proffer shall not apply.

d. Vehicle & Equipment Storage - Except during construction activity for the project, no commercial vehicles or equipment may be stored on substation pad site areas for more than a 48-hour period, except in cases of an emergency or equipment repair and maintenance. Notwithstanding the foregoing, the County's Zoning Administrator may approve the Applicant's (or future owner of the Electric Facility's) written request to temporarily store commercial vehicles or equipment on or within the substation pad site areas for a reasonable period of time, subject to County requirements.

DESIGN

7. Data Center Building Location - In no event shall the principal data center building or equipment yards be located within one hundred fifty feet (150') of the Property line adjacent to Tax Map Parcels 38 22, 38 125, 38 126, and 38 130. A fifty foot (50') transitional Type C buffer per the Design and Construction Standards for Landscaping, Screening, and Buffering dated May 21, 2019, shall be required. In the event any of the aforementioned Tax Map Parcels are rezoned to a use that is not residential, this Proffer shall not apply.

8. Design Guidelines - Any data center buildings constructed on the Property shall meet the following design guidelines.

   a. Principal Building Facades - Principal building façades (i.e., building façades that face adjacent major arterials or interstates) shall be generally consistent in terms of design, materials, details, and treatment. Said principal building façade shall avoid the use of undifferentiated surfaces and include at least three (3) of the following design elements: (i) change in building height; (ii) building step-backs or recesses; (iii) fenestration; (iv) change in building material, pattern texture, color; or (v) use of accent materials.

   b. Fencing - Fencing may be provided. If provided, security fencing shall be at least seven (7) feet in height, include an appropriate anti-climbing device, and shall be secured with gates. Security fencing shall be installed interior to any required buffer. If necessary, the Applicant will provide an emergency box for emergency personnel access only. The details for emergency access will be determined at site plan. Notwithstanding the foregoing, said security fencing shall not apply to any fences enclosing utility infrastructure on the Property, including without limitation, electric transmission and substation facilities,

c. Roof Design - The roof shall be light colored.

d. Screening of Mechanical Equipment - Ground level and rooftop equipment shall be screened from Eskimo Hill Road, Richmond Highway and abutting residentially zoned properties. Said screening may be provided by a principal building, existing vegetation, berms, landscaping, visually solid fence, screen wall or panel, parapet wall or other visually solid screen shall be constructed of materials generally compatible with those used in the exterior construction of the buildings, or a combination thereof.

e. Trash Enclosures - Outdoor refuse collection enclosures will be provided at locations that are unobtrusive and are fully screened from the public right-of-way.

f. Compliance - Compliance with this proffer shall be evidenced with the submission of the site plan and building elevations for review and approval.

9. Tree Preservation Areas - The Applicant shall provide tree preservation in the areas as generally shown on the GDP. The tree preservation areas shall remain undisturbed except for the removal or chipping-in-place of dead and dying trees, supplemental plantings, utilities and associated easements, stormwater management facilities, and for the location of public facilities. In no event shall the total tree preservation area be less than sixty three (63) acres. The Applicant shall provide a running tabulation of the tree preservation areas on each site plan submitted for the Property. Notwithstanding anything to the contrary, the final tree preservation areas shall be subject to the final development, engineering, and design requirements for the project.

FIRE AND RESCUE

10. Fire Command Center - In the event data center buildings are constructed on the Property, each data center building shall be equipped with a fire command center (room) constructed on the Property in accordance with the Virginia Construction Code.

11. Fire Rated Stairwells - Any multistory building constructed on the Property shall be constructed with a minimum of two (2) stairwells to each level and a minimum of one (1) stairwell providing access to the roof.

12. NFPA 14 Standpipe System - Any multistory building constructed on the Property shall contain a NFPA 14 Standpipe system for fire department operations.

13. Sprinkler System - Any data center building constructed on the Property shall be fully fire

sprinklered with floor control valve assemblies on each level.

NOISE

14. Noise - Notwithstanding and in addition to the applicable Noise Ordinance, any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 7:00 a.m. and 10:00 p.m. weekdays and from 9:00 a.m. to 10:00 p.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 60 dBA (in residential and mixed use zoning districts), 65 dBA (in commercial and office zoning districts), and 79 dBA (in industrial zoning districts). Any noise which emanates from any operation, activity, or source on the Property, including, but not limited to, heating and cooling system(s), between the hours of 10:00 p.m. and 7:00 a.m. weekdays and from 10:00 p.m. to 9:00 a.m. on Saturdays, Sundays, and legal holidays observed by the County government, shall be subject to the following maximum permissible sound levels: 55 dBA (in residential and mixed use zoning districts), 60 dBA (in commercial and office zoning districts), and 72 dBA (in industrial zoning districts). Such levels shall be measured at the Property boundary or at any point within any other property affected by the noise. When a noise source can be identified and its noise measured in more than one zoning district classification, the limits of the most restrictive classification shall apply. Notwithstanding the above, any person, with lawfully obtained permits, who between the hours of 6:00 a.m. and 10:00 p.m. weekdays and between the hours of 9:00 a.m. and 10:00 p.m. on Saturdays, Sundays and legal holidays observed by county government operates or causes to be operated any equipment used in construction, repair, testing, alteration or demolition work on buildings, structures, alleys or appurtenances thereto in the outdoors and/or testing of generators shall not be subject to the levels enumerated above. Additionally, persons performing construction of public projects, repair or maintenance work for such projects or persons performing work for private or public utilities for the repair of facilities or restoration of services shall not be subject to the levels enumerated above. Furthermore, substations shall not be subject to the levels enumerated above or Proffer 15 below.

15. Prominent Discrete Tone Noise - For any source of sound that has a prominent discrete tone component, the levels established by Proffer 12 above shall be reduced by 3 dBA. The term “prominent discrete tone” shall be defined as an instance when one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the 2 contiguous one-third octave bands by:

    a. 5 dB for center frequencies of 500 Hz and above;

    b. 8 dB for center frequencies between 160 and 400 Hz; or

c. 15 dB for center frequencies less than or equal to 125 Hz.

16. Emergency Operations - Emergency operations shall not be subject to the limitations outlined in Proffer 14 or Proffer 15 above. For the purposes of this section, the term "emergency" shall mean any situation arising from sudden and reasonably unforeseen events beyond the control of the facility, which situation requires the immediate use of the emergency generators to restore normal operation of the facility.

17. Sound / Noise Measurements - Sound or noise measurements shall be taken to confirm compliance with Proffer 14 and Proffer 15, six (6) months after a final occupancy permit is issued and then, upon request of the County, whenever there has been a change in the operations or use of the buildings on the Property that could reasonably be expected to affect compliance with Proffer 14 and Proffer 15. There will be no sound or noise measurements required after the initial measurement mentioned above unless there is a change in the operations or use of a building(s) on the Property. Any sound or noise measurement must be conducted by a professional third-party acoustical consultant who has knowledge and experience taking such measurements ("Acoustical Consultant"). The Acoustical Consultant shall measure sound or noise with sound level meters which meet the standards prescribed by the ANSI: Type 2. The Acoustical Consultant shall only use sound level meters and other instruments that have been maintained in calibration and good working order. The Acoustical Consultant shall calibrate the sound level meter the time of any noise measurement. The Acoustical Consultant shall only record measurements which were taken so as to provide a proper representation of the noise source and shall note and exclude extraneous noise events. During the measurement, the Acoustical Consultant will position the microphone so as not to create any unnatural enhancement or diminution of the measured noise and will use a windscreen for the microphone. Sound level measurements shall be based on the "Leq" during the measurement interval, using a minimum measurement interval of one minute for a constant sound source or a thirty-minute measurement for a noncontinuous sound source. During a measurement interval, the "Lmax" associated with facility may exceed the sound level limits of Proffer 12 and Proffer 13 above by no more than 15 dB(A). For the purposes of this section, the "Lmax" means the maximum sound over a measurement interval determined by using a sound level meter set to "fast" response time, and "Leq" means the equivalent sound level, that is the constant sound level in a given time.

18. Sound Studies - Prior to the approval of each final site plan for the Property, the Applicant shall provide a Sound Study (the "Sound Study") that is specific to the proposed site layout and building type shown on said site plan. For purposes of this proffer a final site plan does not include a major grading plan. This Sound Study shall include recommendations for any necessary mitigation measures and the Applicant shall implement the mitigation measures on the final site plan as a condition of final site plan approval. In the event mitigation measures are building related, said measures shall be included in the building plans prior

to issuance of a building permit. In the event the sound study shows compliance with the above Proffer 14 and Proffer 15, no further mitigation measures shall be required by Stafford County.

PUBLIC UTILITIES

19. Utility Infrastructure Improvements - In accordance with applicable County requirements, the Applicant will design, permit, and construct all off-site and on-site potable water and sewer improvements required to provide such service for the demand generated by the development on the Property, including to support the "bridging water/sewer" for the project. Design of these utility infrastructure improvements shall be submitted by Applicant to the County following rezoning approval and is subject to approval by the County and such approval will not be unreasonably denied, withheld, or delayed. Notwithstanding the foregoing, the capacity, design, permitting, and construction specifications for these improvements, along with details regarding funding, bonding, and construction obligations will be described and performed in accordance with the separate water service agreement between Applicant and County (the "Water Service Agreement"). The Water Service Agreement, substantially complete and in accordance with any agreed upon water service term sheet, shall be submitted by Applicant to the County within 60 days of approval of rezoning. Neither the County nor the Applicant will unreasonably delay consideration, negotiation, and approval of the Water Service Agreement.

20. Resue Water - The Applicant agrees that all industrial cooling water demands required for the Project will utilize reuse water as the sole primary water source once the reuse water system is completed and extended to the property boundary.

21. Permitting & Compliance - Except as provided herein or otherwise agreed between the Applicant and the County, the Applicant will obtain all necessary governmental permits to construct the Infrastructure Improvements. The Infrastructure Improvements will comply with all applicable categorical pretreatment standards, local limits, Federal, State, and Local code prohibitions, and individual permits. In accordance with the Water Service Agreement, the Applicant will dedicate and convey to the County the Infrastructure Improvements, along with associated governmental approvals and warranties held by the Applicant that are necessary for the County's ongoing operation and maintenance of the Infrastructure Improvements, if any. The Applicant will also grant and convey to the County access and related easements for all Infrastructure Improvements to be publicly owned and operated within all dedicated easement areas.

22. Offsite Easements - The Applicant will be responsible to use commercially reasonable efforts to acquire all off-site utility and right-of-way easements to construct, locate, and maintain the Utility Infrastructure Improvements (the "Utility Infrastructure Easements"). In the event the Applicant is unable to purchase or obtain said necessary Utility

Infrastructure Easements from off-site, third-party owners (other than the Applicant or entities related to the Applicant), the Applicant will request that the County acquires the necessary Utility Infrastructure Easements by means of its condemnation powers at the Applicant's sole expense. Said requests shall be made to the appropriate County department and shall be accompanied by the following:

a. The names of the record owners, the property addresses, and tax map parcel numbers for each landowner from whom such Utility Infrastructure Easements are sought.

b. Plats, plans and profiles showing the necessary Utility Infrastructure Easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. An independent appraisal of the value of the Utility Infrastructure Easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each such property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the Utility Infrastructure Easements, at a cost of at least the appraised value of the involved property interests.

f. A parent guaranty acceptable to the County (from a financial institution acceptable to the County), cash or equivalent (held in Escrow) in an amount equal to the appraised value of the property to be acquired, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by the Applicant's representative and approved by the County Attorney whereby the Applicant agrees to pay all reasonable, necessary, and documented costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorneys' fees for the Office of the County Attorney or attorney retained by the County, and all other costs associated with the litigation, including appeals. The said agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by the Applicant's appraiser, the Applicant shall pay to the County the amount of the award in excess of the amount represented by the

parent guaranty or cash deposit within thirty (30) days of the award.

TRANSPORTATION

23. Access - Access to the Property shall be provided as shown on the GDP, subject to VDOT and County approval at the time of site plan. Subject to VDOT approval, access points may be added or eliminated. Notwithstanding the above, direct access from Tax Map Parcel 38 124 on to Richmond Highway shall be prohibited.

24. Interparcel Connections

    a. Tax Map Parcels 38 125 and 38 130 - In the event Tax Map Parcels 38 125, and 38 130 do not have direct access to a future connector road to Eskimo Hill Road or Richmond Highway, the Applicant shall construct an interparcel connection to said Tax Map Parcels with the final location to be determined by the Applicant at final site plan.

    b. Tax Map Parcel 38 126 - The Applicant shall provide a sixty foot (60') wide easement to be used for an access road or dedicated for future right-of-way for access from Tax Map Parcel 38 126 to the future connector road. The road to be constructed within the access easement shall be constructed by others. The final location of said easement shall be at the sole discretion of the Applicant and shall be dedicated prior to the issuance of the final site plan approval that includes the easement area.

25. Maximum Trip Generation - The combined uses on the Property shall not exceed 4,356 average vehicle trips per day. The average vehicles per day ("VPD") for data center uses shall be calculated using the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023, as utilized in the traffic impact study for Stafford Technology LC In no case shall the Applicant be responsible for additional studies, traffic counts, or other interpretation other than the data available in the AWS Data Center Trip Generation Assessment, prepared by Bowman, dated March 1, 2023. For calculating the VPD for any use that is not a data center use the VPD shall be calculated using the 11th edition of the ITE Trip Generation Manual. The Applicant shall submit a running tabulation of the vehicle trips per day for each use as part of the review of each construction plan submitted for the Property.

26. Transportation Improvements - Subject to County, VDOT, and/or other federal, state or local agency approval, the Applicant shall make the following road improvements. The transportation improvements outlined below are in lieu of any applicable transportation impact fees and as full credit for transportation impact fees per County Code Sec. 13.5-7 and Virginia Code 15.2-2324.

a. Connector Road

i. Construction - The Applicant shall construct a two-lane public Connector Road from Eskimo Hill Road to Richmond Highway in the general area as shown on the GDP, with the final location to be determined at site plan. Said Connector Road may be constructed in phases with the final completion being finished prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Connector Road & Richmond Highway - The Applicant shall construct a left turn lane and a right turn lane with appropriate storage and taper at the intersection of the Connector Road and Richmond Highway as generally shown on the Transportation Plan. Said turn lanes shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iii. Driveways - The Applicant shall construct all commercial driveways connecting to the Connector Road on the Property with a minimum of one ingress and one egress in accordance with VDOT's Road Design Manual standards.

iv. Right-of-Way Dedication - The Applicant shall provide right-of-way dedication on the Connector Road to achieve seventy six feet (76'), or a lesser amount as acceptable by the County and VDOT, as shown on the GDP. Said dedication shall be provided prior to the issuance of site plan approval for each segment of the roadway shown on such site plan.

b. Eskimo Hill Road

i. Eskimo Hill Road & Connector Road - The Applicant shall construct a westbound right turn lane on Eskimo Hill Road to Eskimo Hill Road at the intersection with the Connector Road as noted on the Transportation Plan. Said improvement shall be constructed simultaneously with the connection to Eskimo Hill Road.

ii. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Eskimo Hill Road frontage of the Property, to achieve thirty feet (30'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for each development on the Property in which the segment of Eskimo Hill Road is shown. In the event the right-of-way

dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

iii. Shoulder Improvements - In the event a Richmond Highway access and corresponding Connector Road is not permissible by the County, VDOT and/or other federal, state or local agencies, then the Applicant shall construct a six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard, along the Property's Eskimo Hill Road frontage. In addition, the Applicant shall conduct another traffic impact analysis to determine the impacts to Eskimo Hill Road and provide such improvements recommended from the northern Property boundary on Eskimo Hill Road to the Eskimo Hill Road / Route 1 intersection. Said improvements shall be constructed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

iv. Site Access - Emergency only access points, as shown on the GDP, may be provided from Eskimo Hill Road north of the Connector Road to the Property. In the event the emergency access points that are located along Eskimo Hill Road north of the Connector Road are converted to full access roads (other than emergency access roads), the Applicant shall make the following improvements on Eskimo Hill Road north of the Connector Road.

1. A six foot (6') wide shoulder in each direction and additional lane width, where necessary, consistent with the County's Major Local Road standard between the Connector Road and the most northerly driveways on the Property; and

2. Driveways along Eskimo Hill Road shall be designed with elements to restrict egress to the north. Said elements may include, but are not limited to, signage and compact curb radii.

c. I-95 Northbound Ramps & Centreport Parkway: The Applicant shall modify the signal timings at the intersection of the I-95 ramps and Centreport Parkway as generally shown on the Transportation Plan. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

d. I-95 Southbound Ramps & Centreport Parkway: The Applicant shall provide striping to channelize the right turn lane as generally shown on the Transportation

Plan. Said restriping shall be provided so long as there are no impacts to the existing traffic signal poles. Said improvement shall be completed prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

e. Richmond Highway

i. Richmond Highway & Centreport Parkway - The Applicant shall modify the signal timings and provide a westbound right turn overlap phase at the intersection of Richmond Highway and Centreport Parkway as noted on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

ii. Richmond Highway & Hospital Center Boulevard - If requested by the County or VDOT prior to the issuance of the first final site plan approval, the Applicant shall make the following improvements at the intersection of Richmond Highway and Hospital Center Boulevard as generally shown on the Transportation Plan. Said improvements shall be made prior to the issuance of an occupancy permit for the 2,113th VPD on the Property.

1. Restripe the eastbound approach on Hospital Center Boulevard to provide (a) dual left turn lanes; (b) one through lane; and (c) two (2) right turn lanes; and

2. If required, modify the existing signal.

iii. Richmond Highway & Sage Lane & Connector Road - The Applicant shall make the following improvements at the intersection of Richmond Highway, Sage Lane, and the Connector Road generally as shown on the Transportation Plan.

1. Install a dedicated southbound left turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 1st VPD on the Property;

2. Restripe the southbound right turn lane on Richmond Highway to provide a shared through/right turn lane prior to the issuance of an occupancy permit for the 991st VPD on the Property;

3. Install a dedicated northbound right turn lane on Richmond Highway to the Connector Road prior to the issuance of an occupancy permit for the 991st VPD on the Property; and

4. Install a Traffic Signal prior to the issuance of an occupancy permit for the 991st VPD on the Property. In the event, VDOT does not deem the signal warranted prior to the issuance of the 991st VPD on the Property, the Applicant shall submit a subsequent signal warrant analysis to VDOT prior to the issuance of an occupancy permit for the 4,356th VPD on the Property. In the event VDOT does not deem the signal warranted at that time no additional warrant studies will be required, and the Applicant shall have no further obligation to provide signalization at the aforementioned intersection.

iv. Right-of-Way Dedication - The Applicant shall provide, at no cost to the County or VDOT, right-of-way dedication along the Richmond Highway frontage of the Property to achieve eighty feet (80'), or a lesser amount acceptable by the County or VDOT, from the centerline as depicted on the GDP. The dedication shall be shown on and made in connection with the first final site plan for the Property. In the event the right-of-way dedication is requested by the County or VDOT prior to the processing of the first final site plan for the Property, the Applicant shall not be responsible for the preparation or processing of plans, plats, deeds, and related documents necessary for the right-of-way.

f. Sage Lane - The Applicant shall provide curb and striping modifications on Sage Lane as generally shown on the Transportation Plan, or as approved by VDOT. Said improvement shall be completed prior to the issuance of the 2,113th VPD on the Property.

27. Eminent Domain - In the event the Applicant is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 22 above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's expense. Applicant's request shall be in writing and shall comply in all respects with the County's Eminent Domain Policy. Said request shall be made to the appropriate County agency and shall be accompanied by the following:

a. The names of the record owners, the property addresses, tax map parcel numbers, and GPIN numbers for each landowner from whom such right-of-way and/or easements are sought.

b. Plats, plans, and profiles showing the necessary right-of-way and/or easements to be acquired and showing the details of the proposed transportation improvements to be located on each such property.

c. Pursuant to Virginia Code § 25.1-417, a determination of the value of the Property shall be based on the following:

i. If the assessed value is less than $25,000, then the value shall be determined by assessment records or other objective evidence; or

ii. If the assessed value is greater than $25,000 an independent appraisal of the value of the right-of-way and easements to be acquired, and any and all damages to the residue of the involved property, said appraisal to be performed by an appraiser licensed in Virginia and approved by the County.

d. A 60-year title search of each involved property.

e. Documentation demonstrating to the County's satisfaction Applicant's good faith, best efforts to acquire the right-of-way and/or easements, at a cost of at least the appraised value of the involved property interests.

f. A letter of credit acceptable to the County, cash or equivalent (from a financial institution acceptable to the County) in an amount equal to the appraised value of the property to be acquired, and all damages to the residue, together with an amount representing the County's estimate of its cost of condemnation proceedings, in a form permitting the County to draw upon the same as necessary to effectuate the purposes hereof.

g. An agreement signed by Applicant's representative and approved by the County Attorney's Office whereby Applicant agrees to pay all costs of the condemnation, including expert witness fees, court costs, exhibit costs, court reporter fees, attorney fees for the Office of the County Attorney, and all other costs associated with the litigation, including appeals. The agreement shall specifically provide that in the event the property owner is awarded in the condemnation suit more than the appraised value estimated by Applicant's appraiser, Applicant shall pay to the County the amount of the award in excess of the amount represented by the letter of credit or cash deposit within fifteen (15) days of the award.

MISCELLANEOUS

28. Construction Mitigation Plan - The Applicant shall develop a construction management plan in consultation with the County and VDOT. Said construction management plan shall be submitted prior to the issuance of a land disturbance permit that is associated with final site plan approval. For the purposes of this proffer, a land disturbance permit associated with a grading plan shall not be subject to this proffer.

PROFFER STATEMENT
#RC2023154931
Applicant: Stafford Technology LC
Date: April 24, 2024

29. Emergency Management Action Plan - The Applicant shall develop an emergency management action plan with Stafford County Public Safety divisions to ensure site safety management coordination and provide 24-hour emergency contact information at the entrance to the facility. Said Emergency Management Action Plan shall be submitted prior to the issuance of a building permit for each building.

30. General Development Schedule - If requested by the County annually, the Applicant shall provide the County's Zoning Administrator with a written update and general projected development schedule for the Property (the "General Development Schedule"). The General Development Schedule shall forecast the proposed development activities related to the Project for the next thirty six (36) months, subject to modification by the Applicant upon material changes to said General Development Schedule. The obligation of this Proffer 30 shall expire upon the full development of the Property.

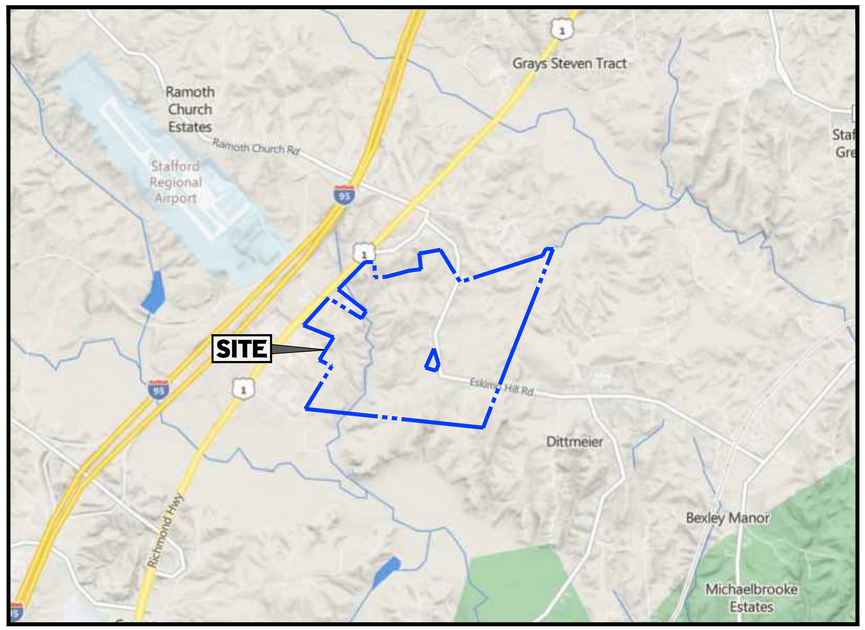
31. Severability - If any term or provision of these proffers or the application thereof is deemed invalid or unenforceable, the remainder of these proffers, other than those as to which it is held invalid or unenforceable, will not be affected thereby, and each such terms and provisions of these proffers shall remain valid and enforced to the fullest extent permitted by law.

P1427935.DOCX

GENERALIZED DEVELOPMENT PLAN (GDP)

ZONING RECLASSIFICATION #RC23154931
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 & 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



VICINITY MAP
SOURCE - BING MAPS
SCALE 1" = 2000'

OWNER / APPLICANT
PARCEL 38 124
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

OWNER / APPLICANT
PARCEL 38 29A
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

LAND USE ATTORNEY
WALSH COLUCCI LUBELEY & WALSH
4310 PRINCE WILLIAM PARKWAY; SUITE 300
PRINCE WILLIAM, VA 22192
CONTACT: JONELLE M. CAMERON
703-680-4664

TRANSPORTATION ENGINEER
GOROVE SLADE
4114 LEGATO ROAD; SUITE 650
FAIRFAX, VA 22033
CONTACT: KEVIN SITZMAN, P.E.
571-261-9718

CIVIL ENGINEER
BOHLER ENGINEERING
12825 WORLDGATE DRIVE; SUITE 700
HERNDON, VA 20170
CONTACT: MICHAEL O'SHAUGHNESSY
703-709-9500

NOTE: THIS GDP HAS NOT BEEN REVIEWED FOR FULL COMPLIANCE WITH THE STAFFORD COUNTY ORDINANCE AT THIS TIME. ALL PROPOSED SITE IMPROVEMENTS SHOWN ON THIS PLAN MAY BE AMENDED BY THE OWNERS TO FULFILL REQUIREMENTS OF FINAL ENGINEERING, OR COMPLIANCE WITH CURRENT STATE AGENCY REGULATIONS AND/OR COUNTY DEVELOPMENT REGULATIONS/STANDARDS IN PACE AT THE TIME OF SITE PLAN SUBMISSION.

NOTE: ALL BUFFERYARDS AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH CURRENT STAFFORD COUNTY DEVELOPMENT STANDARDS IN PLACE AT THE TIME OF SITE PLAN SUBMISSION.

NOTE: ALTHOUGH CERTAIN DESIGN FEATURES MAY BE REFERENCED DURING THE REVIEW, THIS REVIEW DOES NOT COVER ENGINEERING DETAILS. THESE DETAILS, INCLUDING BUT NOT LIMITED TO TUM-LANES, TUM LANE STORAGE LENGTHS AND TRANSITIONS, ENTRANCE WIDTH AND RADII, SPACING STANDARDS, SIGHT DISTANCE, OBTAINING OFF-SITE SIGHT DISTANCE EASEMENTS, AUTO TUM, AND ACCESS MANAGEMENT WILL BE ADDRESSED AT A LATER STAGE OF SITE PLAN DEVELOPMENT REVIEW. THE REVIEW WILL BE BASED ON THE CURRENT VDOT STANDARDS AT THE TIME OF DETAILED SITE PLAN SUBMITTAL.

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	C-1
EXISTING CONDITIONS	C-2
GENERALIZED DEVELOPMENT PLAN	C-3
OVERALL ILLUSTRATIVE PLAN	C-4

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	MW / MO
2	02/22/24	COUNTY COMMENTS	MW / NTG
3	04/24/24	COUNTY COMMENTS	MW / NTG

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ZONING SUBMISSION

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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	CNDS-0

PROJECT:
GENERALIZED DEVELOPMENT PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

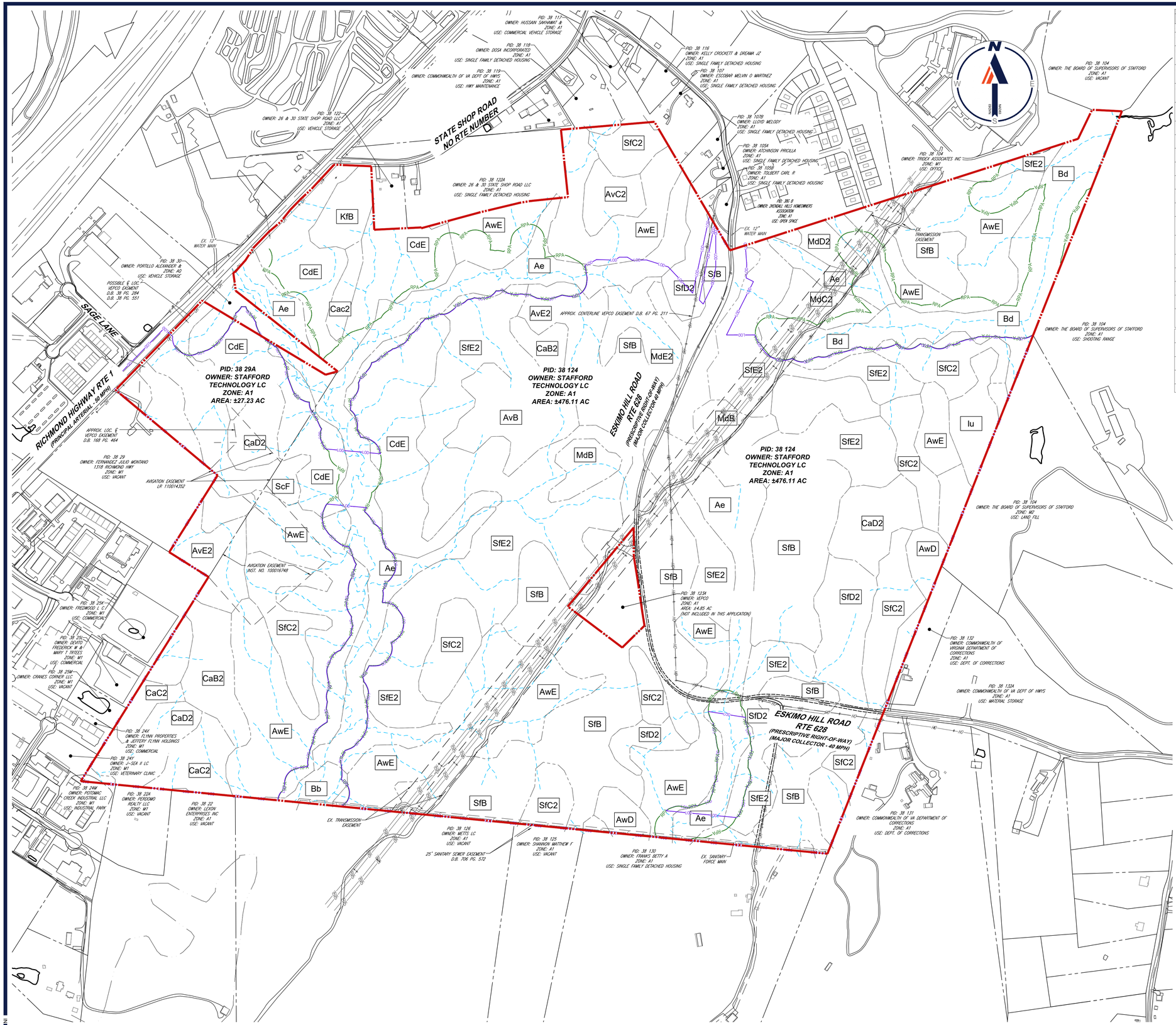
COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
C-1

REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\GDV1 - EXCLUDING VEPCO PARCEL\VAA220232.00-CNDS-0---LAYOUT C1 - COVER SHEET



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ae	Alluvial land, wet	47.4	9.2%
AvB	Aura gravelly fine sandy loam, 2 to 6 percent slopes	7.8	1.5%
AvC2	Aura gravelly fine sandy loam, 6 to 10 percent slopes, eroded	12.5	2.4%
AvE2	Aura gravelly fine sandy loam, 18 to 35 percent slopes, eroded	14.5	2.8%
AwD	Aura-Galestown-Sassafras complex, 6 to 15 percent slopes	4.0	0.8%
AwE	Aura-Galestown-Sassafras complex, 15 to 30 percent slopes	80.7	15.7%
Bb	Bibb fine sandy loam, 0 to 4 percent slopes	0.6	0.1%
Bd	Bladen loam, 0 to 2 percent slopes	20.5	4.0%
BmB	Bourne fine sandy loam, 2 to 6 percent slopes	0.3	0.0%
CaB2	Caroline fine sandy loam, 2 to 6 percent slopes, eroded	12.3	2.4%
CaC2	Caroline fine sandy loam, 6 to 10 percent slopes, eroded	6.4	1.2%
CaD2	Caroline fine sandy loam, 10 to 18 percent slopes, eroded	12.9	2.5%
CdE	Caroline-Sassafras complex, 15 to 30 percent slopes	41.8	8.1%
Iu	Iuka fine sandy loam, local alluvium, 0 to 4 percent slopes	4.5	0.9%
KfB	Kempsville fine sandy loam, gravelly substratum, 2 to 6 percent slopes	3.9	0.8%
MdB	Marr very fine sandy loam, 2 to 6 percent slopes	5.6	1.1%
MdC2	Marr very fine sandy loam, 6 to 10 percent slopes, eroded	3.5	0.7%
MdD2	Marr very fine sandy loam, 10 to 15 percent slopes, eroded	1.7	0.3%
MdE2	Marr very fine sandy loam, 15 to 30 percent slopes, eroded	4.6	0.9%
ScF	Sandy end dlayey land, steep, Sassafras and Caroline materials	8.8	1.7%
SfB	Sassafras fine sandy loam, 2 to 6 percent slopes	84.8	16.4%
SfC2	Sassafras fine sandy loam, 6 to 10 percent slopes, eroded	33.0	6.4%
SfD2	Sassafras fine sandy loam, 10 to 15 percent slopes, eroded	17.9	3.5%
SfE2	Sassafras fine sandy loam, 15 to 35 percent slopes, eroded	85.7	16.6%
Totals for Area of Interest		**515.7**	**100.0%**

LEGEND

- REZONING AREA
- APPROXIMATE LOCATION OF STREAM CENTERLINE PER COUNTY GIS
- AwE — SOIL MAP UNIT LABEL
- SOIL LINE
- RPA — RPA PER TNT
- LOD — LIMITS OF DISTURBANCE (TO BE ADJUSTED AT TIME OF SITE PLAN)

300 150 75 0 300
1"= 300'

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SITE CIVIL AND CONSULTING ENGINEERING
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PROGRAM MANAGEMENT
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PROJECT No.: VAA220232.00
DRAWN BY: MCW
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DATE: 08/01/23
CAD I.D.: EXST-0

PROJECT:

GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
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VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

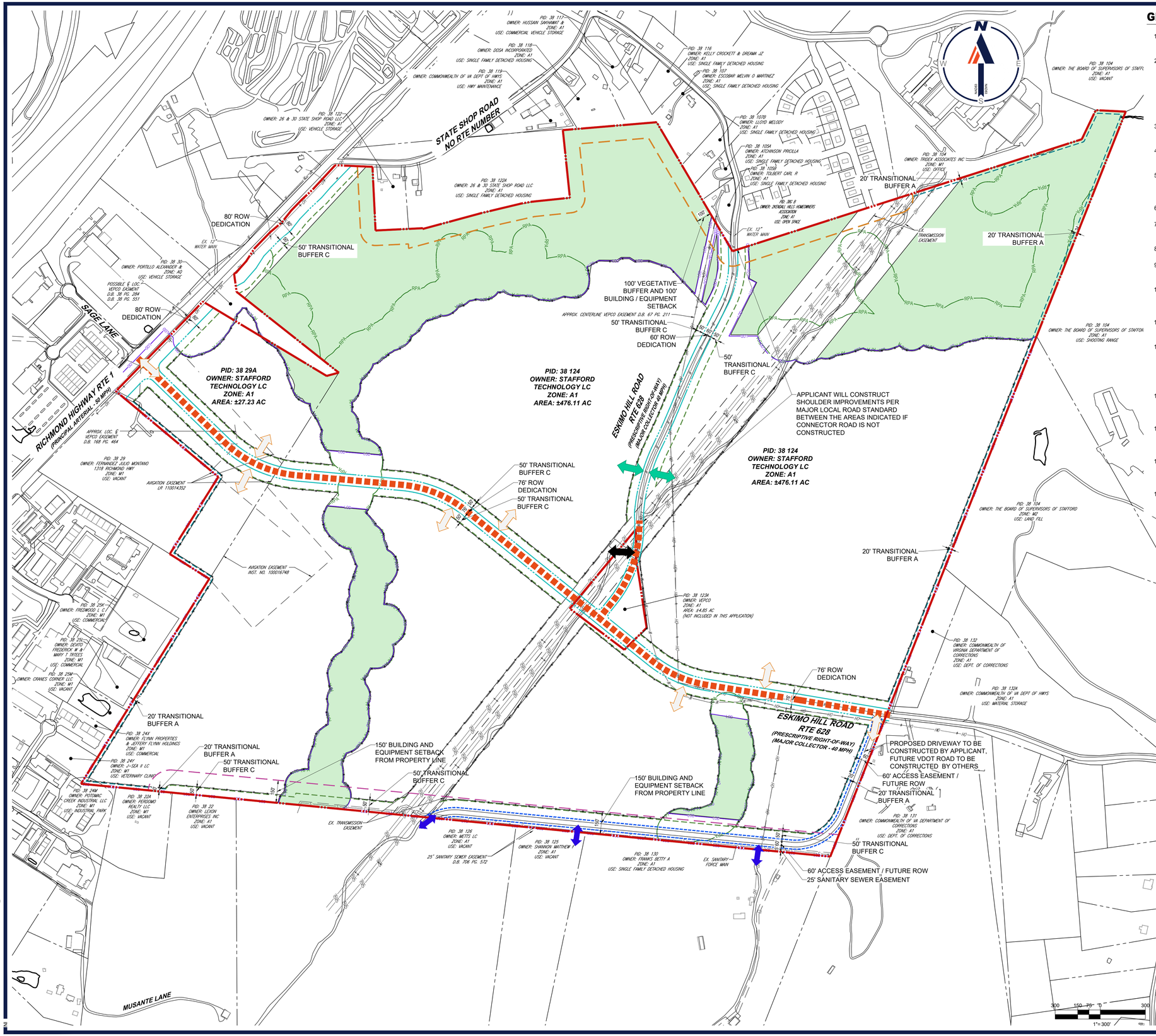
EXISTING CONDITIONS PLAN

SHEET NUMBER:

C-2

REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\SHT_EXCLUDING VEPCO PARCEL\VAA220232.00-EXST-0---LAYOUT: C2 - EXISTING CONDITIONS



GENERALIZED DEVELOPMENT PLAN NOTES

1. THE GENERALIZED DEVELOPMENT PLAN PROPOSES TO REZONE APPROXIMATELY 503.34 ACRES FROM THE A1 ZONING DISTRICT TO THE M-2 ZONING DISTRICT.
2. PUBLIC WATER AND SEWER SERVICE WILL BE AVAILABLE TO THE PROPERTY BY EXTENSION OF EXISTING FACILITIES AND INCORPORATING A PORTION OF THE APPLICATION AREA INTO THE URBAN SERVICES AREA. WATER SERVICE IS AVAILABLE ALONG RICHMOND HIGHWAY AND IN THE ROADWAY OF ESKIMO HILL ROAD. SANITARY SEWER SERVICE IS AVAILABLE ALONG THE SOUTHERN PROPERTY LINE OF THE APPLICATION AREA. ALL NECESSARY APPROVALS FOR CONSTRUCTION OF NECESSARY UTILITY CONNECTIONS WILL BE COORDINATED AND OBTAINED BY THE APPROPRIATE STAFFORD COUNTY AGENCY(S) AT TIME OF SITE PLAN.
3. STORMWATER MANAGEMENT WILL BE PROVIDED PER APPLICABLE STATE AND LOCAL STANDARDS AT TIME OF SITE PLAN.
4. THE PROPERTY CONTAINS NO GRAVES, OBJECTS OR STRUCTURES MARKING BURIAL PLACES AS DETERMINED BY VISUAL SURVEY.
5. THE PROPERTY CONTAINS NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PARTS 16.4, 302.4, AND 355 OR IN VIRGINIA DEPARTMENT OF WASTE MANAGEMENT REGULATIONS.
6. ZONE A FLOODPLAIN INFORMATION PER FEMA FIRM PANEL 5101540143E INFORMATION.
7. RESOURCE PROTECTION AREA IS DELINEATED BY TNT ENVIRONMENTAL DATED JANUARY 21, 2021.
8. THE DEVELOPMENT OF THE PROPERTY MAY BE PHASED THROUGH MULTIPLE SITE PLANS.
9. BUILDING SETBACKS MAY INCLUDE PARKING, FENCE, ACCESSORY BUILDINGS AND OTHER SIMILAR FEATURES.
10. ENTRANCE LOCATIONS SHOWN ARE APPROXIMATE AND TO BE DETERMINED AT TIME OF FINAL SITE PLAN DESIGN. LOCATIONS TO BE IN ACCORDANCE WITH VDOT SPACING REQUIREMENTS. ACCESS POINTS MAY BE ADDED OR ELIMINATED SUBJECT TO VDOT APPROVAL.
11. TRANSITIONAL BUFFERS WILL BE PROVIDED AT TIME OF SITE PLAN IN ACCORDANCE WITH THE REQUIREMENTS OF THE DCSL. THEIR LOCATIONS MAY BE ADJUSTED AT TIME OF SITE PLAN.
12. THIS GDP HAS NOT BEEN REVIEWED FOR FULL COMPLIANCE WITH THE STAFFORD COUNTY ORDINANCE AT THIS TIME. ALL PROPOSED SITE IMPROVEMENTS SHOWN ON THIS PLAN MAY BE AMENDED BY THE OWNERS TO FULFILL REQUIREMENTS OF FINAL ENGINEERING, OR COMPLIANCE WITH CURRENT STATE AGENCY REGULATIONS AND/OR COUNTY DEVELOPMENT REGULATIONS/STANDARDS IN PACE AT THE TIME OF SITE PLAN SUBMISSION.
13. ALL BUFFER YARDS AND LANDSCAPING WILL BE PROVIDED IN ACCORDANCE WITH CURRENT STAFFORD COUNTY DEVELOPMENT STANDARDS IN PLACE AT THE TIME OF SITE PLAN SUBMISSION.
14. UNLESS A GREATER BUILDING SETBACK IS SHOWN ON THE GDP, THE BUILDING SETBACKS AT TIME OF SITE PLAN ARE PER THE MINIMUM BUILDING SETBACKS ESTABLISHED BY THE M-2 DISTRICT WITHIN THE ZONING ORDINANCE AND SHOWN BELOW.
15. TREE PRESERVATION AREAS MAY BE ADJUSTED AT TIME OF SITE PLAN PENDING FINAL ENGINEERING, LAND DISTURBANCE FOR UTILITY CROSSINGS OR ROADWAY CONSTRUCTION THROUGH TREE PRESERVATION AREAS MAY OCCUR AT TIME OF SITE PLAN.
16. THE LOCATION OF SECURE PERIMETER FENCING SHOWN IS APPROXIMATE AND MAY BE LOCATED WITHIN BUILDING AND EQUIPMENT SETBACK AREA. THE FINAL LOCATION OF PERIMETER FENCING MAY BE ADJUSTED AND DETERMINED AT THE TIME OF SITE PLAN.

LEGEND

- APPROXIMATE REALIGNMENT OF ESKIMO HILL ROAD, TO BE FULLY DESIGNED AND ADJUSTED AT TIME OF SITE PLAN.
- APPROXIMATE LOCATION OF FUTURE 60' ACCESS EASEMENT AND OR ROW FOR ACCESS TO SOUTHERN PARCELS. DRIVEWAY TO BE CONSTRUCTED BY APPLICANT, FUTURE VDOT ROAD TO BE CONSTRUCTED BY OTHERS
- APPROXIMATE LOCATION OF FUTURE OFFSITE PARCEL ACCESS
- APPROXIMATE LOCATION OF EXISTING PARCEL ACCESS
- APPROXIMATE LOCATION OF PARCEL ACCESS / PRIVATE COMMERCIAL ENTRANCE
- POTENTIAL EMERGENCY ACCESS OR LIMITED ACCESS ENTRANCE
- APPROXIMATE LOCATION OF TREE PRESERVATION AREA(S)
- 20' TRANSITIONAL BUFFER A PER DCSL
- 50' TRANSITIONAL BUFFER C PER DCSL
- 150' BUILDING AND EQUIPMENT SETBACK
- 100' VEGETATIVE BUFFER (EXCLUDING EASEMENTS) AND 100' BUILDING AND EQUIPMENT SETBACK
- ROW DEDICATION (TO OCCUR AT SITE PLAN)
- REZONING AREA (A-1 REZONED TO M-2)
- LIMITS OF DISTURBANCE (TO BE ADJUSTED AT TIME OF SITE PLAN)
- FIELD VERIFIED RESOURCE PROTECTION AREA PER TNT ENVIRONMENTAL
- APPROXIMATE LOCATION OF SECURE PERIMETER FENCING (SEE NOTE 16)

STAFFORD M-2 ZONING DISTRICT REGULATIONS:

- MAXIMUM FLOOR AREA RATIO:	1.0 (21,925,490 SF GFA)
- MINIMUM OPEN SPACE RATIO:	0.25 (5,481,373 SF)
- FRONT YARD:	40 FEET
- SIDE YARD:	40 FEET
- REAR YARD:	40 FEET
- MAXIMUM BUILDING HEIGHT:	105 FEET / 3 STORIES*

*MODIFIED WITH THIS GDP

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SCIENCE
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	09/08/23	COUNTY COMMENTS	MW / MO
2	02/22/24	COUNTY COMMENTS	MW / NTG
3	04/24/24	COUNTY COMMENTS	MW / NTG

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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	GDVL-0

PROJECT:

GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

GENERALIZED DEVELOPMENT PLAN

SHEET NUMBER:

C-3

REVISION 3 - 04/24/24

Apr 24, 2024
C:\PROJ\AVA\DATA\BOHLER\2022\C3D2022\TEMP\ACPUBLISH_48760\VAA220232.00-GDVL-0---LAYOUT C-3 - GDP.DWG



ILLUSTRATIVE LEGEND:

PROPOSED BUILDING 105' MAX HEIGHT / 3 STORIES	EQUIPMENT AND SERVICE AREA
TRAVEL WAY	SUBSTATION AREA
TREE PRESERVATION AREA	BUFFER AREA (FINAL SIZE TO BE DETERMINED AT TIME OF SITE PLAN)
RETAINING WALLS (MAXIMUM HEIGHT VARIES)	PARKING AREA
SWM AREA	RESOURCE PROTECTION AREA

300 150 75 0 300
1"= 300'

BOHLER™
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
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SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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PROJECT No.:	VAA220232.00
DRAWN BY:	MCW
CHECKED BY:	NTG
DATE:	08/01/23
CAD I.D.:	REND-0

PROJECT:

GENERALIZED DEVELOPMENT PLAN

FOR

STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

BOHLER
12825 WORLDGATE DR. SUITE 700
HERNDON, VIRGINIA 20170
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

COMMONWEALTH OF VIRGINIA
MICHAEL K. O'SHAUGHNESSY
Lic. No. 0402050773
04/24/24
PROFESSIONAL ENGINEER

SHEET TITLE:

OVERALL ILLUSTRATIVE PLAN

SHEET NUMBER:

C-4

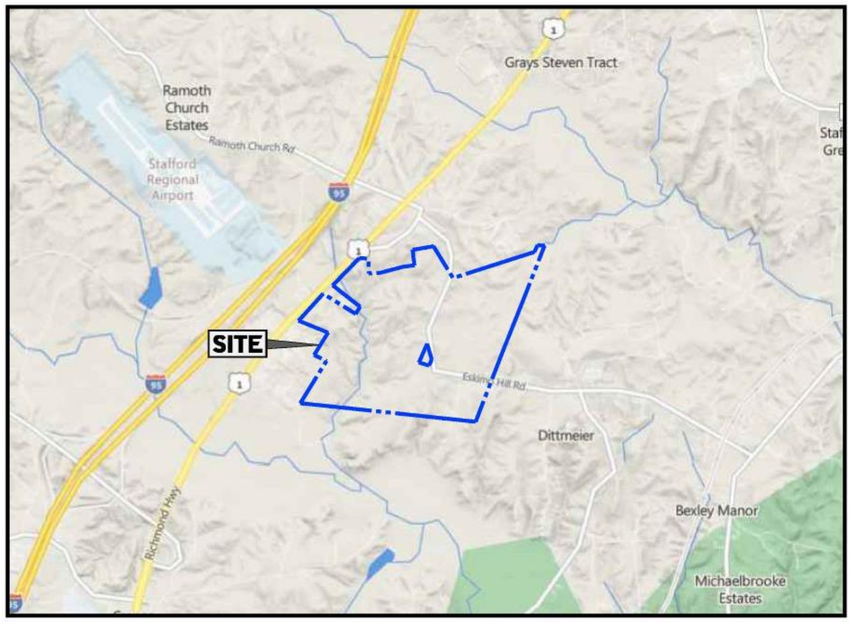
REVISION 3 - 04/24/24

Apr 23, 2024
H:\2022\VAA220232.00\CAD\DRAWINGS\PLAN SETS\REZONING\GDVL - EXCLUDING VEPCO PARCEL\VAA220232.00-REND-0----->LAYOUT: C-4 - OVERALL ILLUSTRATIVE
NI

TRANSPORTATION PLAN

ZONING RECLASSIFICATION #RC23154931
STAFFORD TECHNOLOGY CAMPUS

PROPERTY ID: 38 124 & 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA



VICINITY MAP
SOURCE - BING MAPS
SCALE 1" = 2000'

OWNER / APPLICANT
PARCEL 38 124
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

OWNER / APPLICANT
PARCEL 38 29A
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIRCLE; SUITE 400
FAIRFAX, VA 22033

LAND USE ATTORNEY
WALSH COLUCCI LUBELEY & WALSH
4310 PRINCE WILLIAM PARKWAY; SUITE 300
PRINCE WILLIAM, VA 22192
CONTACT: JONELLE M. CAMERON
703-680-4664

TRANSPORTATION ENGINEER
GOROVE SLADE
4114 LEGATO ROAD; SUITE 650
FAIRFAX, VA 22033
CONTACT: KEVIN SITZMAN, P.E.
571-261-9718

CIVIL ENGINEER
BOHLER ENGINEERING
12825 WORLDGATE DRIVE; SUITE 700
HERNDON, VA 20170
CONTACT: MICHAEL O'SHAUGHNESSY
703-709-9500

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	T-1
NETWORK IMPROVEMENT SUMMARY	1
U.S.RTE 1 & HOSPITAL CENTER BLVD IMPROVEMENT	2
U.S.RTE 1 & SAGE LN/CONNECTOR RD IMPROVEMENT	3
U.S.RTE 1 & I-95 SOUTHBOUND RAMPS IMPROVEMENT	4

GOROVE SLADE
Transportation Planners and Engineers
4114 Legato Road / Suite 650
Fairfax, VA 22033

REVISIONS

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1	09/08/23	COUNTY COMMENTS	PS / ML
2	02/22/24	Proffer Revisions	JM / KDS

ZONING SUBMISSION

PROJECT No: VAA220232.00
DRAWN BY: JM
CHECKED BY: KDS
DATE: 02/22/2024

PROJECT:
TRANSPORTATION PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

GOROVE SLADE
Transportation Planners and Engineers

COVER SHEET

SHEET NUMBER:
T-1

Legend

- # Existing without Improvements
- # Existing with Improvements by Others
- # Existing with Proposed Improvements
- # Future Intersection

Intersection 1 **(Exhibit 2)**
Hospital Center Boulevard:
- Restripe Eastbound Approach to Provide Dual Left Lanes, One Through Lane, and Dual Rights without replacing Signal Poles.
- Additional Right Turn Lane Proffered by Others (Burns Corner)

Intersection 7
No Improvements

Intersection 8
No Improvements

Intersections 9 to 16:
- Construct Two-lane Connector Roadway
- Construct Site Driveways

Intersection 12
- Construct Westbound Right Turn Lane

Intersection 4
Centreport Parkway:
- Provide Westbound Right Turn Overlap Phase

Intersection 5
Modify Signal Timings

Intersection 2
American Legion Road:
- Install Eastbound Left

Eskimo Hill Road:
- Install Westbound Left

Intersection 3 **(Exhibit 3)**
Install Traffic Signal (and Thru-Cut if approved)
US Route 1:
- Install Southbound Left
- Install Northbound Right
- Install Median
- Restripe Southbound Right Turn Lane to Shared Through-Right Lane

Connector Road:
- Construct Westbound Approach With One Left Turn Lane and One Right Turn Lane

Sage Lane:
- Reconfigure Eastbound Approach to One Left Turn Lane and One Right Turn Lane

Intersection 6 **(Exhibit 4)**
Centreport Parkway:
- Add Channelized Eastbound Right Turn Lane
- Realign Eastbound Centreport Parkway without replacing Signal Poles

Hospital Center Boulevard
US Route 1 (Richmond Highway)
Big Spring Lane
Eskimo Hill Road
State Shop Road
American Legion Road
Sage Lane
SITE
I-95
I-95 NB On Ramp
I-95 NB Off Ramp
I-95 SB Off Ramp
I-95 SB On Ramp
Centreport Parkway

TRANSPORTATION IMPROVEMENT EXHIBIT
NETWORK IMPROVEMENT SUMMARY
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 – 1 OF 4

NOT TO SCALE

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STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

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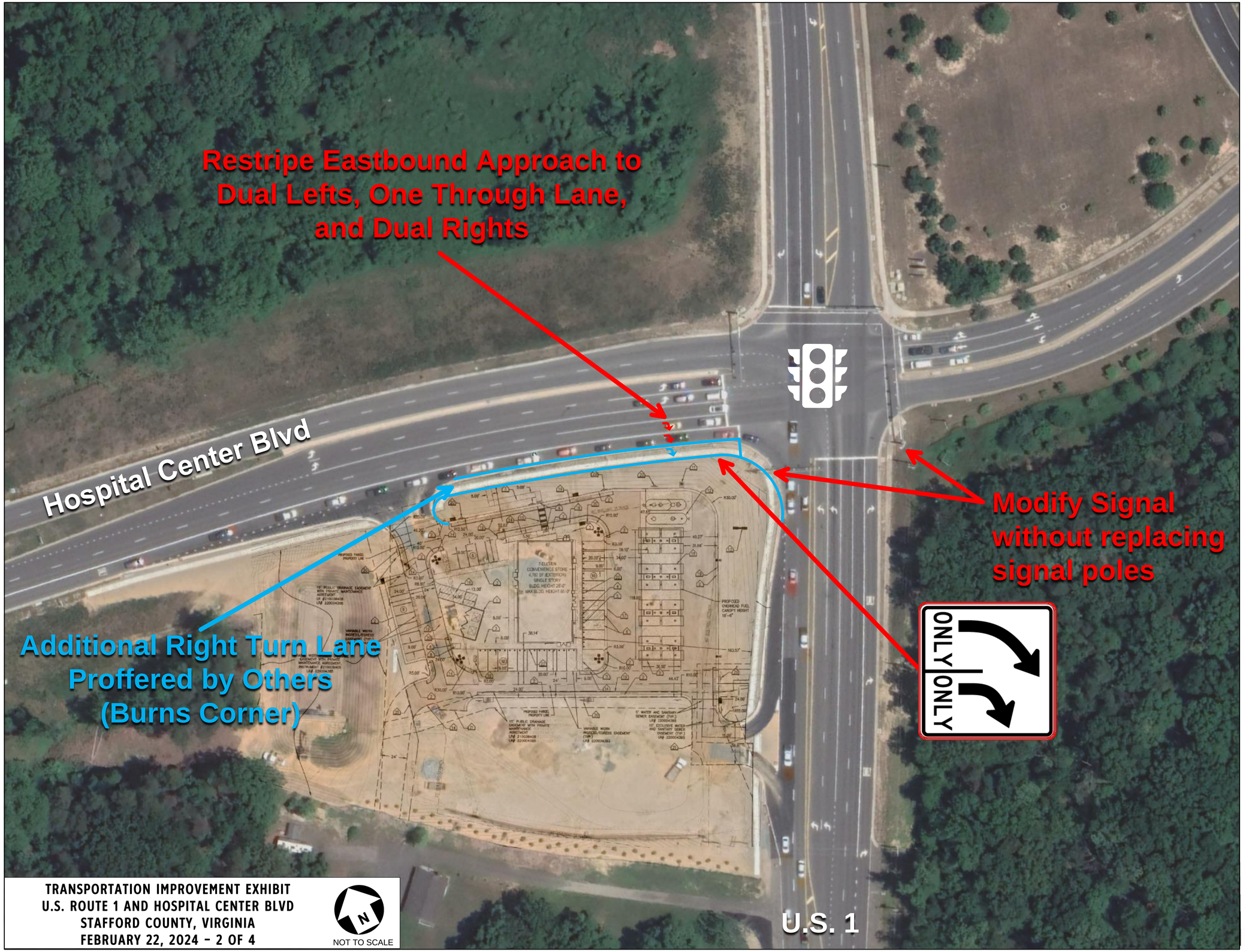
SHEET NUMBER: 1



TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND HOSPITAL CENTER BLVD
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 - 2 OF 4

N
NOT TO SCALE

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TRANSPORTATION PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

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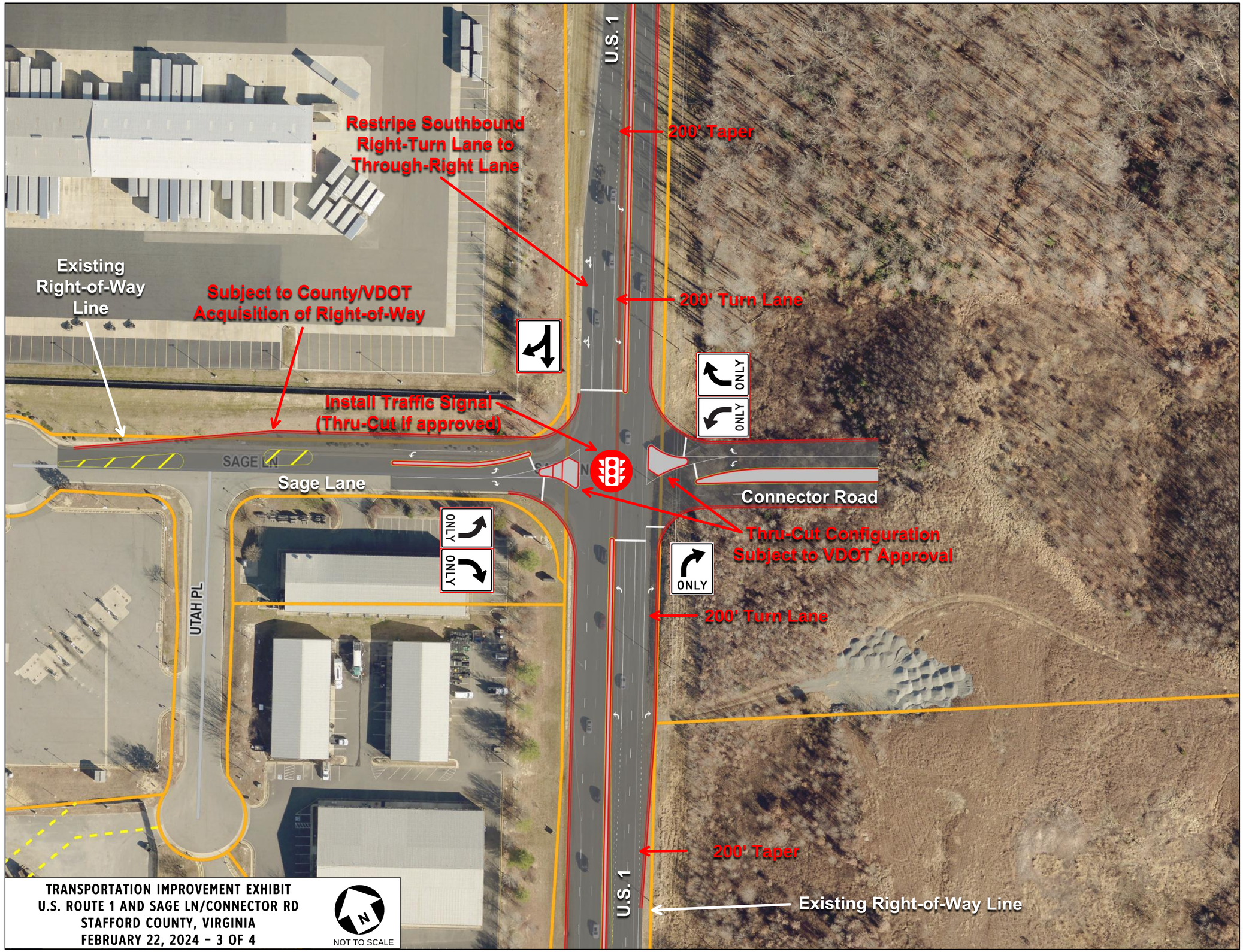
SHEET NUMBER:
2



TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND SAGE LN/CONNECTOR RD
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 - 3 OF 4

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February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

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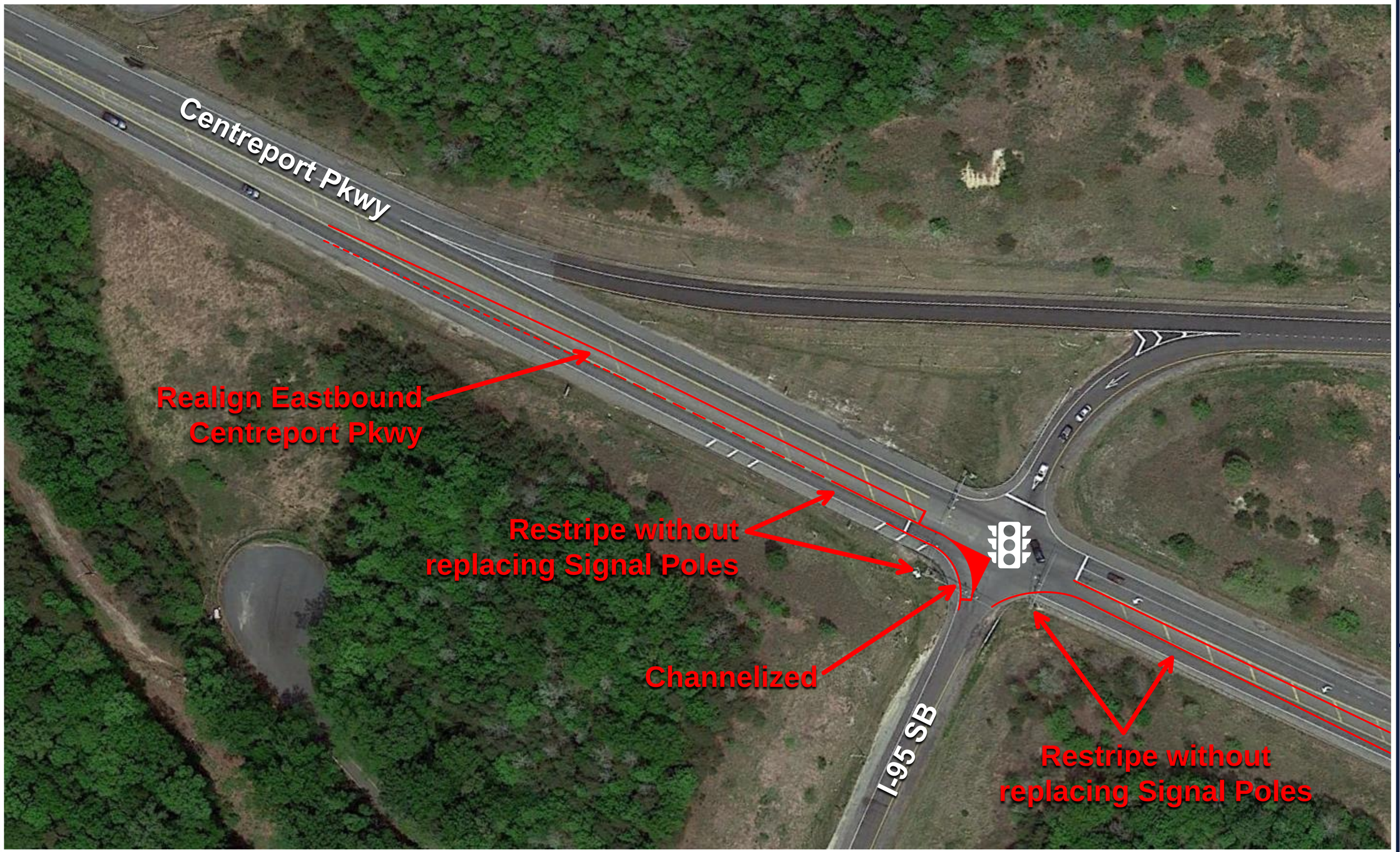
SHEET NUMBER:
3



TRANSPORTATION IMPROVEMENT EXHIBIT
U.S. ROUTE 1 AND I-95 SOUTHBOUND RAMPS
STAFFORD COUNTY, VIRGINIA
FEBRUARY 22, 2024 - 4 OF 4

N
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Fairfax, VA 22033

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DATE:	02/22/2024

PROJECT:
TRANSPORTATION PLAN
FOR
STAFFORD TECHNOLOGY CAMPUS
February 22, 2024
PROPERTY ID: 38 124 AND 38 29A
FALMOUTH ELECTION DISTRICT
STAFFORD COUNTY, VIRGINIA

GOROVE SLADE
Transportation Planners and Engineers

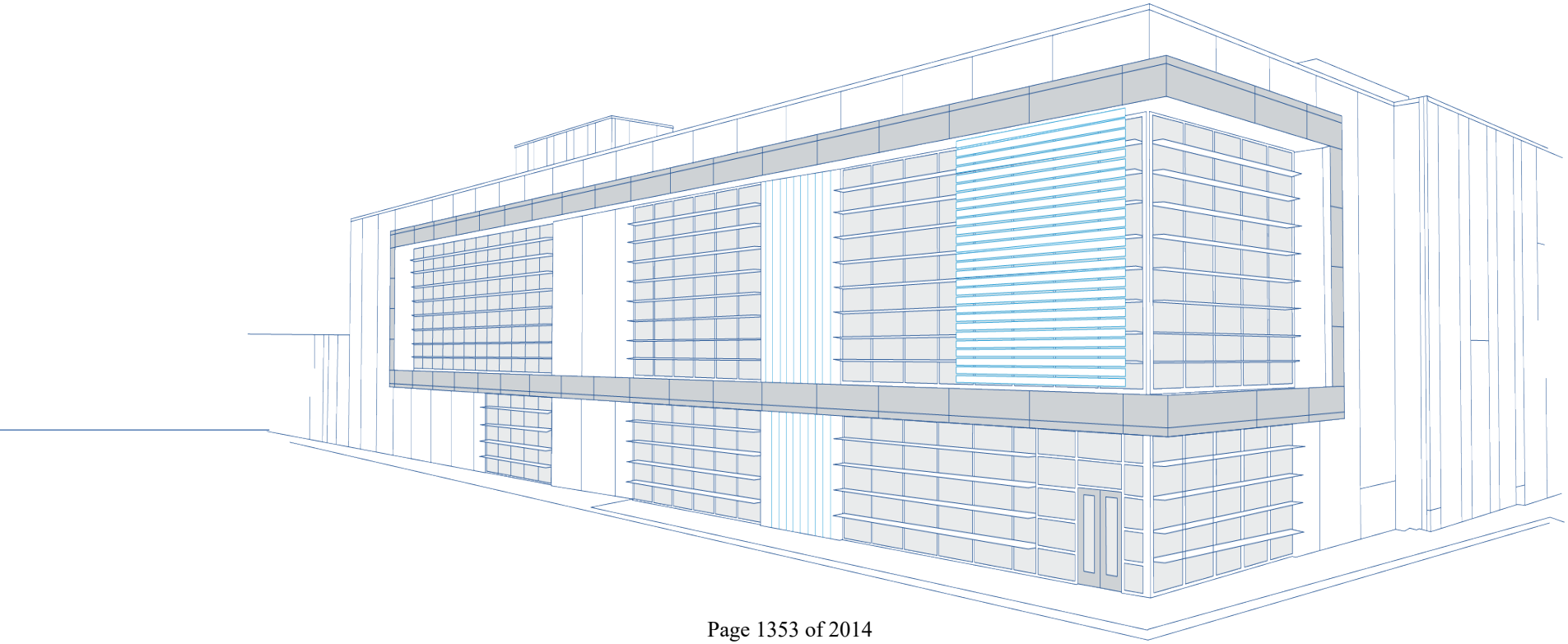
SHEET NUMBER:
4

STACK INFRASTRUCTURE™

STAFFORD TECHNOLOGY CAMPUS

DESIGN COMPONENTS

FEBRUARY, 2024



Data Center Design Elements

Data Center Fenestrations, material changes



Change in step-backs, recesses and change in color



Change in height





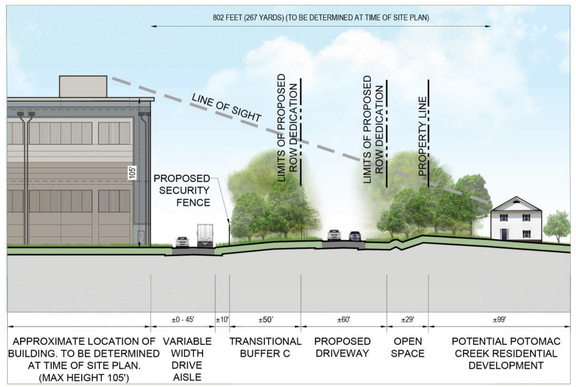
Stafford Technology Campus - Illustrative Plan

VAA220232.00

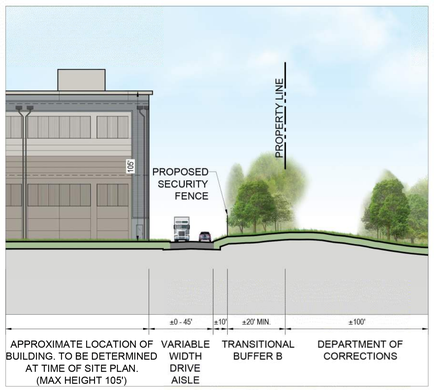
February 2024

Stafford, Virginia

PETERSON COMPANIES BOHLER



SECTION A-A
SCALE: 1" = 50'



SECTION B-B
SCALE: 1" = 50'

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

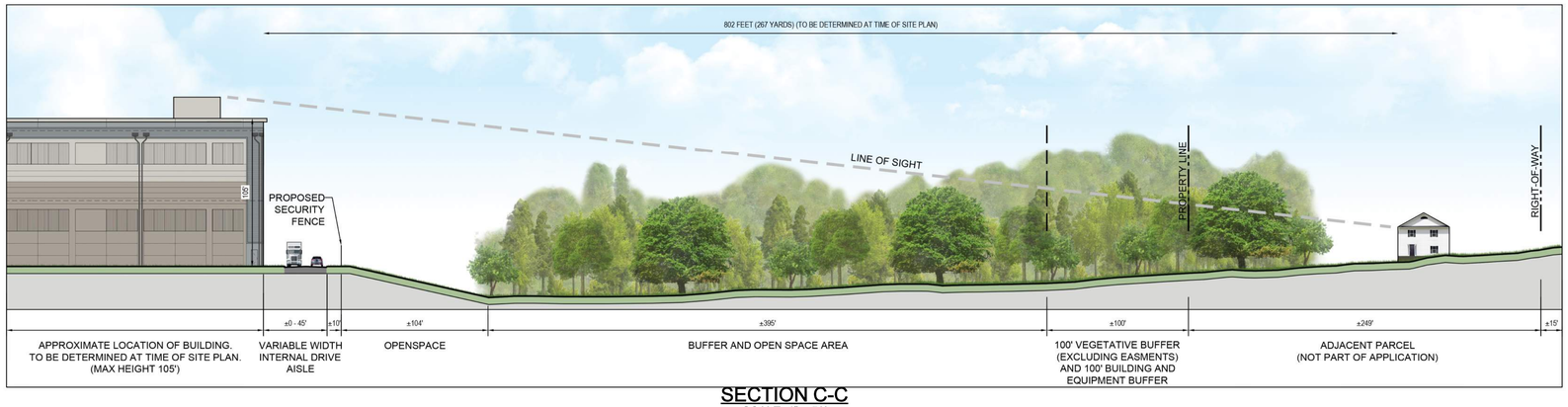
STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

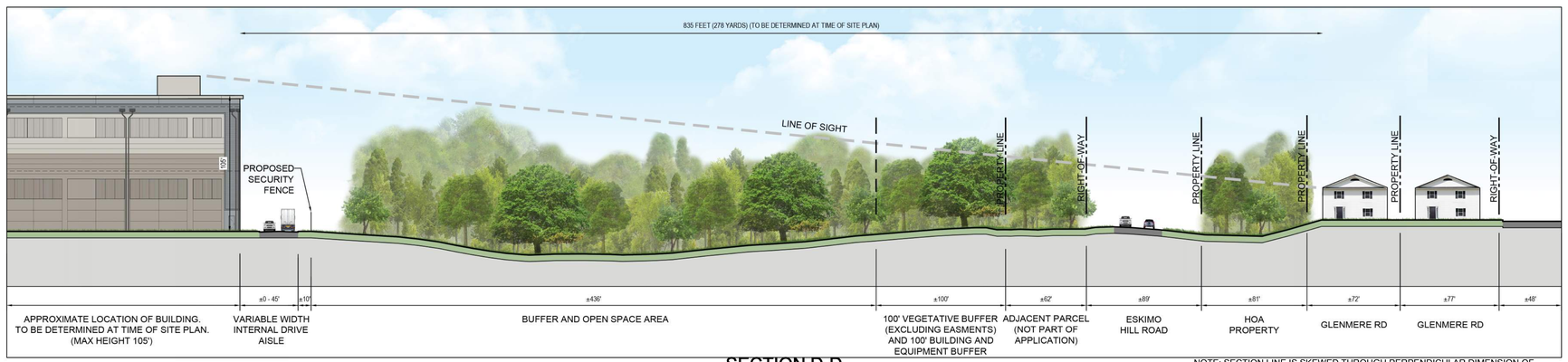
FEBRUARY 2024

STAFFORD, VIRGINIA

PETERSON COMPANIES BOHLER

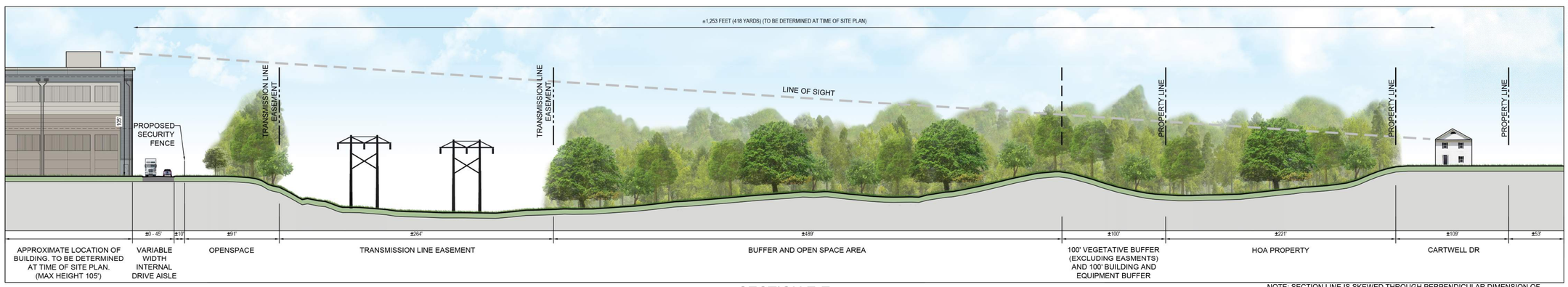


SECTION C-C
SCALE: 1" = 50'



SECTION D-D
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP



SECTION E-E
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP

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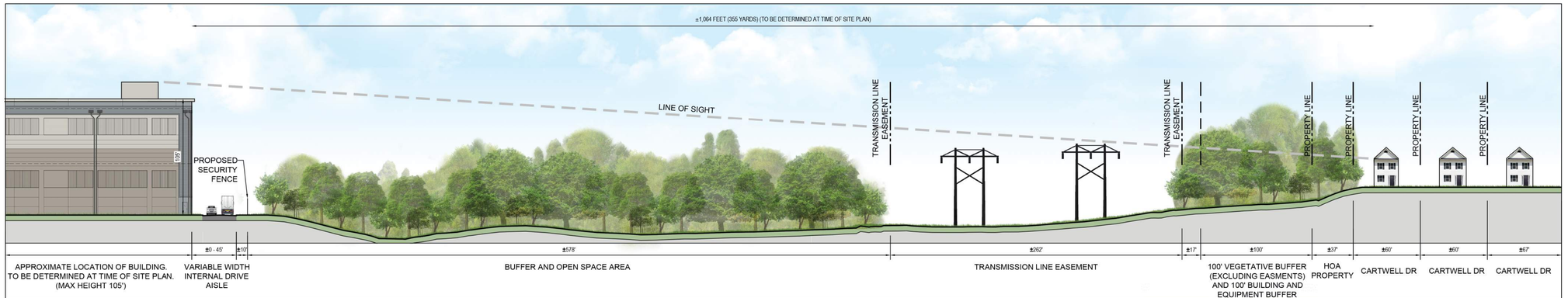
STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

FEBRUARY 2024

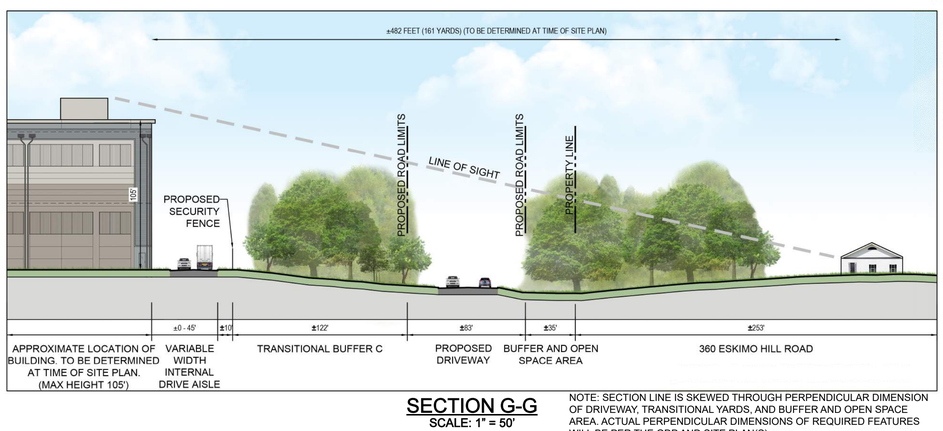
STAFFORD, VIRGINIA

PETERSON COMPANIES BOHLER



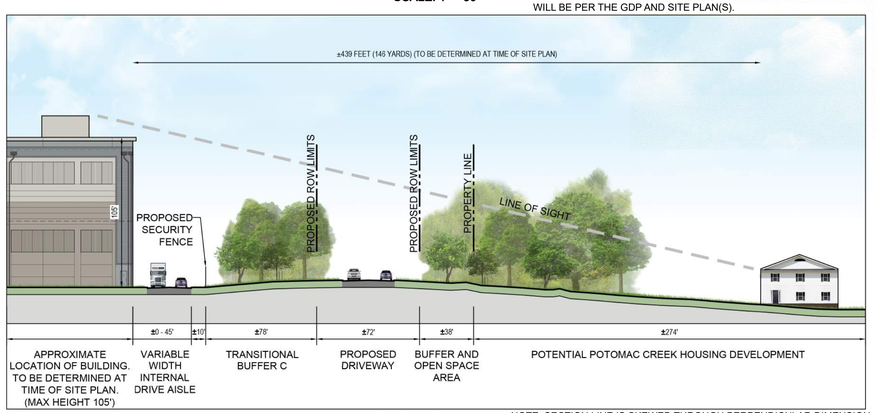
SECTION F-F
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP



SECTION G-G
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP AND SITE PLAN(S).



SECTION H-H
SCALE: 1" = 50'

NOTE: SECTION LINE IS SKEWED THROUGH PERPENDICULAR DIMENSION OF DRIVEWAY, TRANSITIONAL YARDS, AND BUFFER AND OPEN SPACE AREA. ACTUAL PERPENDICULAR DIMENSIONS OF REQUIRED FEATURES WILL BE PER THE GDP AND SITE PLAN(S).

FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN SUBJECT TO CHANGE.

STAFFORD TECHNOLOGY CAMPUS - SIGHT LINE SECTIONS

VAA220232.00

FEBRUARY 2024

STAFFORD, VIRGINIA

PETERSON COMPANIES BOHLER

NOTES:

1. THE SUBJECT PROPERTY IS THE LANDS OF STAFFORD TECHNOLOGY LC, AS RECORDED IN INSTRUMENT NO. 230002045 AMONG THE LANDS RECORDS OF STAFFORD COUNTY, VIRGINIA AND HAVING A PID OF 38 124 PER THE DEPARTMENT OF ASSESSMENTS.
2. AREA = 20,761,167 SQUARE FEET OR 476.611 ACRES (M)
3. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE, SOURCE INFORMATION FROM PLANS AND MARKINGS HAS BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.
4. THIS SURVEY WAS PERFORMED IN THE FIELD ON FEBRUARY 6, 2023 UTILIZING THE REFERENCE DOCUMENTS AS LISTED HEREON AND DEPICTS BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS.
5. THE PROPERTY IS LOCATED IN ZONE A (NO BASE FLOOD ELEVATIONS DETERMINED) AND OTHER AREAS ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER MAP ENTITLED "FIRM, FLOOD INSURANCE RATE MAP, STAFFORD COUNTY, VIRGINIA, PANEL 139 & 143 OF 280", MAP NUMBER 5101540139E & 5101540143E, WITH A MAP REVISED DATE OF FEBRUARY 4, 2005.
6. NO SURVEY OF SUBTERRANEAN STRUCTURES OR INTERIOR SPACES SUCH AS FOOTINGS, FOUNDATIONS, VAULTS OR BASEMENTS WAS PERFORMED AS PART OF THIS LAND SURVEY, AND THIS PLAN SHOULD NOT BE CONSTRUED AS CERTIFICATION TO THE EXISTENCE OR LOCATION OF THE SAME.
7. BOHLER WAS NOT MADE AWARE OF ANY WETLAND DELINEATION PERFORMED ON THE SUBJECT PROPERTIES AND THERE WERE NO WETLAND FLAGS OBSERVED AT THE TIME OF THE FIELD SURVEY. A PHASE 1 REPORT WAS NOT PROVIDED.
8. ELEVATIONS ARE BASED ON NAVD88 DATUM DETERMINED BY GPS OBSERVATIONS AND TIED INTO NGS MONUMENT AJ5530 WITH A PUBLISHED ELEVATION OF 100 FEET.
9. TOPOGRAPHY WAS COLLECTED ON THE SUBJECT PROPERTY AND DIRECTLY ADJACENT AREAS BY COOPER AERIAL SURVEYS COMPANY ON JANUARY 9, 2023 UTILIZING A HIGH ACCURACY AERIAL LIDAR SYSTEM COLLECTING 40 POINTS PER SQUARE METER WHICH ALSO INCLUDES ACQUIRING FIVE-CENTIMETER COLOR PHOTOGRAPHY FOR MAPPING AND IMAGERY IN THE FORM OF AN ORTHORECTIFIED GSD FILE AND CONFORMS WITH THE NATIONAL MAP ACCURACY STANDARDS PUBLISHED BY THE U.S.G.S

TITLE NOTES:

THIS SURVEY IS PREPARED WITH REFERENCE TO A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. 192004448, WITH AN COMMITMENT DATE OF AUGUST 30, 2022 AND A REVISION DATE OF SEPTEMBER 8. 2022. OUR OFFICE HAS REVIEWED THE FOLLOWING SURVEY RELATED EXCEPTIONS IN SCHEDULE B, PART II:

(10) EASEMENT(S) AND/OR RIGHT(S) OF WAY GRANTED TO THE COMMONWEALTH OF VIRGINIA AS SET FORTH IN THE DEED(S) RECORDED IN **A)** DEED BOOK 19 AT PAGE 369, **B)** DEED BOOK 19 AT PAGE 370 AND DEED **C)** BOOK 19 AT PAGE 382;

A) DOES NOT AFFECT THE SUBJECT PROPERTY, DOCUMENT IS A DEDICATION OF LANDS FOR PUBLIC USE.
B) DOES NOT AFFECT THE SUBJECT PROPERTY, DOCUMENT IS A DEDICATION OF LANDS FOR PUBLIC USE.
C) DOES NOT AFFECT THE SUBJECT PROPERTY, DOCUMENT IS A DEDICATION OF LANDS FOR PUBLIC USE.

(11) EASEMENT(S) GRANTED TO VIRGINIA ELECTRIC AND POWER COMPANY AS SET FORTH IN THE INSTRUMENT(S) RECORDED IN **A)** DEED BOOK 24 AT PAGE 297, **B)** DEED BOOK 24 AT PAGE 306, **C)** DEED BOOK 24 AT PAGE 309, **D)** DEED BOOK 24 AT PAGE 422, **E)** DEED BOOK 24 AT PAGE 425, **F)** DEED BOOK 35 AT PAGE 87, **G)** DEED BOOK 38 AT PAGE 284, **H)** DEED BOOK 67 AT PAGE 211, **I)** DEED BOOK 74 AT PAGE 89 AND **J)** DEED BOOK 74 AT PAGE 292;

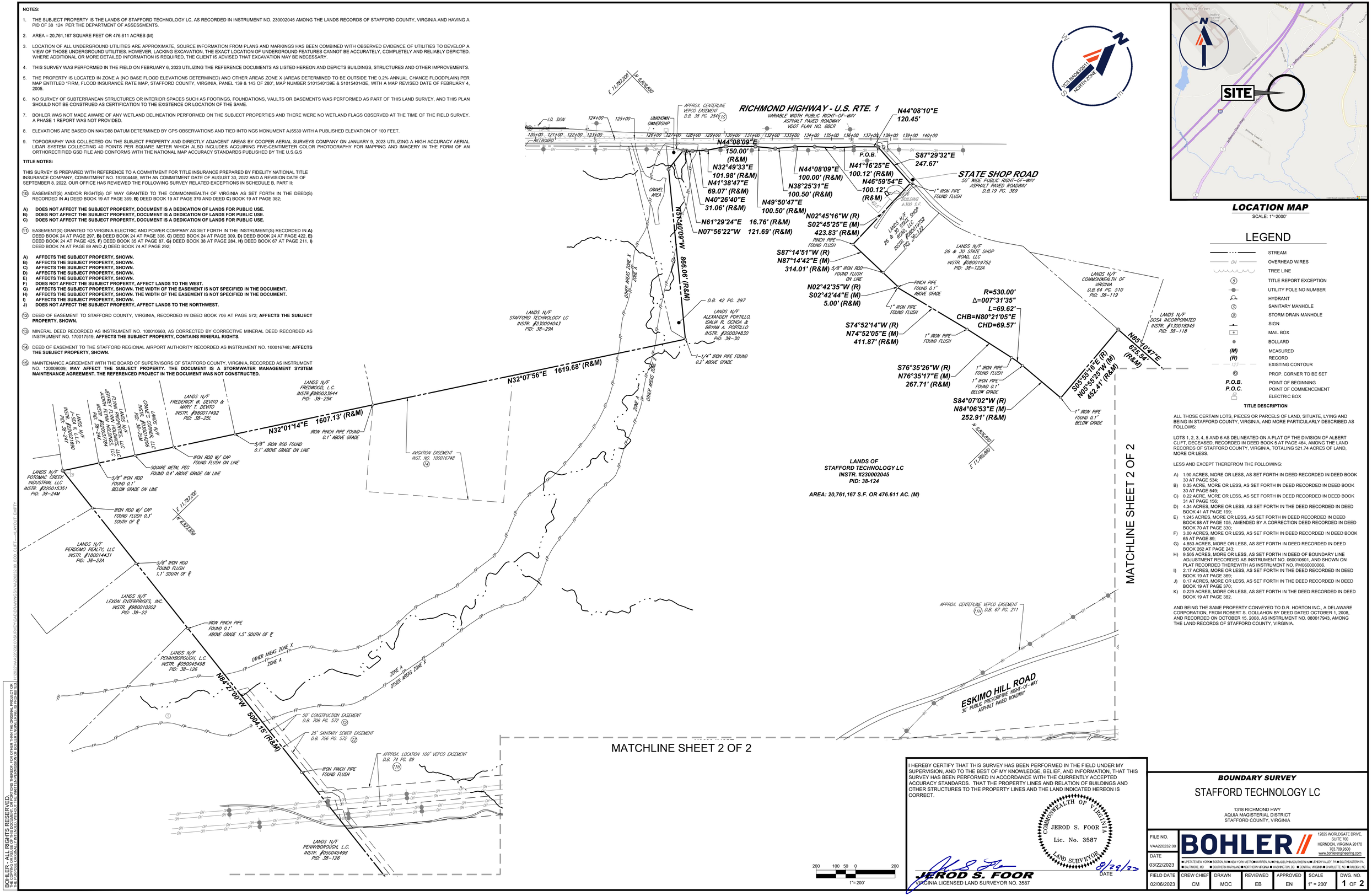
A) AFFECTS THE SUBJECT PROPERTY, SHOWN.
B) AFFECTS THE SUBJECT PROPERTY, SHOWN.
C) AFFECTS THE SUBJECT PROPERTY, SHOWN.
D) AFFECTS THE SUBJECT PROPERTY, SHOWN.
E) AFFECTS THE SUBJECT PROPERTY, SHOWN.
F) DOES NOT AFFECT THE SUBJECT PROPERTY, AFFECT LANDS TO THE WEST.
G) AFFECTS THE SUBJECT PROPERTY, SHOWN. THE WIDTH OF THE EASEMENT IS NOT SPECIFIED IN THE DOCUMENT.
H) AFFECTS THE SUBJECT PROPERTY, SHOWN. THE WIDTH OF THE EASEMENT IS NOT SPECIFIED IN THE DOCUMENT.
I) AFFECTS THE SUBJECT PROPERTY, SHOWN.
J) DOES NOT AFFECT THE SUBJECT PROPERTY, AFFECT LANDS TO THE NORTHWEST.

(12) DEED OF EASEMENT TO STAFFORD COUNTY, VIRGINIA, RECORDED IN DEED BOOK 706 AT PAGE 572; **AFFECTS THE SUBJECT PROPERTY, SHOWN.**

(13) MINERAL DEED RECORDED AS INSTRUMENT NO. 100010660, AS CORRECTED BY CORRECTIVE MINERAL DEED RECORDED AS INSTRUMENT NO. 170017519; **AFFECTS THE SUBJECT PROPERTY, CONTAINS MINERAL RIGHTS.**

(14) DEED OF EASEMENT TO THE STAFFORD REGIONAL AIRPORT AUTHORITY RECORDED AS INSTRUMENT NO. 100016748; **AFFECTS THE SUBJECT PROPERTY, SHOWN.**

(15) MAINTENANCE AGREEMENT WITH THE BOARD OF SUPERVISORS OF STAFFORD COUNTY, VIRGINIA, RECORDED AS INSTRUMENT NO. 120009009; **MAY AFFECT THE SUBJECT PROPERTY. THE DOCUMENT IS A STORMWATER MANAGEMENT SYSTEM MAINTENANCE AGREEMENT. THE REFERENCED PROJECT IN THE DOCUMENT WAS NOT CONSTRUCTED.**



SITE
Stafford Regional Airport
Stafford Regional Airport
Aquia Harbour
Falmouth Hill Rd
Falmouth Rd
Jefferson Davis Hwy
Truslow Rd
Jefferson Davis Hwy
Stafford Lks
Stafford Lks
Stafford Lks

SURVEYED DESCRIPTION

LANDS OF
STAFFORD TECHNOLOGY LC
INST. NO. 230002045
AQUIA MAGISTERIAL DISTRICT
STAFFORD COUNTY, VA
PID 38-124

BEGINNING AT THE INTERSECTION OF THE EASTERLY RIGHT-OF-WAY LIMITS OF RICHMOND HIGHWAY - U.S. ROUTE 1 (VARIABLE WITH RIGHT OF WAY) AND WITH THE SOUTHERLY RIGHT-OF-WAY LIMITS OF STATE SHOP ROAD (50' RIGHT-OF-WAY) ON THE NORTH AND THE LANDS OF STAFFORD TECHNOLOGY LC (INST. NO. 230002045) ON THE SOUTH, THENCE WITH SAID SOUTHERLY RIGHT-OF-WAY LIMITS;

1. SOUTH 87° 29' 32" EAST, 247.67 TO AN IRON PIPE FOUND MARKING THE INTERSECTION OF SAID SOUTHERLY RIGHT-OF-WAY LIMITS AND WITH THE DIVISION LINE BETWEEN THE LANDS OF 26 & 30 STATE SHOP ROAD, LLC (INST. NO. 080019752) ON THE EAST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE WEST, THENCE DEPARTING SAID RIGHT-OF-WAY LIMITS AND WITH SAID DIVISION LINE THE FOLLOWING EIGHT (8) COURSES AND DISTANCES;

2. SOUTH 02° 45' 25" EAST, 423.83 FEET TO A PINCH PIPE FOUND, THENCE;

3. CONTINUING, NORTH 87° 14' 42" EAST, 314.01 FEET TO A PINCH PIPE FOUND, THENCE;

4. CONTINUING, SOUTH 02° 42' 44" EAST, 5.00 FEET TO A 1" IRON PIPE FOUND, THENCE;

5. CONTINUING, NORTH 74° 52' 05" EAST, 411.87 FEET TO A 1" IRON PIPE FOUND, THENCE;

6. CONTINUING, NORTH 76° 35' 17" EAST, 267.71 FEET TO A 1" IRON PIPE FOUND; THENCE

7. CONTINUING, 69.62 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 530.00 FEET, A CENTRAL ANGLE OF 07° 31' 35", AND A CHORD BEARING AND DISTANCE OF NORTH 80° 21' 05" EAST, 69.57 FEET TO A 1" IRON PIPE FOUND, THENCE;

8. CONTINUING, NORTH 84° 06' 53" EAST, 252.91 FEET TO A 1" IRON PIPE FOUND, THENCE;

9. CONTINUING, NORTH 05° 55' 25" WEST, 452.41 FEET TO THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF THE COMMONWEALTH OF VIRGINIA (DEED BOOK 64 PAGE 510) ON THE NORTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH, THENCE WITH SAID DIVISION LINE AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN THE LANDS OF DOSA INCORPORATED (INST. NO. 130018945) AND THE LANDS OF SAKHAWAT HUSSAIN & MOHAMMAD SIBAR ASHRAF (INST. NO. 190007453) BOTH ON THE NORTH AND SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH, THENCE WITH SAID DIVISION LINE;

10. NORTH 85° 10' 47" EAST, 625.54 FEET TO A 1 1/4" IRON PIPE FOUND MARKING THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF CROCKETT KELLY AND CREAMA J. KELLY (DEED BOOK 456 PAGE 112) ON THE EAST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE WEST AND FURTHER CONTINUING WITH DIVISION LINE BETWEEN THE LANDS OF MELVIN O MARTINEX EXCOBAR (INST. NO. 220015447), THE LANDS OF DONALD R. LLOYD, SR. AND MELODY LLOYD (INST. NO. 980011841), THE LANDS OF WILLIAM & PHICILLA ATCHINSON (INST. NO 0550023707), AND THE LANDS OF CARL R. TOLBERT (DEED BOOK 788 PAGE 81) ON THE EAST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE WEST, THENCE WITH SAID DIVISION LINE THE FOLLOWING TWO (2) COURSES AND DISTANCES;

11. SOUTH 30° 26' 08" EAST, 994.60 FEET, TO THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN SAID LANDS OF CARL R. TOLBERT ON THE NORTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN ESKIMO HILL ROAD (30' PRESCRIPTIVE RIGHT-OF-WAY AND 25' WIDE RIGHT-OF-WAY), THE LANDS OF KENDALL HILL HOMEOWNERS ASSOCIATION, INC. (INST. NO. 220019906), THE LANDS OF TRIDEX ASSOCIATES, INC. (INST. NO. 070001332) ALL ON THE NORTH AND SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH THE FOLLOWING TWO (2) COURSES AND DISTANCES;

12. NORTH 72° 13' 46" EAST, 2438.68 FEET TO AN IRON ROD FOUND, THENCE;

13. CONTINUING, NORTH 25° 36' 57" EAST, 214.73 FEET TO A 18" MAPLE TREE, MARKING THE SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF BOARD OF SUPERVISORS OF STAFFORD COUNTY (DEED BOOK 529 PAGE 215) ON THE NORTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH, THENCE WITH SAID DIVISION LINE;

14. SOUTH 87° 20' 01" EAST, 200.35 FEET TO AN IRON ROD FOUND, THENCE CONTINUING WITH SAID DIVISION LINE AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN THE LANDS OF THE LANDS OF CITY OF FREDERICKSBURG (DEED BOOK 782 PAGE 588) AND THE LANDS OF COMMONWEALTH OF VIRGINIA (DEED BOOK 465 PAGE 287) ON THE EAST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE WEST, THENCE WITH SAID DIVISION LINE;

15. SOUTH 21° 37' 59" WEST, 5329.91 FEET TO A 38" WHITE OAK TREE, MARKING THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF RONNIE E. AND BETTY A. FRANKS (INST. NO. 070005619) ON THE SOUTH AND SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE NORTH, THENCE WITH SAID DIVISION LINE AND FURTHER CONTINUING WITH THE LANDS OF MATTHEW F. SHANNON (DEED BOOK 459 PAGE 663), THE LANDS OF PENNYBOROUGH, L.C. (INSTR. NO. 050045498), THE LANDS OF LEXON ENTERPRISES, INC. (INST. NO. 980010202), THE LANDS OF PERDOMO REALTY, LLC (INST. NO. 180014431), AND THE LANDS OF POTOMAC CREEK INDUSTRIAL (INST. NO. 220015351) ALL ON THE SOUTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE NORTH, THENCE WITH SAID DIVISION LINE;

16. NORTH 84° 27' 00" WEST, 5004.15 FEET TO THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF J-SEA II, L.L.C. (INST. NO. 220021690) ON THE WEST AND SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE EAST, AND FURTHER CONTINUING WITH THE DIVISION LINE BETWEEN THE LANDS OF FLYNN PROPERTIES, LLC, JEFFRY FLYNN HOLDINGS, LLC JUDITH FLYNN HOLDINGS, LLC (INST. NO. 020037784), THE LANDS OF CRANE'S CORNER, LLC (INST. NO. 030014206), THE LANDS OF FREDERICK W. AND MARY T. DEVITO (INST. NO. 980017492), AND THE LANDS OF FREDWOOD, L.C. (INST. NO. 980023644) ALL ON THE WEST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE EAST, THENCE WITH SAID DIVISION LINE;

17. NORTH 32° 01' 14" EAST, 1607.13 FEET TO A PINCH PIPE FOUND, MARKING THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN THE LANDS OF STAFFORD TECHNOLOGY LC (INST. NO. 230004043) ON THE WEST AND THE LANDS OF STAFFORD TECHNOLOGY LC (INST. NO. 230004045) ON THE EAST, THENCE WITH SAID DIVISION LINE;

18. NORTH 32° 07' 56" EAST, 1619.68 FEET TO A 1 1/4" IRON PIPE FOUND, MARKING THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN LANDS OF ALEXANDER PORTILLO, IDALIA R. OCHOA & BRYAM A. PORTILLO (INST. NO. 200024830) ON THE SOUTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE NORTH, THENCE WITH SAID DIVISION LINE;

19. NORTH 51° 40' 09" WEST, 866.06 FEET TO THE INTERSECTION OF SAID DIVISION LINE AND WITH THE DIVISION LINE BETWEEN AN AREA OF UNKNOWN OWNERSHIP ON THE WEST AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE EAST, THENCE WITH SAID DIVISION LINE;

20. NORTH 07° 56' 22" WEST, 121.69 FEET TO THE EASTERLY RIGHT-OF-WAY LIMITS OF RICHMOND HIGHWAY - U.S. ROUTE 1, THENCE WITH SAID EASTERLY RIGHT-OF-WAY LIMITS THE FOLLOWING ELEVEN (11) COURSES AND DISTANCES;

21. NORTH 61° 29' 24" EAST, 16.76 FEET, THENCE;

22. CONTINUING, NORTH 40°26' 40" EAST, 31.06 FEET, THENCE;

23. CONTINUING, NORTH 41° 38' 47" EAST, 69.07 FEET, THENCE;

24. CONTINUING, NORTH 32° 49' 33" EAST, 101.98 FEET, THENCE;

25. CONTINUING, NORTH 44° 08' 09" EAST, 150.00 FEET, THENCE,

26. CONTINUING, NORTH 49° 50' 47" EAST, 100.50 FEET, THENCE;

27. CONTINUING, NORTH 38° 25' 31" EAST, 100.50 FEET, THENCE;

28. CONTINUING, NORTH 44° 08' 09" EAST, 100.00 FEET, THENCE

29. CONTINUING, NORTH 46° 59' 54" EAST, 100.12 FEET, THENCE

30. CONTINUING, NORTH 41° 16' 25" EAST, 100.12 FEET, THENCE;

31. CONTINUING, NORTH 44° 08' 10" EAST, 120.45 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPT:

LANDS OF
VIRGINIA ELECTRIC AND POWER COMPANY
DEED BOOK 262 PAGE 243
PID 38-123A

COMMENCING AT A 38" WHITE OAK TREE, MARKING THE INTERSECTION OF THE DIVISION LINE BETWEEN LANDS OF COMMONWEALTH OF VIRGINIA (DEED BOOK 465 PAGE 287) ON THE EAST, THE LANDS OF RONNIE E. AND BETTY A. FRANKS (INST. NO. 070005619) ON THE SOUTH, AND THE LANDS OF STAFFORD TECHNOLOGY LC (INST. NO. 230002045) ON THE NORTH, THENCE WITH A LINE THROUGH SAID LANDS OF STAFFORD TECHNOLOGY;

A. NORTH 43° 04' 22" WEST, 1988.90 FEET TO A 5/8" IRON ROD FOUND MARKING THE POINT OF BEGINNING AND THE DIVISION LINE OF THE LANDS OF VIRGINIA ELECTRIC AND POWER COMPANY (DEED BOOK 262 PAGE 243) ON THE NORTH AND THE SAID LANDS OF STAFFORD TECHNOLOGY LC ON THE SOUTH, THENCE WITH SAID DIVISION LINE THE FOLLOWING FOUR (4) COURSES AND DISTANCES;

1. NORTH 51° 22' 00" WEST, 465.00 FEET TO A 1" IRON PIPE FOUND, THENCE;

2. CONTINUING NORTH 38° 34' 42" EAST, 723.90 FEET TO THE CENTER OF ESKIMO HILL ROAD (30 FOOT PRESCRIPTIVE RIGHT-OF-WAY), THENCE WITH THE CENTERLINE OF ESKIMO HILL ROAD;

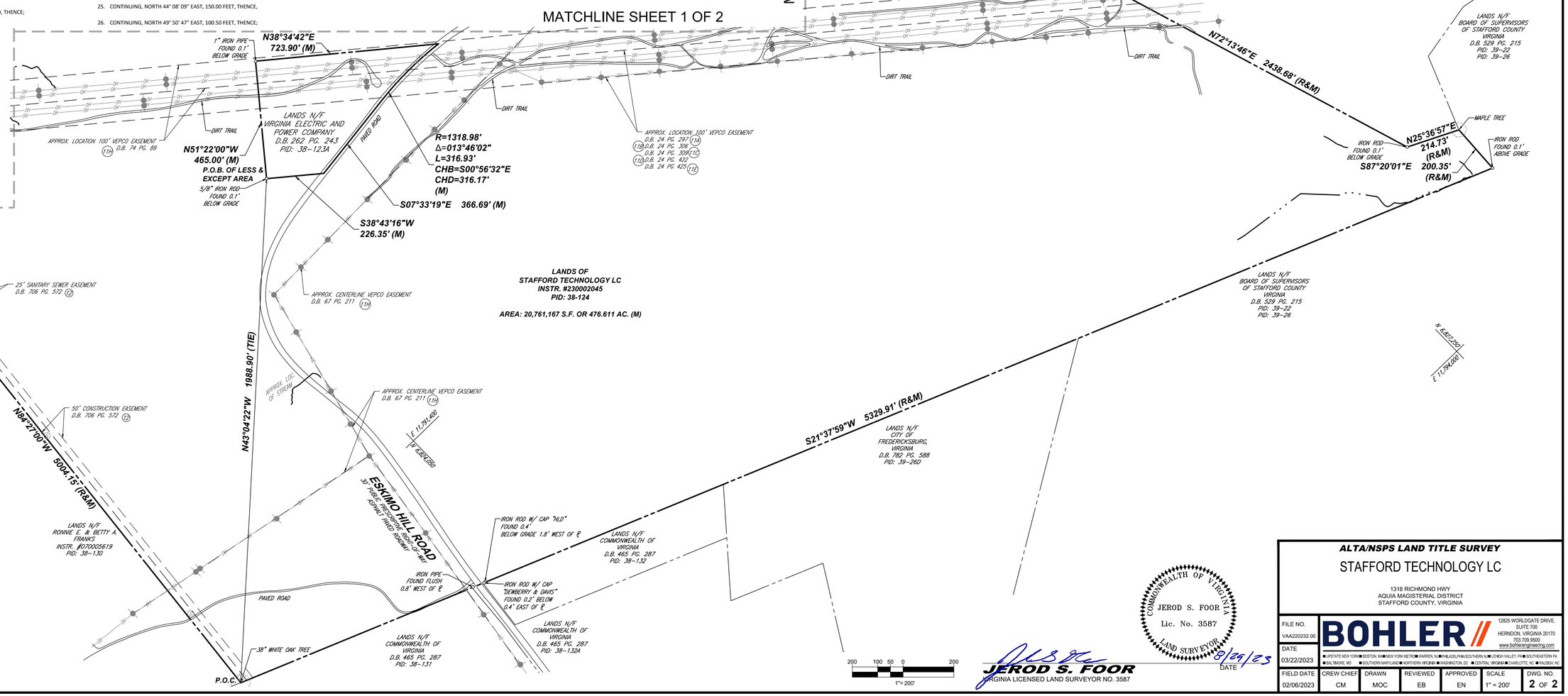
3. 316.93 FEET ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 1318.98 FEET, A CENTRAL ANGLE OF 13° 46' 02" AND A CHORD BEARING AND DISTANCE OF SOUTH 00° 56' 32" EAST, 316.17 FEET, THENCE;

4. SOUTH 07° 33' 19" WEST, 366.69 FEET, THENCE CONTINUING WITH SAID DIVISION LINE AND DEPARTING ESKIMO HILL ROAD;

5. SOUTH 38° 43' 16" WEST, 226.35 FEET TO THE POINT OF BEGINNING.

CONTAINING 20,761,167 SQUARE FEET OR 476.611 ACRES.

BEING THE PROPERTY AS DESCRIBED IN A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. 192004448, HAVING A REVISED COMMITMENT DATE OF SEPTEMBER 8, 2022, AND IS SUBJECT TO RESTRICTIONS, COVENANTS, AND/OR EASEMENTS, WRITTEN OR IMPLIED.



LEGEND

- STREAM
- OH — OVERHEAD WIRES
- TREE LINE
- (5) TITLE REPORT EXCEPTION
- UTILITY POLE NO NUMBER
- HYDRANT
- STORM DRAIN MANHOLE
- SIGN
- MAIL BOX
- BOLLARD
- (M) MEASURED
- (R) RECORD
- EXISTING CONTOUR
- PROP. CORNER TO BE SET
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT
- ELECTRIC BOX
- SANITARY MANHOLE

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J:\VAA220232.00\SURVEY\DWG\ALTA\ALTA.DWG, 8/29/2023 11:37:08 AM, ANNE, EMPTY.CTB

COMMONWEALTH OF VIRGINIA
JEROD S. FOOR
Lic. No. 3587
LAND SURVEYOR

JEROD S. FOOR
VIRGINIA LICENSED LAND SURVEYOR NO. 3587

8/29/23
DATE

ALTA/NSPS LAND TITLE SURVEY

STAFFORD TECHNOLOGY LC

1318 RICHMOND HWY
AQUIA MAGISTERIAL DISTRICT
STAFFORD COUNTY, VIRGINIA

FILE NO.	DATE	FIELD DATE	CREW CHIEF	DRAWN	REVIEWED	APPROVED	SCALE	DWG. NO.
VAA220232.00	03/22/2023	02/06/2023	CM	MOC	EB	EN	1" = 200'	2 OF 2

BOHLER
12825 WORLDGATE DRIVE, SUITE 700
HERNDON, VIRGINIA 20170
703.709.9500
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■ UPSTATE NEW YORK ■ BOSTON, MA ■ NEW YORK METRO ■ WARREN, NJ ■ PHILADELPHIA/SOUTHERN NJ ■ LEHIGH VALLEY, PA ■ SOUTHEASTERN PA
■ BALTIMORE, MD ■ SOUTHERN MARYLAND ■ NORTHERN VIRGINIA ■ WASHINGTON, DC ■ CENTRAL VIRGINIA ■ CHARLOTTE, NC ■ RALEIGH, NC

NOTES:

1. THE SUBJECT PROPERTY IS PARCEL B AS RECORDED IN PLAT MAP INSTRUMENT NO. 110000055 AND BEING THE LANDS OF STAFFORD TECHNOLOGY LC AS RECORDED IN INSTRUMENT NO. 230004043 AMONG THE LANDS RECORDS OF STAFFORD COUNTY, VIRGINIA AND HAVING A PID OF 38 29A PER THE DEPARTMENT OF ASSESSMENTS.
2. AREA = 1,186,216 SQUARE FEET OR 27.2318 ACRES (RECORD)
   1,186,029 SQUARE FEET OR 27.227 ACRES (MEASURED)
3. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE, SOURCE INFORMATION FROM PLANS AND MARKINGS HAS BEEN COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.
4. THIS SURVEY WAS PERFORMED IN THE FIELD ON FEBRUARY 6, 2023 UTILIZING THE REFERENCE DOCUMENTS AS LISTED HEREON AND DEPICTS BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS.
5. THE PROPERTY IS LOCATED IN ZONE A (NO BASE FLOOD ELEVATIONS DETERMINED) AND OTHER AREAS ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER MAP ENTITLED "FIRM, FLOOD INSURANCE RATE MAP, STAFFORD COUNTY, VIRGINIA, PANEL 139 & 143 OF 280", MAP NUMBER 5101540139E & 5101540143E, WITH A MAP REVISED DATE OF FEBRUARY 4, 2005.
6. NO SURVEY OF SUBTERRANEAN STRUCTURES OR INTERIOR SPACES SUCH AS FOOTINGS, FOUNDATIONS, VAULTS OR BASEMENTS WAS PERFORMED AS PART OF THIS LAND SURVEY, AND THIS PLAN SHOULD NOT BE CONSTRUED AS CERTIFICATION TO THE EXISTENCE OR LOCATION OF THE SAME.
7. BOHLER WAS NOT MADE AWARE OF ANY WETLAND DELINEATION PERFORMED ON THE SUBJECT PROPERTIES AND THERE WERE NO WETLAND FLAGS OBSERVED AT THE TIME OF THE FIELD SURVEY. A PHASE 1 REPORT WAS NOT PROVIDED.
8. ELEVATIONS ARE BASED ON NAVD88 DATUM DETERMINED BY GPS OBSERVATIONS AND TIED INTO NGS MONUMENT AJ5530 WITH A PUBLISHED ELEVATION OF 100 FEET.
9. TOPOGRAPHY WAS COLLECTED ON THE SUBJECT PROPERTY AND DIRECTLY ADJACENT AREAS BY COOPER AERIAL SURVEYS COMPANY ON JANUARY 9, 2023 UTILIZING A HIGH ACCURACY AERIAL LIDAR SYSTEM COLLECTING 40 POINTS PER SQUARE METER WHICH ALSO INCLUDES ACQUIRING FIVE-CENTIMETER COLOR PHOTOGRAPHY FOR MAPPING AND IMAGERY IN THE FORM OF AN ORTHORECTIFIED GSD FILE AND CONFORMS WITH THE NATIONAL MAP ACCURACY STANDARDS PUBLISHED BY THE U.S.G.S.

TITLE NOTES:

THIS SURVEY IS PREPARED WITH REFERENCE TO A COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. 192004528, WITH AN COMMITMENT DATE OF JANUARY 16, 2023 AND A REVISION DATE OF JANUARY 30, 2023. OUR OFFICE HAS REVIEWED THE FOLLOWING SURVEY RELATED EXCEPTIONS IN SCHEDULE B, PART II:

(9) SUBJECT TO ALL RESTRICTIONS, INCLUDING BUT NOT LIMITED TO, HEIGHT RESTRICTIONS; RESOURCE PROTECTION AREA BUFFER; THE AVIATION EASEMENT AND BOUNDARY LINE ADJUSTMENT AS SET FORTH IN THE AGREED FINAL ORDER CONFIRMING SETTLEMENT AND TITLE TO THE PERMANENT AIRSPACE EASEMENT IN STAFFORD REGIONAL AIRPORT AUTHORITY VS. SUSANNE B. GESLOIS RECORDED IN INSTRUMENT NO. LR 110014352 AND PLAT NOTES AS PER THE PLAT RECORDED AT PLAT MAP 110012005 AND OWNER'S CONSENT AND DEDICATION CONTAINED THEREIN; **AFFECT THE SUBJECT PROPERTY, PLOTTABLE ITEMS ARE SHOWN.**

(10) SUBJECT TO ALL PLAT NOTES AS PER THE PLAT RECORDED AT PLAT MAP 110000055; **AFFECT THE SUBJECT PROPERTY, THE RESOURCE PROTECTION AREA LIMITS ARE SHOWN.**

(11) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD, VIRGINIA AS DEED BOOK 38, PAGE 284; **MAY AFFECT THE SUBJECT PROPERTY, A POLE LINE ALONG RICHMOND HIGHWAY WAS PRESENT AT THE TIME OF THE SURVEY. POSSIBLE CENTERLINE LOCATION SHOWN.**

(12) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA IN DEED BOOK 38, AT PAGE 551; **MAY AFFECT THE SUBJECT PROPERTY, A POLE LINE ALONG RICHMOND HIGHWAY WAS PRESENT AT THE TIME OF THE SURVEY. POSSIBLE CENTERLINE LOCATION SHOWN.**

(13) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA IN DEED BOOK 84, AT PAGE 577 AND SHOWN ON PLAT RECORDED IN VPB 1, PAGE 576; **MAY AFFECT THE SUBJECT PROPERTY, VAGUE AND INSUFFICIENT INFORMATION IN THE RECORD DOCUMENTS.**

(14) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA IN DEED BOOK 168, AT PAGE 462, AND SHOWN ON PLAT RECORDED IN VPB 4, PAGE 175; **AFFECTS THE SUBJECT PROPERTY, APPROXIMATE LOCATION IS SHOWN.**

(15) FIFTY FOOT INGRESS/EGRESS EASEMENT RECORDED IN DEED BOOK 707, PAGE 774 AND PLAT BOOK 19, PAGE 108, IS NOTED AS EXTINGUISHED ON PLAT MAP 110000055; **DOES NOT AFFECT THE SUBJECT PROPERTY, THE EASEMENT HAS BEEN VACATED.**

(16) EASEMENT TO VIRGINIA ELECTRIC AND POWER COMPANY AS RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA IN DEED BOOK 168, AT PAGE 464, AS SHOWN ON PLAT RECORDED IN VPB 4, PAGE 176; **AFFECTS THE SUBJECT PROPERTY, APPROXIMATE LOCATION IS SHOWN.**

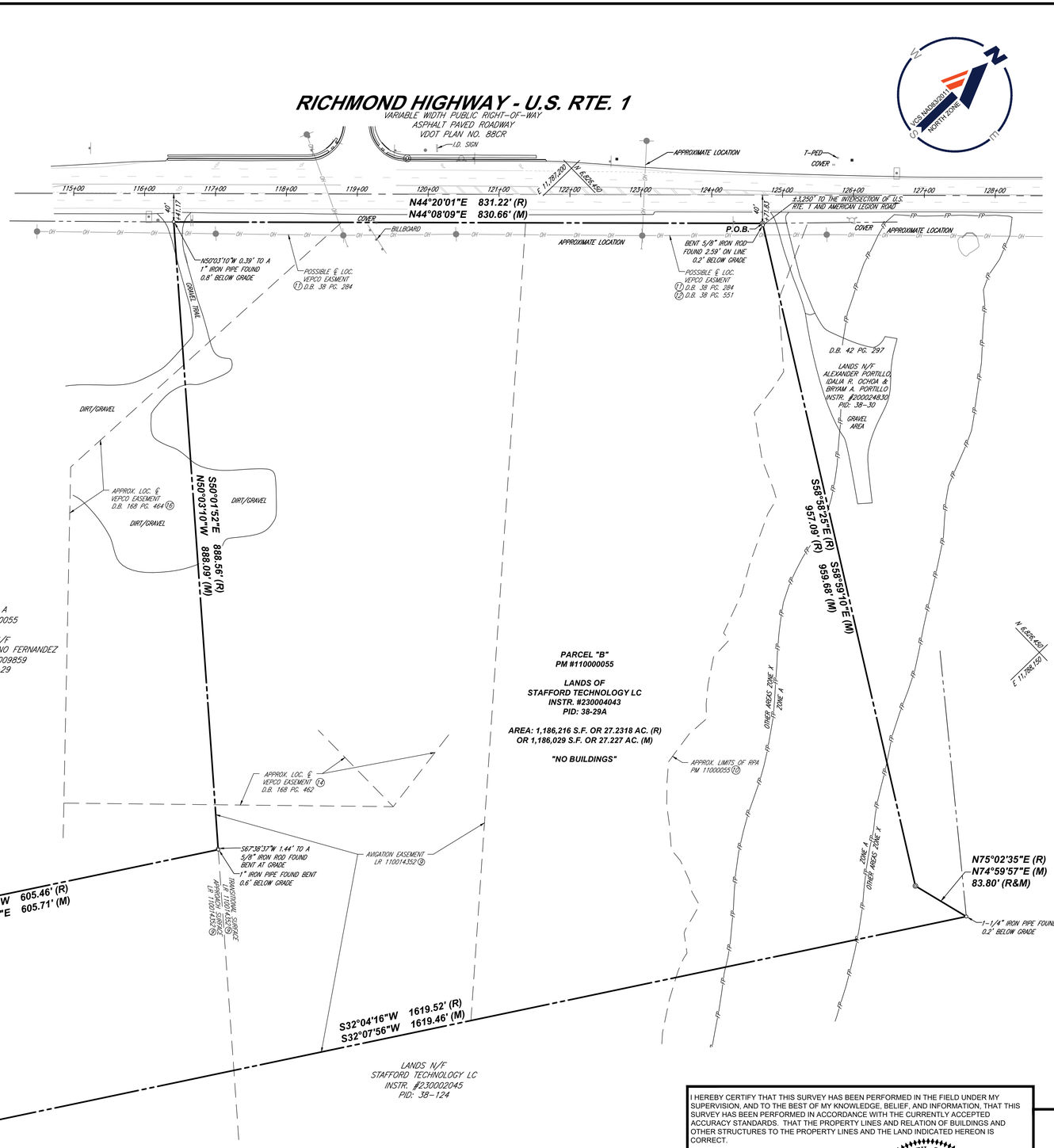
TITLE DESCRIPTION

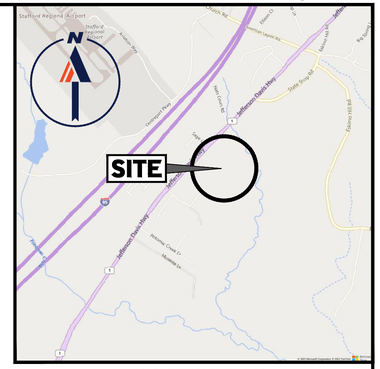
ALL THAT CERTAIN PIECE OR PARCEL OF LAND, LYING AND BEING IN STAFFORD COUNTY, VIRGINIA AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

ALL THAT CERTAIN LOT OR PARCEL OF LAND, CONTAINING 27.2318 ACRES, MORE OR LESS, SITUATE IN AQUIA DISTRICT OF STAFFORD COUNTY, VIRGINIA, AS SHOWN AS PARCEL B ON THAT CERTAIN PLAT OF SUSANNE B. GESLOIS, BY ROSS, FRANCE & RATLIFF, LTD. DATED JUNE 22, 2011 AND RECORDED AS PLAT NO. PM 110000055.

LESS AND EXCEPT THE AVIGATION EASEMENT WHICH ENCUMBERS 15.2535 ACRES, MORE OR LESS, TO STAFFORD REGIONAL AIRPORT FOR A PERPETUAL AIRSPACE EASEMENT AS SHOWN ON THE PLAT RECORDED AS PLAT NO. PM 110012005 AND AS SET FORTH IN THE AGREED FINAL ORDER CONFIRMING SETTLEMENT AND TITLE RECORDED IN INSTRUMENT NO. LR 110014352.

AND BEING A PORTION OF THE SAME PROPERTY CONVEYED BY SUSANNE BRADLEY GESLOIS, ALSO KNOWN AS SUSANNE D. GRADLEY TO SUSANNE BRADLEY GESLOIS, TRUSTEE OF THE SUSANNE BRADLEY GESLOIS REVOCABLE LIVING TRUST DATED DECEMBER 18TH, 2017 BY DEED DATED SEPTEMBER 18, 2019 AND RECORDED SEPTEMBER 30, 2019 IN INSTRUMENT NO. LR190017437 RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF STAFFORD COUNTY, VIRGINIA.





LOCATION MAP
SCALE: 1"=2000'

LEGEND

- OH — OVERHEAD WIRES
- TREE LINE
- (5) — TITLE REPORT EXCEPTION
- UTILITY POLE NO NUMBER
- HYDRANT
- STORM DRAIN MANHOLE
- SIGN
- MAIL BOX
- BOLLARD
- (M) — MEASURED
- (R) — RECORD
- P.O.B. — POINT OF BEGINNING

I HEREBY CERTIFY THAT THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THAT THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH THE CURRENTLY ACCEPTED ACCURACY STANDARDS. THAT THE PROPERTY LINES AND RELATION OF BUILDINGS AND OTHER STRUCTURES TO THE PROPERTY LINES AND THE LAND INDICATED HEREON IS CORRECT.

COMMONWEALTH OF VIRGINIA
JEROD S. FOOR
Lic. No. 3587
LAND SURVEYOR

JEROD S. FOOR
VIRGINIA LICENSED LAND SURVEYOR NO. 3587

5/29/23
DATE

BOUNDARY SURVEY

STAFFORD TECHNOLOGY LC

1318 RICHMOND HWY
AQUIA MAGISTERIAL DISTRICT
STAFFORD COUNTY, VIRGINIA

FILE NO.	DATE	FIELD DATE	CREW CHIEF	DRAWN	REVIEWED	APPROVED	SCALE	DWG. NO.
VAA220232.00	03/01/2023	02/06/2023	CM	CT	EB	EN	1" = 80'	1 OF 1

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COMMONWEALTH of VIRGINIA
DEPARTMENT OF TRANSPORTATION
87 Deacon Road
Fredericksburg, Virginia 22405

Stephen C. Brich, P.E.
COMMISSIONER

May 24, 2024

County of Stafford
P. O. Box 339
Stafford, VA 22555-0339

Re: Stafford Technology Campus – Rezoning – GDP and TIA – REW 4 - VDOT Comments
RC23154931; Stafford County

Dear Mr. Zuraf:

The Virginia Department of Transportation reviewed the rezoning for the above referenced project and have the following comments:

This submission did not have an updated TIA or Transportation Plan and consisted of mostly changes to the language in the Proffer Statement. There are still outstanding VDOT comments regarding the TIA and Transportation Plan as well as comments that the applicant indicates will be addressed at a later submission, VDOT will be carry these comments throughout the review process for tracking purposes.

VDOT Comments dated May 24, 2024	
VDOT Comment	Applicant's Response to REW 3 Comments
GDP	
1. Please provide a typical section of the Connector Road, including the connection section at Rte. 1 that will be a different width due to tum lanes and the remaining portion of the roadway that appears to be a two-lane road based on the existing conditions of Eskimo Hill Road. **VDOT REW 4 Response: Acknowledged**	The necessary right-of-way and full design will be prepared and submitted to VDOT for review for each segment of the Connector Road in advance of the buildings that it will serve. The road will be designed as a two-lane roadway with accommodation for future widening to four lanes by others and connection to the existing eastern two-lane segment of Eskimo Hill Road.

2. General: All entrances and connections on the new connection road need to meet VDOT Road Design Manual and Access Management standards (spacing, sight distance, etc.). **VDOT REW 4 Response: Acknowledged**	Please see Proffer 26.a.iii. addressing this comment.
Transportation Plan	
3. Sheet 1: The call out for Hospital Center Boulevard restripe eastbound approach need to state "two" through lanes. It currently is called out as one through lane. a. This also needs to be corrected on Sheet 2. **VDOT REW 4 Response: VDOT previously suggested the applicant study a potential mitigation measure to restripe the EB approach to provide dual right turns and a single through lane. We did not specify this as an acceptable mitigation measure as suggested by the applicant, but rather as an option to be investigated. While the applicant's analysis shows that this measure would address some of the deficiencies at the intersection, this change would result in a forecast PM peak hour queue of 2,524 feet for the EB through movement. This indicates the need for both the dual right turns as well as dual through lanes. Simply restriping the approach with dual right turn lanes by taking away a through lane is not an acceptable solution. Alternative mitigation needs to be provided.**	The conversion of the rightmost through lane to a right turn lane was specifically requested by VDOT in an earlier comment The Applicant has proffered this improvement in the event that VDOT and/or the County request it. There are constraints at the corner of Hospital Center Boulevard and Rte. 1 that restrict the ability to add a right turn lane on the outer edge of the existing lanes. Please see the constraints shown on the Transportation Plan submitted with this application. The additional turn lane was proffered as part of the Burns Corner development.

4. General: The comment response sheet as well as the Transportation Plan states a Signal Justification Report and/or an Innovative Intersection design will be submitted for VDOT review. a. When will the SJR be submitted for review? b. When will a Innovative Intersection design be submitted for review? This will need to be reviewed and approved by District Traffic Engineering prior to being sent to VDOT Central Office Innovative Intersection Committee for review and approval. **VDOT REW 4 Response: This comment is being repeated for tracking purposes.**	An SJR including alternative intersection evaluation will be prepared and submitted to VDOT prior to zoning approval.
5. Repeat Comment: This project proposes a realignment of Eskimo Hill Road and a new connection to Rte. 1 (Richmond Highway) across from Sage Lane. There is a portion of this realignment that shows a connection to the existing Eskimo Hill Road that runs north to State Shop Road. This connection on the GDP states "VEPCO Property (Not part of this application)". a. When will this connection be submitted if it is not with this plan? b. NEW Comment: This was not fully addressed by the comment response. On the GDP it looks like there is new pavement/median/alignment of the existing Eskimo Hill Road. It is also called out that a Westbound Right Tum Lane will be constructed but this is not shown on the Transportation Plan or the GDP. How will this be addressed if the VEPCO Property portion of Eskimo Hill Road is not part of this application? **VDOT REW 4 Response: This comment is being repeated for tracking purposes.**	Ongoing discussions are continuing with Dominion, the connection will be proposed with a future public improvement plan and will include authorization from Dominion for disturbance on their property. If the VEPCO parcel is not part of the future improvements, adjustments will be made to the alignment to allow for the connection without encroaching on the VEPCO property.

6. Repeat Comment: General Note: Any improvements determined by the TIA will need to be added to the GDP prior to VDOT approving or signing the GDP. a. NEW Comment: The proffers and call out "as shown on the GDP" in multiple Transportation Proffer sections. Please combine the Transportation Plan and General Development Plan in to oneplan or reference the correct document in the proffers. **VDOT REW 4 Response: Acknowledged.**	Please see the revised Proffer Statement addressing this comment.
Proffers (April 24, 2024)	
7. General: The proffers refer to the GDP: however, most of the roadway improvement are on the Transportation Plan. Combine the two documents or refer to the correct one in the Proffers. **VDOT REW 4 Response: Acknowledged.**	Please see the Proffer Statement addressing this comment.
8. Transportation Improvements Connector Road: Proffer 22.a.iii: Clarify if this proffer is for commercial entrances or private driveways since the design standards are different. **VDOT REW 4 Response: Acknowledged.**	Please see Proffer 26.a.iii. which clarifies that it applies to commercial entrances.
9. Transportation Improvements Connector Road: Proffer 22.a.iv: Will the entire length of the Connector Road be 76' right of way? a. What is the typical section of the Connector Road? **VDOT REW 4 Response: Acknowledged.**	The right-of-way for the Connector Road will be dedicated up to 76', unless the County and VDOT allow less. This will allow for construction of a two-lane roadway and accommodate future widening by others to a four-lane section. Please see revised proffer.
10. Transportation Improvements Eskimo Hill Road: Proffer 22.b.i: This is not shown on the Transportation Plan or the General Development Plan. **VDOT REW 4 Response: Acknowledged.**	A note has been added to the GDP indicating the segment where shoulder improvements would apply if needed.
11. Transportation Improvements Eskimo Hill Road: Proffer 22.b.ii: For clarity, please remove "If requested by the County or VDOT,". **VDOT REW 4 Response: Acknowledged.**	Please see Proffer 26.b.ii. addressing this comment.

12. Transportation Improvements Richmond Highway: Proffer 22.e.ii.1.(b): This needsto be "two" through lanes. Currently, identified as "one". **VDOT REW 4 Response: This comment is being repeated for tracking purposes and is related to Comment 3 above.**	The conversion of the rightmost through lane to a right turn lane was specifically requested by VDOT in an earlier comment The Applicant has proffered this improvement in the event that VDOT and/or the County request it. There are constraints at the corner of Hospital Center Boulevard and Rte. 1 that restrict the ability to add a right turn lane on the outer edge of the existing lanes. Please see the constraints shown on the Transportation Plan submitted with this application. The additional turn lane was proffered as part of the Burns Corner development.
13. Transportation Improvements Richmond Highway: Proffer 22.e.iii.1: Will this tum lane be constructed with the initial site plan or is this a typo (issuance of an occupancy permit for the 1st VPD on the Property)? **VDOT REW 4 Response: Acknowledged.**	Yes, this will be completed prior to the issuance of an occupancy permit for the first building on the Property.
14. Transportation Improvements Richmond Highway: Proffer 22.e.iv: For clarity, please remove "If requested by the County or VDOT,". **VDOT REW 4 Response: Acknowledged.**	Please see Proffer 26.e.iv.addressing this comment.
15. Transportation Improvements Sage Lane: Proffer 22.f: Clarify the reference document as either the GDP or the Transportation Plan. See Comment 7 above. **VDOT REW 4 Response: Acknowledged.**	Please see Proffer 26.f. addressing this comment.
16. Eminent Domain: Proffer 23: This proffer states" In the event the Applicnt is not able to acquire off-site right-of-way and associated easements required in order to provide the improvements described in Proffer 22above, the Applicant shall request the County to acquire the right-of-way and easements by means of its condemnation powers at Applicant's expense." Does Stafford County accept this proffer? **VDOT REW 4 Response: Please provide written correspondence from the County they are in support of this process.**	To our knowledge, Stafford is supportive of this Proffer. This process is completed in other Counties in Virginia.

Impact Statement (April 24, 2024)	
17. Connector Road: a.i: The proffers refer to the GDP: however, most of the roadway improvement are on the Transportation Plan. Combine the two documents or refer to the correct one in the Proffers. **VDOT REW 4 Response: Acknowledged.**	Please see the Impact Statement addressing this comment.
18. Connector Road a.iii: Add "and meet all VDOT Road Design Manual Standards." **VDOT REW 4 Response: Acknowledged.**	Please see the Impact Statement addressing this comment.
19. Eskimo Hill Road: ii: Please remove "If requested by the County or VDOT,". This is being requested during the rezoning process. **VDOT REW 4 Response: Acknowledged.**	Please see the Impact Statement addressing this comment.
20. Connector Road b.iii: The shoulder improvements are not shown on the Transportation Plan or the GDP. Please clearly identify this improvement on the Transportation Plan and/or the GDP with a Note. **VDOT REW 4 Response: Acknowledged.**	Please see the Impact Statement addressing this comment.
21. Connector Road b.iv: This is not shown on the Transportation Plan or GDP. Please clearly identify this improvement on the Transportation Plan and/or the GDP with a Note. **VDOT REW 4 Response: Acknowledged.**	The intent of and conditions for improvements to Eskimo Hill Road have been clarified in Proffer 26.b.iv. As it is unknown if or where an emergency access may be converted to a full access road, it is infeasible to show on the GDP.
22. Connector Road b.iv.1: This is not shown on the Transportation Plan or GDP. Please clearly identify this improvement on the Transportation Plan and/or the GDP with a Note. **VDOT REW 4 Response: Acknowledged.**	The intent of and conditions for improvements to Eskimo Hill Road have been clarified in Proffer 26.b.iv. As it is unknown if or where an emergency access may be converted to a full access road, it is infeasible to show on the GDP.
23. Connector Road b.iv.2: is the intention of this improvement to construct right out only and left out only on the Connector Road from the building sites? Eskimo Hill Road runs generally east/west where there are proposed entrances, not north/south. Please clarify what the intension of this improvement. **VDOT REW 4 Response: Acknowledged.**	The intent is to improve Eskimo Hill Road between the Connector Road and any full access road on the existing north segment of Eskimo Hill Road, and to direct traffic to and from the Connector Road, in the event such access is approved. Proffer 26.b.iv. has been revised for clarity.

24. Richmond Highway e.iv: For clarity, please remove "If requested by the County or VDOT,". **VDOT REW 4 Response: This comment is being repeated for tracking purposes and is related to Comment 3 above.**	This proffer has been revised accordingly.
25. Richmond Highway e.ii. l(b): This needs to indicate "two" through lanes. Currently, identified as "one". **VDOT REW 4 Response: This comment is being repeated for tracking purposes and is related to Comment 3 above.**	The conversion of the rightmost through lane to a right turn lane was specifically requested by VDOT in an earlier comment. The Applicant has proffered this improvement in the event that VDOT and/or the County request it. There are constraints at the corner of Hospital Center Boulevard and Rte. 1 that restrict the ability to add a right turn lane on the outer edge of the existing lanes. Please see the constraints shown on the Transportation Plan submitted with this application. The additional turn lane was proffered as part of the Burns Corner development.
26. Richmond Highway e.iii.1-4: When will a Signal Justification Report and/or an Innovative Intersection design will be submitted for VDOT review. a. When will the SJR be submitted for review? When will a Innovative Intersection design be submitted for review? This will need to be reviewed and approved by District Traffic Engineering prior to being sent to VDOT Central Office Innovative Intersection Committee for review and approval. **VDOT REW 4 Response: This comment is being repeated for tracking purposes and is related to Comment 4 above.**	An SJR including alternative intersection evaluation will be prepared and submitted to VDOT prior to zoning approval.
27. Richmond Highway e.iv: For clarity, please remove "If requested by the County or VDOT,". **VDOT REW 4 Response: Acknowledged.**	This proffer has been revised accordingly.

TIA (Dated September 8, 2023)	
An updated operational analysis was not provided to VDOT for review with the third submission. VDOT is unable to determine if the operations are acceptable without an analysis being submitted by the applicant. Additionally, the following comments were not fully addressed by the applicant since the previous submission. **VDOT REW 4 Response: An updated TIA was not provided with submission four.**	No changes to the proffered road improvements or other elements of the traffic analysis have been proposed, so a revised TIA was not prepared for submission.
28. Page 48, Table 7, 2030 Future with development: a. Repeat Comment: US-1 at Hospital Center Blvd i. The previously suggested mitigation by VDOT to restripe the EB approach to provide dual right turns and a single through lane has addressed some of the deficiencies at the intersection. However, this change has resulted in forecast PM peak hour queue of 2,524 feet for the EB through movement. This indicates the need for both the dual right turns as well as dual through lanes. ii. NEW Comment: This has not been addressed. The TIA is still proposing to eliminate one of the through lanes. **VDOT REW 4 Response: Acknowledged.** b. Repeat Comment: US-1 at American Legion/Eskimo Hill i. The PM SB thru/right movement queue is reported in the table as 579 feet. However, the printout in the appendix shows 3,665 feet. This needs to be addressed.	a The conversion of the rightmost through lane to a right turn lane was specifically requested by VDOT in an earlier comment The Applicant has proffered this improvement in the event that VDOT and/or the County request it. There are constraints at the corner of Hospital Center Boulevard and Rte. 1 that restrict the ability to add a right turn lane on the outer edge of the existing lanes. Please see the constraints shown on the Transportation Plan submitted with this application. The additional turn lane was proffered as part of the Burns Corner development. b. Given the heavy through volume on Rte. 1, widening to a six-lane section along the entire corridor is likely the only way to achieve LOS D. Even alternative intersection configurations with left turn conflicts eliminated from the intersection box do not restore LOS D and short queues at the Hospital Center Boulevard intersection. Such

ii. NEW Comment: Applicant provided an explanation for the increased queue but offered no solution. Please provide a solution. **VDOT REW 4 Response: A solution has not been provided by the Applicant.** c. Repeat Comment: US-1 at Sage Lane i. The intersection is modeled with a SB through right lane with a 765 foot downstream receiving/merge lane. The existing downstream merge lane is only 225 feet. For the third lane to actually provide significant operational value, the receiving lane must be lengthened in the field. This is not reflected in the static SYNCRHO model that does not account for driver lane changing behavior. ii. Comment: This comment was deferred to the SJR with the applicant's expectation that the recommended improvement for the intersection will provide satisfactory operations. A SJR and/or an Innovative Intersection design has not been submitted to VDOT for review at this time. iii. Route 1 is on the arterial preservation network which requires a signal justification report to be completed in accordance with TE-387. This analysis must consider alternative intersection treatments. In this case, the applicant may omit roundabout consideration as that would not be considered a viable option for this location. A potential viable option may be a "through-cut" that eliminates the crossing through movements and operates the right turns under yield control so that the	a regional improvement is obviously outside the scope of any individual development projects regardless of size. c. An SJR including alternative intersection evaluation will be prepared and submitted to VDOT prior to zoning approval.

minor street movements would require only a single phase. This would require construction of a second exit lane/right tum channelization from Sage Lane. Other alternatives identified by the applicant will be considered. The SJR will need to be approved by the Innovative Intersection Committee after District approval of the TIA. iv. Comment: The submission of a SJR and/or Innovative Intersection design is a condition of approval for this plan. The plan will not be approve by VDOT prior to the submission of a SJR and/or Innovative Intersection design. **VDOT REW 4 Response: The intersection is modeled with a SB through right lane with a 765 foot downstream receiving/merge lane. The existing downstream merge lane is only 225 feet. For the third lane to provide significant operational value, the receiving lane must be lengthened in the field. This is not reflected on the Transportation Plan. The applicant also needs to provide a SYNCHRO/SimTraffic model demonstrating this lane is long enough both before and after the intersection such that it would actually be used by through traffic. The proposed improvement exiting Sage Lane needs to accommodate entering and exiting tractor trailer trucks. The Transportation Plan calls for the County or VDOT to obtain needed right-of-way. The applicant should reference the Proffers that provide more detailed conditions for right-of-way acquisition.**	

29. Page 49, Table 7, Future with development: a. US-1 at Centerport Parkway i. The mitigated analysis shows significant increases to queuing in the AM and PM peak hours for various movements. The applicant needs to provide additional mitigation to address these impacts. ii. NEW Comment: Please provide an analysis of the proposed improvement to demonstrate its acceptability. **VDOT REW 4 Response: The mitigated analysis shows significant increases to queuing in the AM and PM peak hours for various movements. The applicant has indicated that six-laning of Route 1 is needed to provide acceptable operations and that is beyond the scope of this development project. However, it appears that a third through lane can be added through the Centerport Parkway and Enon Road intersections southbound by providing a southbound right turn lane at Enon Road and converting the existing trap right turn lane to a through lane. There is adequate receiving pavement south of Enon Road to accept/merge this additional through lane.**	Given the heavy through volume on Rte. 1, widening to a six-lane section along the entire corridor is likely the only way to achieve LOS D and short queues. Such a regional improvement is obviously outside the scope of any individual development projects regardless of size.
30. Repeat Comment (Advisory for County): Page 54, Planning Scenario: The intent of this analysis was to demonstrate improvements needed to meet the requirement of no degradation of failing operations for those situations where the applicant is not proposing to provide full mitigation. This would allow the County to determine whether or not they wish to require the applicant to complete these additional improvements or make an equitable monetary contribution toward future improvements. However, the County could still consider the improvements identified by the applicant for the presented LOS D scenario. **VDOT REW 4 Response: This comment is being repeated for tracking purposes.**	It is acknowledged that the County will determine whether they wish to require additional improvements to achieve LOS D conditions.

31. VDOT REW 4 Comment: Centerport Parkway at I-95 NB ramps: **a. The applicant suggests signal timing adjustments as mitigation for operations. To assess true project impacts, signal timing adjustments must be applied to the no build condition to optimize that operation since VDOT will have already made adjustments as necessary over the course of time. These adjustments should be treated the same as geometric improvements that may be completed by others. Once this comparison is made, need for mitigation due to project traffic can be determined.**	

If further information is desired, please call Tom Washington at (540) 944-8684 or email at Thomas.Washington@vdot.virginia.gov.

Sincerely,

Carolyn Oster

Carolyn Oster, P.E.
Asst. Resident Engineer-Land Use
Fredericksburg Residency

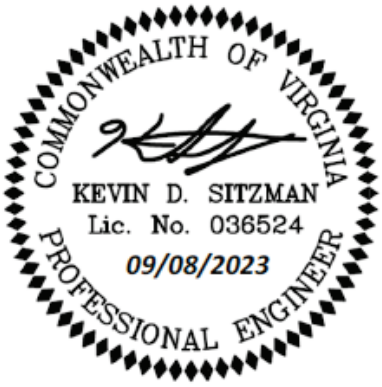
CC: Bohler & Gorove Slade

Traffic Impact Study

Stafford Technology Campus

Stafford County, Virginia

April 21, 2023
Revised September 8, 2023



Prepared for:

Peterson Companies

12500 Fair Lakes Circle

Fairfax, Virginia 22033

GOROVE SLADE
Transportation Planners and Engineers

Prepared by:

GOROVE SLADE
Transportation Planners and Engineers

1140 Connecticut Ave NW	4114 Legato Road	225 Reinekers Lane	4951 Lake Brook Drive
Suite 1010	Suite 650	Suite 750	Suite 250
Washington, DC 20036	Fairfax, VA 22033	Alexandria, VA 22314	Glen Allen, VA 23060
T 202.296.8625	T 703.787.9595	T 703.721.3044	T 804.362.0578

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Executive Summary

This report presents the findings of a Traffic Impact Study (TIS) conducted for the proposed Stafford Technology Campus development (the "Site", "Development" or "Property") situated in Stafford County, Virginia.

This study was developed in accordance with the Virginia Department of Transportation ("VDOT") and Stafford County (the "County") transportation impact analysis guidelines. The document was prepared in accordance with best professional practices and standards that assess the impact of a proposed development on the transportation system. Traffic operational analyses, as presented in this TIS, involve the evaluation of anticipated roadway conditions with and without the proposed development. The analysis assists public officials and developers to balance the interrelations between efficient traffic movements with necessary lane access.

Site Location and Study Area

The Development is proposed to be located along both sides of Eskimo Hill Road (Route 628), east of US Route 1 (Richmond Highway), and south of State Shop Road. The vehicular study area includes eight existing and eight future intersections, for a total of sixteen intersections along US Route 1, Centreport Parkway, and a new Connector Road from Eskimo Hill Road to Sage Lane.

Description of Proposed Development

The site is currently undeveloped and consists of two parcels of land, fronting Eskimo Hill Road and fronting the east side of US Route 1. The two parcels, totaling approximately 523.84-acres, can be identified as Tax Parcel Numbers: 38-124 and 38-29A (collectively the "Site") or "Property"). The Property is currently zoned as A-1 Agricultural.

The Applicant is proposing to rezone the parcels from A-1 to M-1 Light Industrial in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be complete and in operation by 2030.

This report analyzes the trips generated by the Stafford Technology Campus development and its impact on traffic operations on the surrounding road network.

Principal Findings and Conclusions

Discussions regarding the study assumptions and relevant background information were held with VDOT and County staff during January 2023 and again on March 2023. The scope details the study assumptions and relevant background information discussed. A copy of the signed scoping document is included in Appendix A. This revised study is based on comments received from the County and VDOT dated May 31, 2023.

The analysis contained herein presents the 2023 Existing Conditions, 2030 Future Conditions without Development, and 2030 Future Conditions with Development:

The analysis presented in this report supports the following assumptions and major findings:

Analysis Components

- 2023 existing volumes were derived via turning movement counts collected at intersections within the study area in October 2021, June 2022, and February 2023. Turning movement counts conducted prior to 2023 were provided directly by VDOT. These traffic counts were then grown to 2023 at a rate of 2.5% (compounded per year) and applied to all movements at the counted existing study intersections to determine 2023 existing conditions.
- As determined based on the discussions and scoping document with VDOT and the County, an inherent regional growth of 2.5% per year was applied to all movements at the existing study intersections for the period between 2023 and 2030 to account for 2030 conditions.
- Six approved background developments in the vicinity of the Site were included in the study.

- The trip generation associated with the Site was based on custom data center rates as approved by VDOT. The Site in total is expected to generate approximately 523 new trips during the AM peak hour, 175 new trips during the PM peak hour, and 4,356 new daily trips on a typical weekday.
- Intersection capacity and queuing analyses were performed for all analysis scenarios at the study area intersections during the weekday morning (AM) and weekday afternoon (PM) peak hours. *Synchro*, version 11, was used to analyze the study intersections with results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) methodology and analysis guidelines provided in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) (version 2). The analysis herein includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.
- The analysis also includes preliminary turn lane warrant assessments for the Site access points along US Route 1 and the Connector Road, respectively.

Infrastructure

- The proposed access plans include the construction of a connector road that was identified on the Stafford County Comprehensive Plan. This Connector Road will extend from Eskimo Hill Road to US Route 1, forming the fourth leg of the US Route 1 at Sage Lane intersection. The Site is anticipated to have six driveway connections along the new Connector Road.

Proposed/Recommended Mitigation

The following roadway improvements are recommended to be implemented with the proposed development in 2030 in order to accommodate future roadway demand due to the changes in traffic patterns and increased vehicular traffic demand along the road network:

- Construct the two lane Connector Roadway from Eskimo Hill to US Route 1 across from Sage Lane
- Study Intersection 1: US Route 1 at Hospital Center Boulevard
    - Restripe the eastbound approach to provide dual left turn lanes, one through lane, and two right turn lanes
    - Modify the existing signal as necessary
- Study Intersection 3: US Route 1 at Sage Lane / Future Full Movement Access #1
    - Install a traffic signal
    - Install a dedicated southbound left turn lane
    - Restripe the southbound right turn lane to provide a shared through / right lane
    - Install a dedicated northbound right turn lane
    - Construct a westbound Connector Road with one shared left / through lane and one right turn lane with appropriate storage and taper.
- Study Intersection 4: US Route 1 at Centreport Parkway
    - Modify signal timings and provide a westbound right turn overlap phase
- Study Intersection 5: I-95 Northbound Ramps at Centreport Parkway
    - Modify signal timings
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

- Construct a channelized right turn lane

- Study Intersection 12: Eskimo Hill Road at Connector Road
  - Construct a westbound right turn lane

- Connector Road at All Site Driveways
  - Construct site driveways with one ingress lane and one egress lane

Analysis Results

2023 Existing Conditions

- Based on the capacity analysis of Existing Conditions, all signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours, except for the following study intersection:
  - Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Based on the capacity analysis of Existing Conditions, three existing study intersections have at least one approach that operates at levels of service (LOS E or F) for at least one peak hour.
- Based on the queueing analysis of Existing Conditions, two existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.

2030 Future Conditions without Development

- Smartscale improvements of eastbound and westbound left turn lanes at Study Intersection 2 (US Route 1 at American Legion Road / Eskimo Hill Road) were included in the analysis.
- Based on the capacity analysis of 2030 Future Conditions without Development, all signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours, except for the following study intersections:
  - Study Intersection 1: US Route 1 at Hospital Center Boulevard
  - Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
  - Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway
- Based on the capacity analysis of 2030 Future Conditions without Development, six existing study intersections are anticipated to have at least one approach that operates at levels of service E of F for at least one peak hour.
- Based on the queueing analysis of 2030 Future Conditions without Development, four existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.

2030 Future Conditions with Development

- The Site is expected to generate approximately 523 net new total trips during the AM peak hour, 175 net new trips during the PM peak hour and 4,356 net new trips during a typical weekday.
- The County's desired level of service is LOS C, while Appendix C of VDOT’s Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.

- Based on the capacity analysis of 2030 Future Conditions with Development and with the recommended mitigations in place, all signalized study intersections are anticipated to operate with similar levels of service, or better, to the 2030 Future Conditions without Development during the AM and PM peak hours.
- Based on the capacity analysis of the 2030 Future Conditions with Development and with the recommended mitigations in place, the approaches of all study intersections anticipated to operate with similar levels of service to the 2030 Future Conditions without Development during the AM and PM peak hours.
- Based on the queuing analysis performed for the 2030 Future Conditions with Development four existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.
- As listed previously, improvements are proposed to mitigate the transportation impacts of this project.

Overall Conclusion

The Applicant is proposing to construct up to 5.808 million square feet of data center uses. In order to offset the additional traffic volumes generated by the Site, the Applicant is proposing improvements in the study area to mitigate traffic impacts. Based on the capacity and queueing analysis results, the proposed development will not have a substantial impact to the surrounding transportation and roadway network under 2030 conditions, assuming that all planned designs and recommended mitigation measures discussed in this report are implemented.

Introduction

This report presents the findings of a Traffic Impact Study ("TIS") for the proposed Stafford Technology Campus (the Site / the Development / the Property), situated along Eskimo Hill Road, south of State Shop Road and east of US Route 1 in Stafford County, Virginia.

The site is currently undeveloped and consists of two parcels of land, fronting Eskimo Hill Road and fronting the east side of US Route 1. The two parcels, totaling approximately 523.84-acres, can be identified as Tax Parcel Numbers: 38-124 and 38-29A (collectively the "Site") or "Property"). The Property is currently zoned as A-1 Agricultural.

The Applicant is proposing to rezone the Property from A-1 to M-1 Light Industrial in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be complete and in operation by 2030.

The proposed access plan includes the construction of a connector road that was identified on the Stafford County Comprehensive Plan. This Connector Road will extend from Eskimo Hill Road to US Route 1, forming the fourth leg of the US Route 1 at Sage Lane intersection. The Site is anticipated to have six driveway connections along the new Connector Road. The following tasks were completed as part of this study effort:

- A scoping meeting was held on Monday, March 20, 2023 with the Virginia Department of Transportation (VDOT) and Stafford County (the County) staff to discuss the parameters of this study as well as any relevant background information. A copy of the scoping document is included in Appendix A.
- Existing conditions were observed in the field to verify roadway geometry, pedestrian and bicycle infrastructure, and traffic flow characteristics.
- Synchro files with signal timings were acquired from VDOT.
- 2023 existing volumes were derived via turning movement counts collected at intersections within the study area in October 2021, June 2022, and February 2023. Turning movement counts conducted prior to 2023 were provided directly by VDOT. These traffic counts were then grown to 2023 at a rate of 2.5% (compounded per year) and applied to all movements at the counted existing study intersections to determine 2023 existing conditions.
- The 2030 Future Conditions without Development scenario was projected based on the existing traffic volumes, an inherent growth to account for regional growth on the roadway network, and conditions related to the six approved background developments.
- Proposed Ste traffic volumes were derived based on data center rates approved by VDOT. Site trips were assigned to the road network based on the agreed upon direction of approach discussed during the aforementioned scoping meeting.
- 2030 Future Conditions with Development scenarios were projected based on the existing traffic volumes, regional growth, conditions related to approved background developments, and the projected trips generated by the proposed development.
- Intersection capacity and queueing analyses were performed for the identified study intersections for the 2023 Existing Conditions, 2030 Future Conditions without Development, and 2030 Future Conditions with Development scenarios during the weekday morning (AM), and weekday afternoon (PM) peak hours.
- Intersection capacity and queuing analyses were performed using *Synchro*, version 11, with LOS and delay results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) 6 methodology and in following VDOT's Traffic Operations and Safety Manual (TOSAM) (version 2).
- *SimTraffic,* version 11, was utilized in determining the maximum queue lengths in accordance with *SimTraffic* parameters and analysis guidelines provided in VDOT's TOSAM as well.

- Preliminary turn lane warrant assessments were conducted for the Site access points along the Connector Road.

Sources of data for this study include VDOT, the County, and the office files and field reconnaissance efforts of Gorove Slade.

Background Information: Proposed Development (Site & Nearby)

Description of the Existing Site

Site Location

The Site is located along both sides of Eskimo Hill Road (Route 628), east of US Route 1 (Richmond Highway), and south of State Shop Road. An aerial of the study vicinity is provided in **Figure 1**.

A description of the proposed Development is provided in the *Introduction* section of this report.

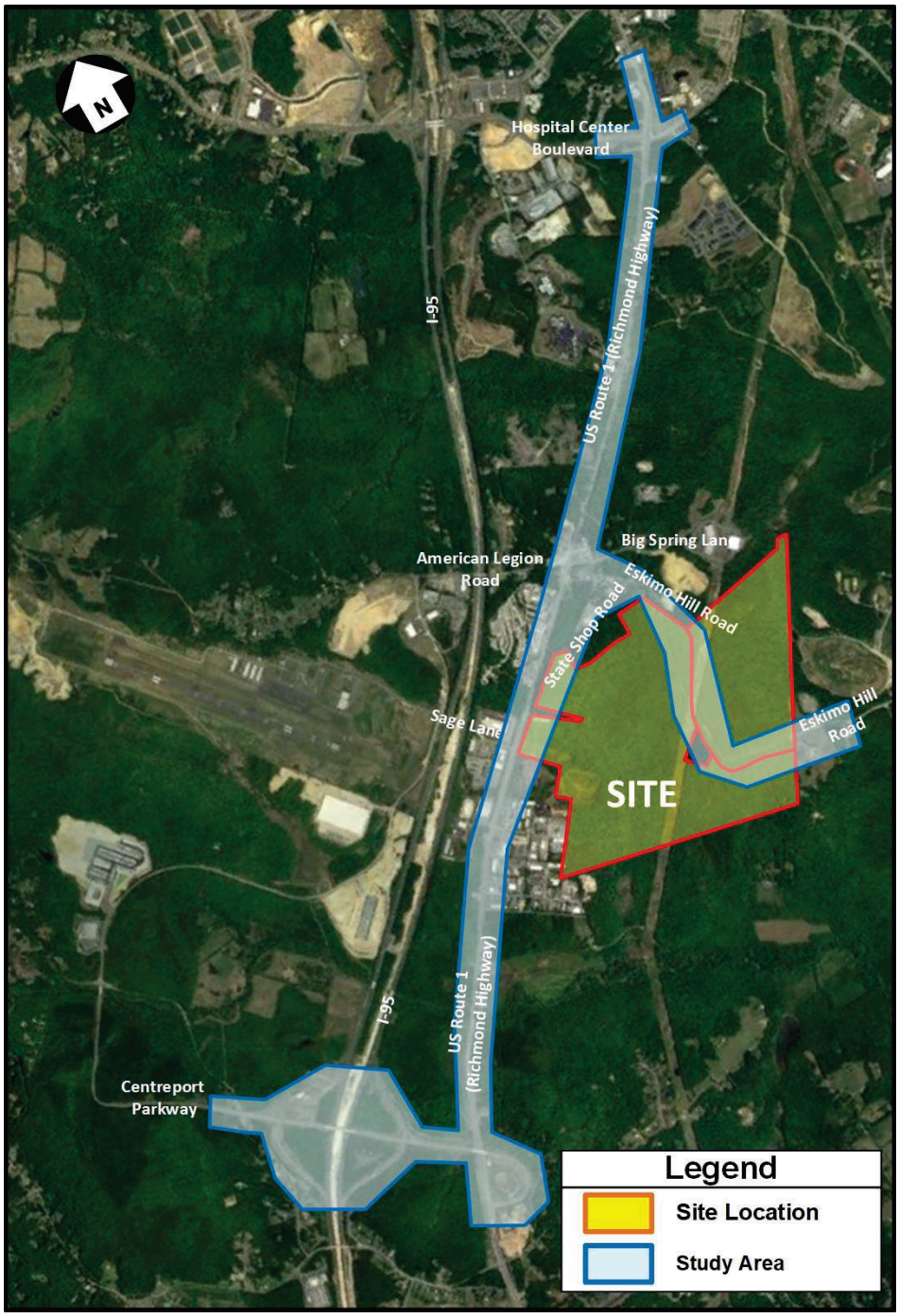

Figure 1: Site Location and Study Area

Location within Jurisdiction and Region

The Site is located to the northeast of the Interstate 95 at US Route 17 (Warrenton Road) interchange, generally east of the Stafford Regional Airport, and generally north of the City of Fredericksburg. A regional aerial of the Site is provided in **Figure 2.**

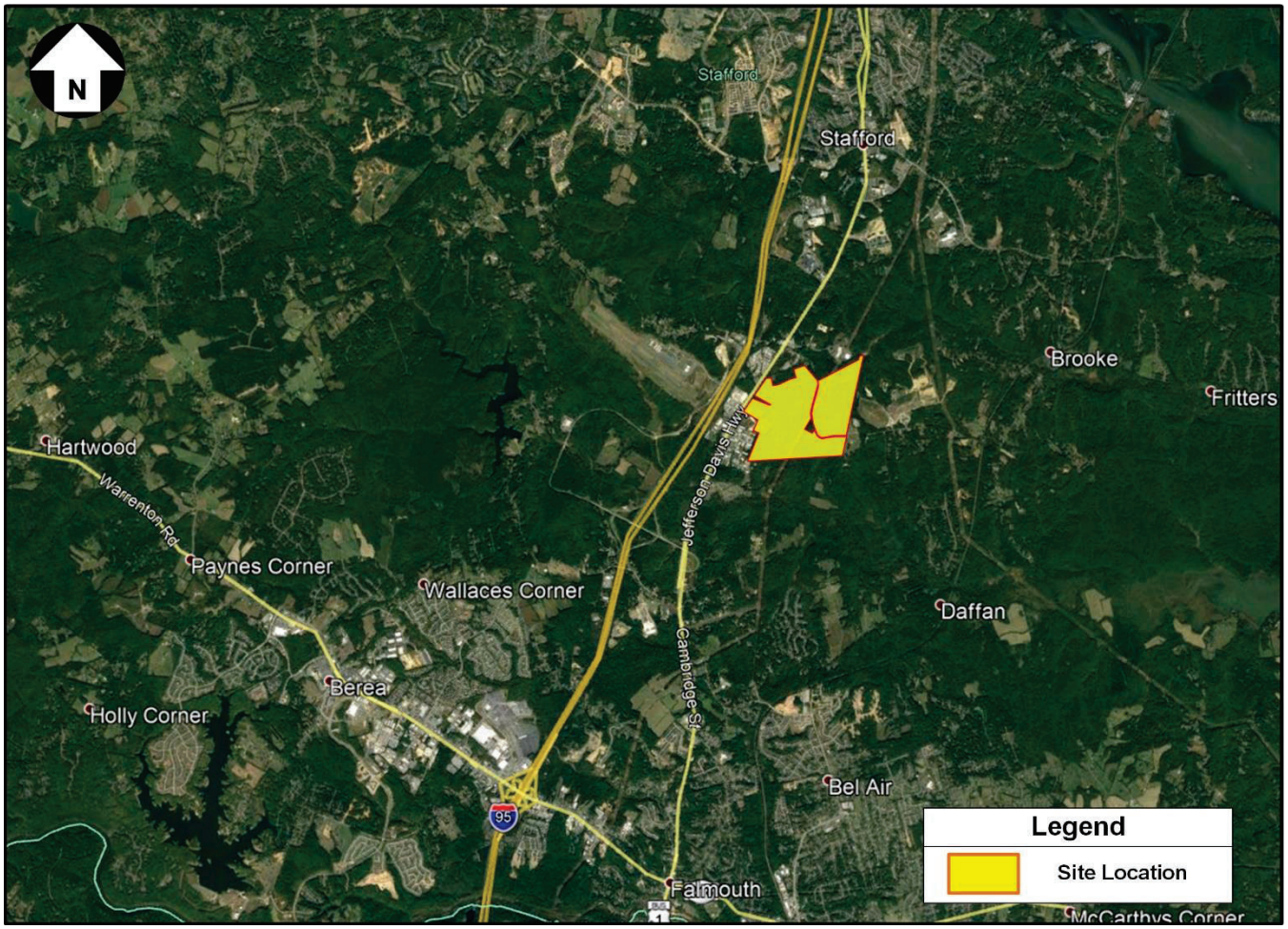

Figure 2: Regional Location

Description of the Parcel

The Site consists of two parcels of land, totaling approximately 523.84 acres. These parcels (which are generally vacant) can be identified as Tax Map Numbers 38-124 (consisting of approximately 496.71 acres of land) and 38-29A (consisting of approximately 27.23 acres of land), as illustrated in **Figure 3.**



Figure 3: Stafford County GIS Parcel Map
(Parcels source: Stafford County GIS, https://gismapping.stafford.va.us/)

Existing Zoning and Future Land-Use

The parcels are currently zoned as A-1 Agricultural. For the future land use, a portion of the Property is located in the Central Stafford Targeted Development Area (TDA) and a portion is located outside of the Urban Service Area. The Applicant is proposing to rezone the Property to M-1 and include the entire Property in the Urban Service Area.

The existing zoning is presented in **Figure 4**; the Stafford County Comp Plan future land use is presented in **Figure 5**.

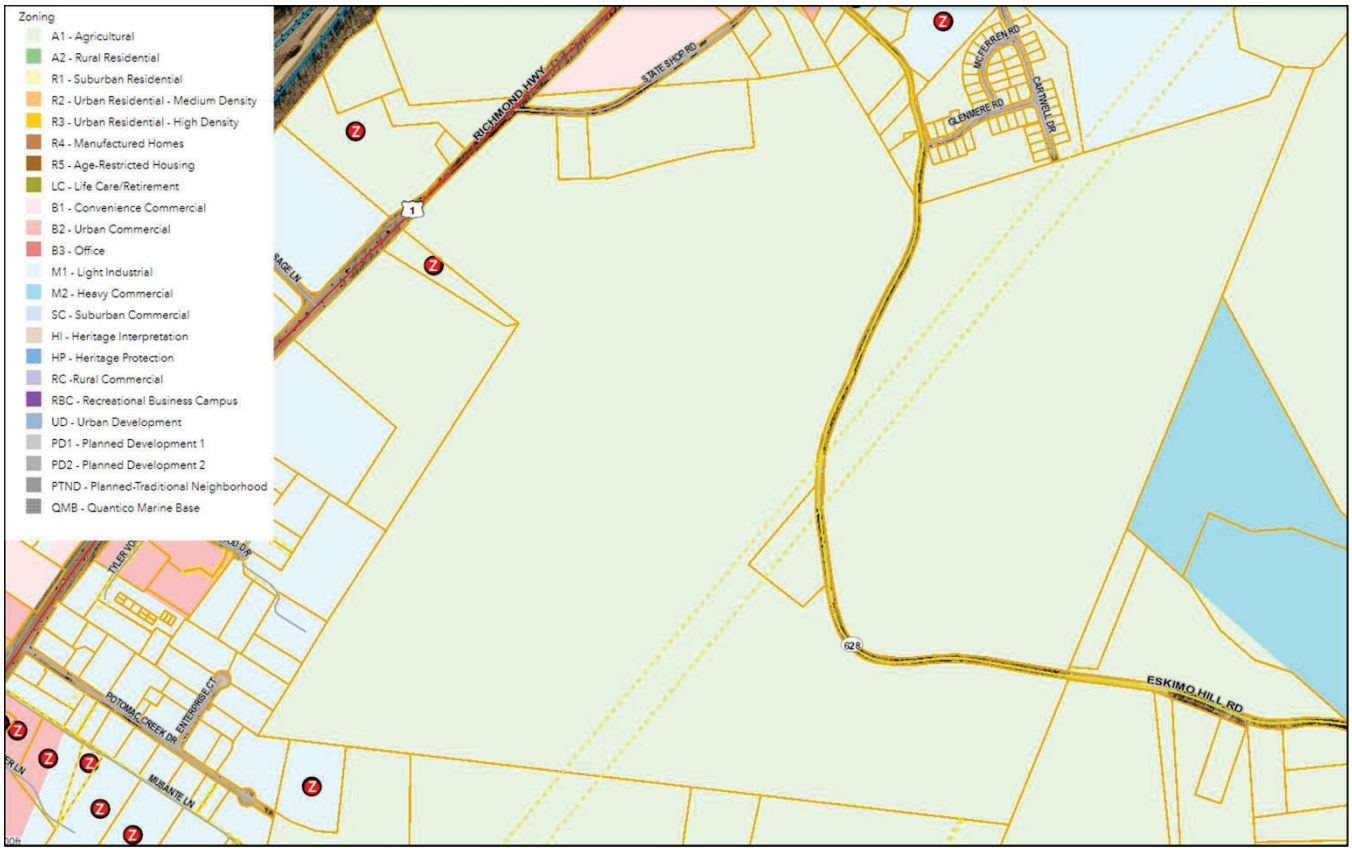

Figure 4: Stafford County Zoning Map
(Zoning Source: https://gismapping.stafford.va.us/)



Figure 5: Central Stafford Targeted Development Area Map
(Comprehensive Plan Zoning Source: https://gismapping.stafford.va.us/)

Descriptions of Geographic Scope of Study and Limits of the Study Area

The Site is situated along Eskimo Hill Road, south of State Shop Road and east of US Route 1. The geographic scope of the study area was developed in accordance with VDOT and County guidance. The vehicular study area includes the eight existing and eight future study intersections.

The existing study intersections are as follows:

Intersection 1: US Route 1 at Hospital Center Boulevard [existing full-movement, signalized],

Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road (Route 628) [existing full-movement, signalized],

Intersection 3: US Route 1 at Sage Lane / Future Access #1 [existing full-movement, unsignalized; fourth leg and traffic signal added under future with development conditions],

Intersection 4: US Route 1 at Centreport Parkway (Route 8900) [existing full-movement, signalized],

Intersection 5: Centreport Parkway (Route 8900) at Interstate 95 (I-95) southbound (NB) ramps [existing full-movement, signalized],

Intersection 6: Centreport Parkway (Route 8900) at I-95 northbound (SB) ramps [existing full-movement, signalized], and

Intersection 7: Eskimo Hill Road (Route 628) at Greenstead Road / Big Spring Road [existing full-movement, unsignalized],

Intersection 8: Eskimo Hill Road (Route 628) at State Shop Road [existing full-movement, unsignalized].

The future study intersections are as follows:

Intersection 9: Connector Road at West Campus Access #1 / West Campus Access #2 [full-movement, unsignalized],

Intersection 10: Connector Road at South Campus Access #1 [full-movement, unsignalized],

Intersection 11: Connector Road at North Campus Access #1 [full-movement, unsignalized],

Intersection 12: Connector Road at Eskimo Hill Road (Route 628) [full-movement, unsignalized],

Intersection 13: Eskimo Hill Road (Route 628) at South Campus Access #2 [full-movement, unsignalized],

Intersection 14: Eskimo Hill Road (Route 628) at North Campus Access #1 [full-movement, unsignalized],

Intersection 15: Eskimo Hill Road (Route 628) at Neighborhood Connector [full-movement, unsignalized],

Intersection 16: Neighborhood Connector at South Campus Access #3 [full-movement, unsignalized].

An aerial of the study intersections is provided in **Figure 6**.

Existing Roadway Network

A description of the major roadways within the immediate vicinity of the Site is presented below in **Table 1.**

Table 1: Summary of Existing Road Network

Roadway	RTE #	VDOT Classification	Stafford Classification	Lanes	Legal/Design Speed Limit (mph)	AADT* (vpd)	Road Segment Between:		k-factor*	HV%*
Centreport Parkway	8900	Major Collector	Major Collector	2	45	15,000	US 1	I-95	8.8%	4.0%
Eskimo Hill Road	628	Major Collector	Major Collector	2	25 / 40	2,900	US 1	Southern View Drive	12.2%	7.0%
I-95 North Ramp	I-95	Interstate Ramp	Interstate Ramp	1	35 (Advisory)	5,600	I-95 N	Centreport Parkway	11.7%	-
I-95 South Ramp	I-95	Interstate Ramp	Interstate Ramp	1	35 (Advisory)	3,800 (South Only)	I-95 S	Ramp Split	9.7%	-
Jefferson Davis Highway	1	Other Principal Arterial	Other Principal Arterial	4	45 / 50	21,000	Cranes Corner	Ramoth/Eskimo	10.8%	2.0%
Jefferson Davis Highway	1	Other Principal Arterial	Other Principal Arterial	4/6	40	18,000	Ramoth/Eskimo	Hope Road	10.6%	2.0%

*Source: VDOT 2019 AADT Traffic Data (http://www.virginiadot.org/info/2019_traffic_data.asp)

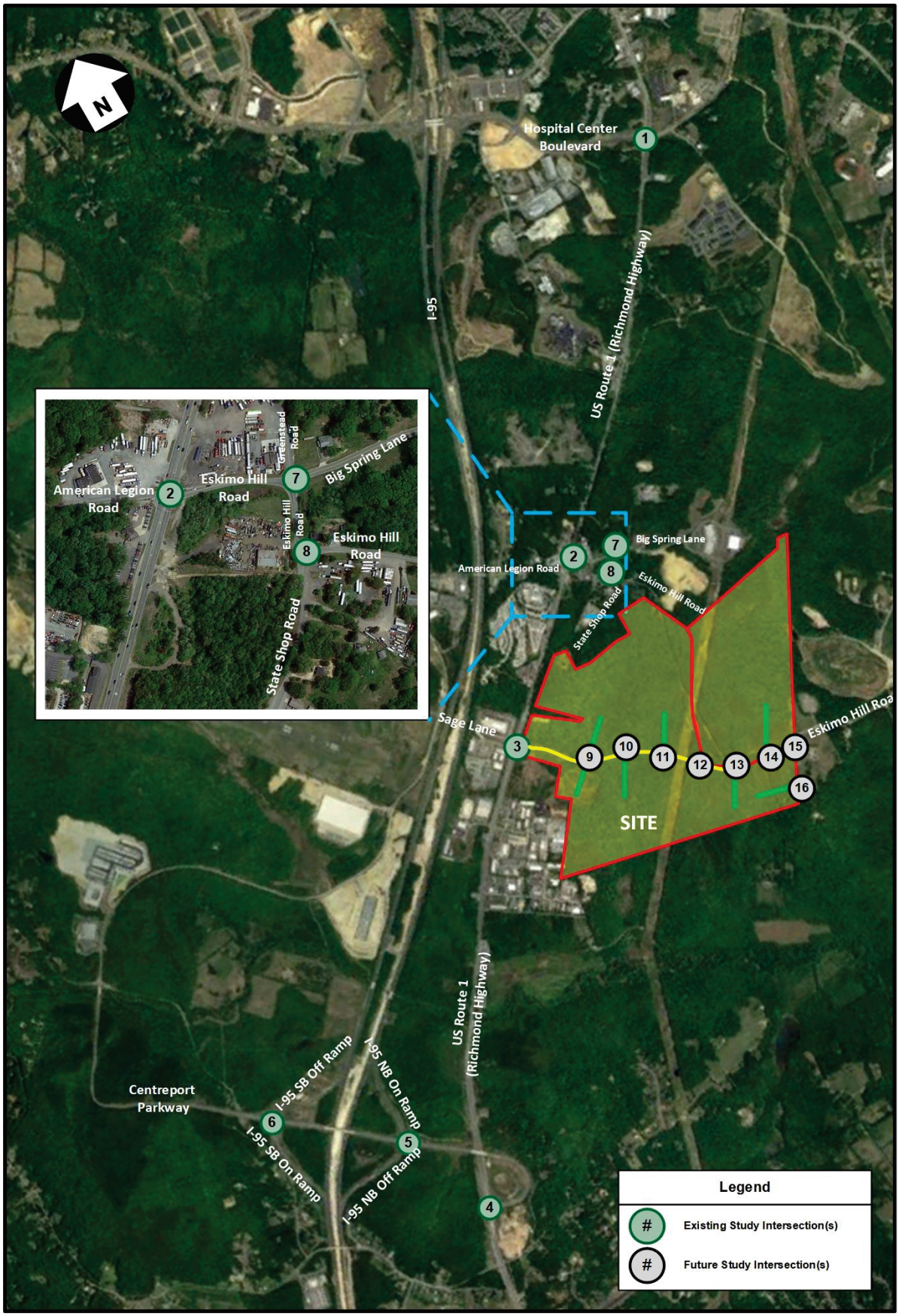

Figure 6: Aerial of Study Intersections

Analysis of 2023 Existing Conditions

2023 Existing Traffic Volumes

In order to determine the weekday morning (AM) and weekday afternoon (PM) peak hour turning movement traffic volumes, turning movement counts (TMC) were collected at intersections within the study area. Turning movement counts were collected in October 2021, June 2022, and February 2023. Turning movement counts conducted prior to 2023 were provided directly by VDOT. These traffic counts were then grown to 2023 at a rate of 2.5% (compounded per year) and applied to all movements at the counted existing study intersections to determine 2023 existing conditions. All referenced turning movement counts are provided in Appendix B.

The turning movement data for the eight existing intersections was utilized as follows:

- The referenced turning movement count was collected at the following study intersection on Thursday, June 16, 2022, from the hours of 7:00 AM to 7:00 PM:
    - Study Intersection 1: US Route 1 at Hospital Center Boulevard
- The referenced turning movement counts were collected at the following study intersections on Thursday, October 7, 2021, mutually from the hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM:
    - Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
    - Study Intersection 4: US Route 1 at Centreport Parkway
    - Study Intersection 5: Centreport Parkway at I-95 NB Ramps
    - Study Intersection 6: Centreport Parkway at I-95 SB Ramps
- The referenced turning movement counts were collected at the following study intersections on Wednesday, February 1, 2023, mutually from the hours of 6:00 AM to 9:00 AM and 4:00 PM to 7:00 PM:
    - Study Intersection 3: US Route 1 at Sage Lane
    - Study Intersection 7: Eskimo Hill Road at Greenstead Road / Big Spring Lane
    - Study Intersection 8: Eskimo Hill Road at State Shop Road
- From the turning movement counts, the following system peak hours were determined.
    - AM Peak Hour: 7:15 AM to 8:15 AM
    - PM Peak Hour: 4:15 PM to 5:15 PM
- Each peak hour turning movement collected prior to 2023 was grown to 2023 conditions, based on a 2.5% per annum growth rate.
- The volumes were increased and balanced as necessary throughout the network.
- The heavy vehicle percentages (“HV%”) for the existing study intersections, by turning movement, were determined based on the counts collected, or, if unavailable, on VDOT historical data. Similarly, peak hour factors, in the range of 0.85 to 1.00 for existing conditions were also determined based on the counts collected.

The average daily traffic (“ADT”) volumes, depicted in this figure and in subsequent volume graphics, were calculated based on the PM peak hour turning movement volumes and multiplied by the VDOT historical k-factors from 2021. If the historic data was not available for a given roadway or roadway segment, then a k-factor of 0.10 was assumed.

For the purposes of simulation analysis subsequently described in this report, a turning movement count, collected in October 2021, was provided by VDOT at the intersection of US Route 1 at Enon Road, during the hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM.

The 2023 existing road network including lane configurations and traffic control is presented in **Figure 7**. The 2023 existing peak hour traffic volumes for the intersections within the study area are illustrated in **Figure 8**.

The raw traffic count data is included in Appendix B.

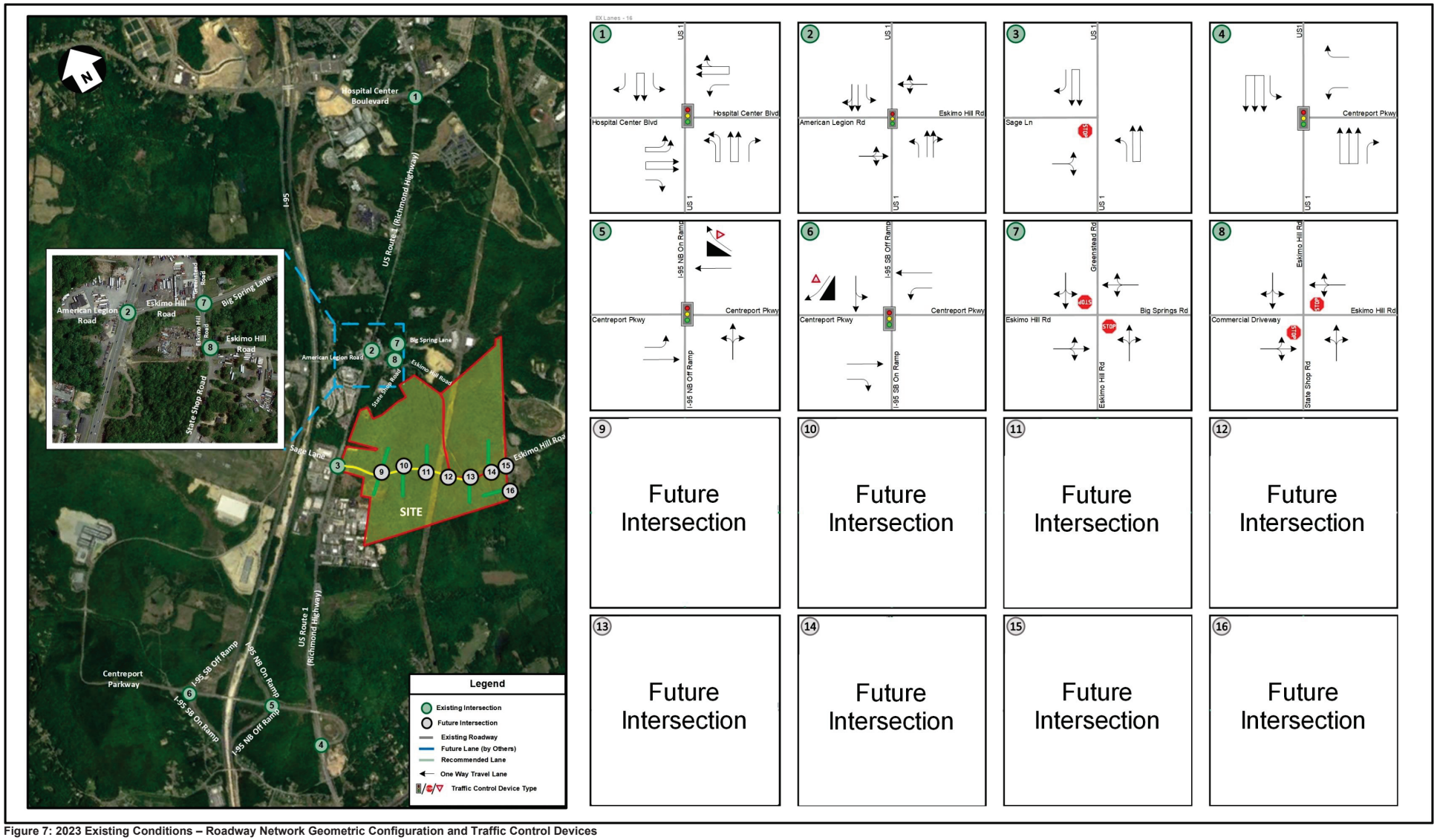

Figure 7: 2023 Existing Conditions – Roadway Network Geometric Configuration and Traffic Control Devices

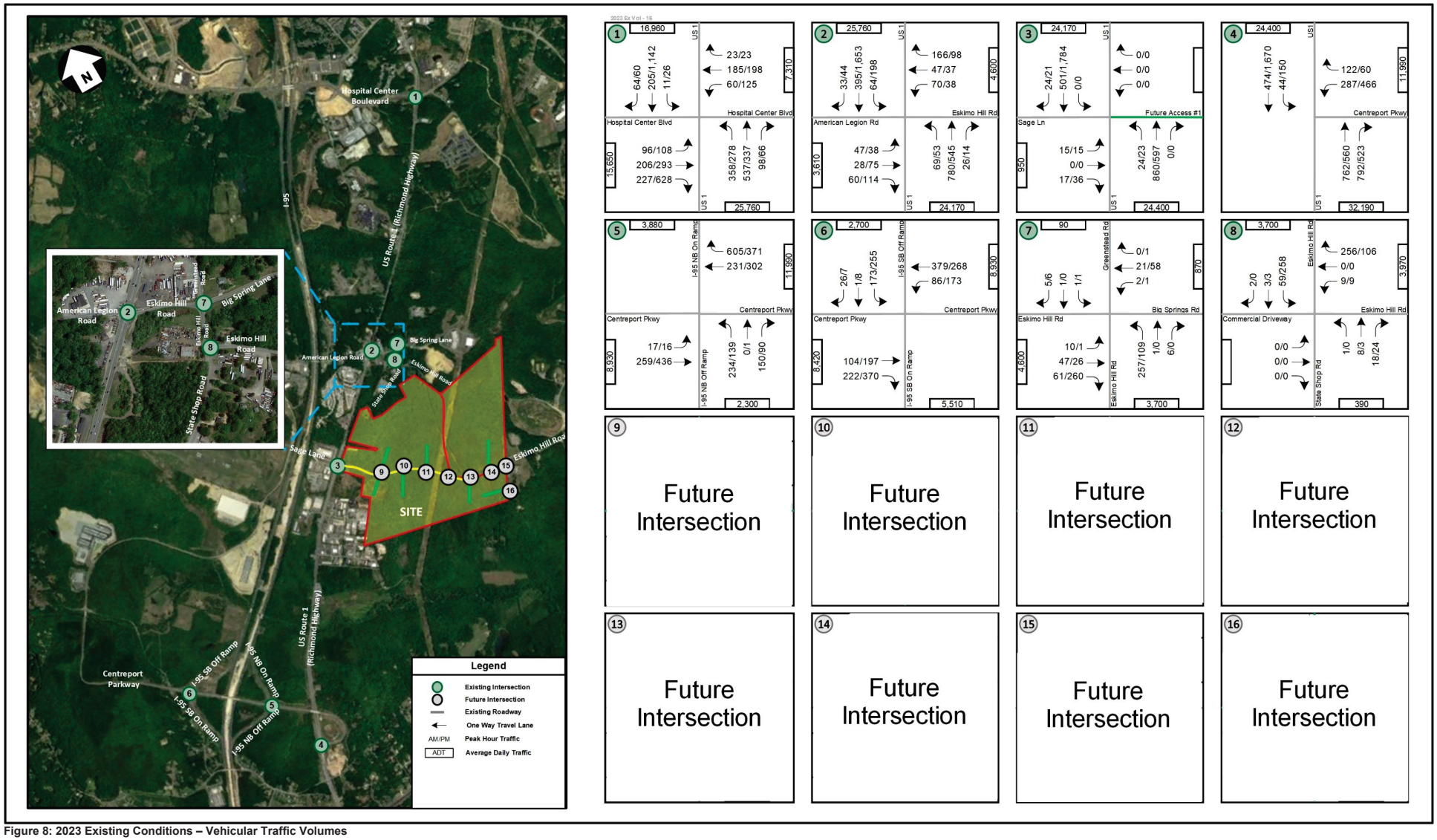

Figure 8: 2023 Existing Conditions – Vehicular Traffic Volumes

Existing Intersection Capacity and Queueing Analysis

Intersection capacity and queuing analyses were performed for the 2023 Existing Conditions scenario at the study area intersections during AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro / SimTraffic,* version 11, was used to analyze the study intersections with results based on the Transportation Research Board's ("TRB") Highway Capacity Manual (HCM) 6th edition methodology[1] and include level of service (LOS), delay, and queue length comparisons for the turning movements analyzed. Lane configurations at study intersections along the road network were field-verified, and the existing traffic volumes discussed in the aforementioned section as well as other relevant data were entered into the analysis models.

Synchro files were obtained from VDOT and were utilized as a base for the analysis models. Traffic operation conditions as well as lane configurations were field verified. The existing traffic volumes discussed in the aforementioned section as well as other relevant data were entered into the analysis models. For the purposes of this analysis, the existing peak hour factors (PHF) utilized in the analysis of existing conditions were based on the 2023 existing volumes and were modeled in the *Synchro / SimTraffic* network on a by-intersection basis. PHF in the range of 0.85 to 1.00 were used for the existing scenario, as agreed to in the scoping document. The heavy vehicle percentages (HV%) utilized per movement were based on the existing traffic counts collected.

The County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. The County has a Non-Degradation Policy which requires applicants to ensure that the transportation system affected by the application performs no worse after the project is developed than it would otherwise The results of the intersection capacity and queuing analyses from *Synchro* are presented in **Table 4** and graphically in **Figure 9**. The results are expressed in LOS and delay (seconds per vehicle) for overall signalized/all-way stop control intersections and per approach and lane group for all study intersections. Any overall signalized intersection or approach that operates at LOS E or F is displayed in red.

The description of different LOS and delay are included in Appendix C. The detailed analysis worksheets of 2023 Existing Conditions are contained in Appendix D.

Intersection Simulation Analysis

As included in the scoping discussions with VDOT and County staff, simulation analysis was conducted for Study Intersections for the AM and PM peak hours under all scenarios to determine the maximum queue lengths.

SimTraffic, version 11, was utilized to run the simulation analysis. The same network files used for the intersection capacity analyses were utilized as input for the *SimTraffic* analyses. Consistent with the parameters and analysis guidelines set forth in VDOT's TOSAM (version 2.0), Error! Reference source not found. below depicts the parameters that were used for the s imulation. Per Section 7.6 of the TOSAM, all other parameters not addressed in the table should not be modified from the default value.

[1] It should be noted that HCM 2000 methodology was used in lieu of HCM 6th if the HCM 6th methodology was not applicable. HCM 6th could not be applicable in such cases as nonstandard National Electrical Manufacturers Association (NEMA) configurations, shared lane configurations, placement of loop detectors, U-turns, etc.

Table 2: SimTraffic Analysis Input Parameters

SimTraffic (Ver. 10) Analysis Input Parameters	
Number of Intervals	One (1) Seeding Interval and Four (4) Recording Intervals
Seeding and Recording Interval Duration	15-minutes (each)
Peak Hour Factor (PHF) Adjustment	Selected "Yes" to One of the Four (1 of 4) Recording Intervals Selected "No" for all Other Intervals
Anti-PHF Adjustment	Selected "Yes" for Three (3) Recording Intervals, where PHF Adjustment is set to "No" Selected "No" for the seeding and recording intervals, where PHF Adjustment is set to "Yes"
Number of Runs	10

For this analysis, a seeding period was necessary. A seeding period ensures that the results obtained are not skewed, as the network is void of any vehicles before seeding. Foregoing seeding would lead to lower travel times and delays for the traffic at the beginning of the simulation. The network reaches a normal state during the seeding period without affecting the results of the simulation.

Table 3 displays the summary of the *SimTraffic* modeling calibration criteria and results in accordance with calibration to throughput volumes only. The *SimTraffic* modeling calibration used in this analysis (see Appendix E) met the calibration acceptance targets in at least 85% of the cases, which is consistent with VDOT's TOSAM guidance.

Table 3: *SimTraffic* Modeling Calibration Criteria and Results

Calibration Criterion [1]	Calibration Target [1]	Results	
		AM Peak	PM Peak
Simulated Traffic Volume			
Within 20% (Flow < 100 veh/h)	>85% of cases	90%	85%
Within 15% (Flow from 100 veh/h to 1000 veh/h)	>85% of cases	100%	97%
Within 10% (Flow from 1000 veh/h to 5000 veh/h)	>85% of cases	100%	100%
Within 500 veh/h (Flow > 5000 veh/h)	>85% of cases	100%	100%

1. Based on VDOT TOSAM Version 2 Criteria

Ten model runs were performed for each scenario analyzed in the study. The results presented in this study are the average results of the ten runs. Hence, the results presented in **Table 4** are the average results of the ten runs for the peak period scenario. The maximum queue results are expressed in feet. The lane groups where the maximum queue length exceeded the available storage are displayed in red.

The detailed analysis worksheets for the Simulation Analysis including the volume-based calibration results are included in Appendix E.

Table 4: 2023 Existing Conditions – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)		**D**	**37.6**		**F**	**222.8**	
	Eastbound Approach		***D***	***41.9***		***F***	***586.4***	
	Eastbound Left	500	E	57.2	133	F	89.3	163
	Eastbound Thru		D	44.2	147	F	146.7	1269
	Eastbound Right		C	33.4	136	F	876.6	1280
	Westbound Approach		***D***	***48.8***		***F***	***112.4***	
	Westbound Left	150	E	62.0	139	F	169.6	150
	Westbound Thru / Right		D	45.1	179	F	80.4	375
	Northbound Approach		***D***	***35.7***		***F***	***94.4***	
	Northbound Left	400	E	71.2	302	F	216.5	375
	Northbound Thru		B	16.6	167	B	10.9	420
	Northbound Right	700	B	11.3	48	A	6.4	50
	Southbound Approach		***C***	***25.4***		***C***	***20.7***	
	Southbound Left	550	E	63.9	46	F	91.9	132
	Southbound Thru		C	25.0	148	B	19.7	510
	Southbound Right	500	C	20.1	60	B	10.2	181
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)		**B**	**18.7**		**C**	**22.5**	
	Eastbound Approach		***C***	***21.2***		***D***	***48.1***	
	Eastbound Left / Thru / Right		C	21.2	150	D	48.1	295
	Westbound Approach		***C***	***25.2***		***D***	***44.7***	
	Westbound Left / Thru / Right		C	25.2	238	D	44.7	226
	Northbound Approach		***B***	***18.4***		***B***	***12.7***	
	Northbound Left	300	B	11.2	126	B	17.9	115
	Northbound Thru / Right		B	19.1	279	B	12.2	270
	Southbound Approach		***B***	***14.8***		***C***	***20.5***	
	Southbound Left	200	B	12.7	78	A	8.7	200
	Southbound Thru / Right		B	15.1	143	C	21.8	418
3	**US Route 1 (N/S) & Sage Lane / Future Access #1 (E/W)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach		***C***	***16.6***		***F***	***110.1***	
	Eastbound Left / Right		C	16.6	51	F	110.1	72
	Northbound Approach							
	Northbound Left	200	A	8.7	36	C	17.9	59
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**B**	**16.1**		**C**	**31.2**	
	Westbound Approach		***F***	***80.7***		***E***	***66.3***	
	Westbound Left		F	90.4	393	E	69.7	566
	Westbound Right	225	E	57.7	64	D	39.9	49
	Northbound Approach		***A***	***1.6***		***C***	***28.6***	
	Northbound Thru		A	0.4	180	D	44.3	407
	Northbound Right	180	A	2.8	132	B	11.9	416
	Southbound Approach		***A***	***8.7***		***C***	***22.6***	
	Southbound Left	345	B	11.7	104	C	22.8	395
	Southbound Thru		A	8.4	0	C	22.6	0

Table 4 (Continued): 2023 Existing Conditions – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W) Overall Intersection: (Signalized)**		**B**	**16.4**		**B**	**13.5**	
	Eastbound Approach		***B***	***10.6***		***A***	***9.0***	
	Eastbound Left	275	B	12.9	42	B	10.5	48
	Eastbound Thru		B	10.4	146	A	8.9	208
	Westbound Approach		***B***	***17.8***		***B***	***15.4***	
	Westbound Thru		B	17.8	156	B	15.4	159
	Westbound Right	200	A	0.0	0	A	0.0	0
	Northbound Approach		***B***	***19.9***		***C***	***20.1***	
	Northbound Left / Thru / Right		B	19.9	213	C	20.1	161
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W) Overall Intersection: (Signalized)**		**B**	**12.9**		**C**	**21.2**	
	Eastbound Approach		***B***	***15.5***		***C***	***23.9***	
	Eastbound Thru		B	13.3	100	B	19.0	178
	Eastbound Right	200	B	16.6	95	C	26.5	157
	Westbound Approach		***A***	***7.5***		***B***	***11.0***	
	Westbound Left	250	A	9.4	96	B	13.2	178
	Westbound Thru		A	7.1	172	A	9.5	195
	Southbound Approach		***C***	***22.5***		***C***	***32.7***	
	Southbound Left / Thru		C	22.5	152	C	32.7	220
	Southbound Right		A	0.0	0	A	0.0	0
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S) Overall Intersection: (TWSC)**							
	Eastbound Approach							
	Eastbound Left		A	7.5	8	A	8.3	5
	Westbound Approach							
	Westbound Left		A	8.0	16	A	9.3	5
	Northbound Approach		***B***	***12.0***		***B***	***11.6***	
	Northbound Left / Thru / Right		B	12.0	106	B	11.6	74
	Southbound Approach		***A***	***9.2***		***B***	***10.0***	
	Southbound Left / Thru / Right		A	9.2	50	B	10.0	64
8	**Eskimo Hill Road (N/E) & State Shop Road (S) Overall Intersection: (TWSC)**							
	Eastbound Approach		***B***	***10.6***		***B***	***14.0***	
	Eastbound Left / Thru / Right		B	10.6	24	B	14.0	24
	Westbound Approach		***B***	***10.0***		***A***	***9.7***	
	Westbound Left / Thru / Right		B	10.0	130	A	9.7	91
	Northbound Approach							
	Northbound Left		A	7.2	0	A	7.2	0
	Southbound Approach							
	Southbound Left		A	7.6	3	A	7.8	4

NOTES:

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] Max queues are based on results from SimTraffic. Per TOSAM guidelines, the queues are based on the average to 10 simulations.

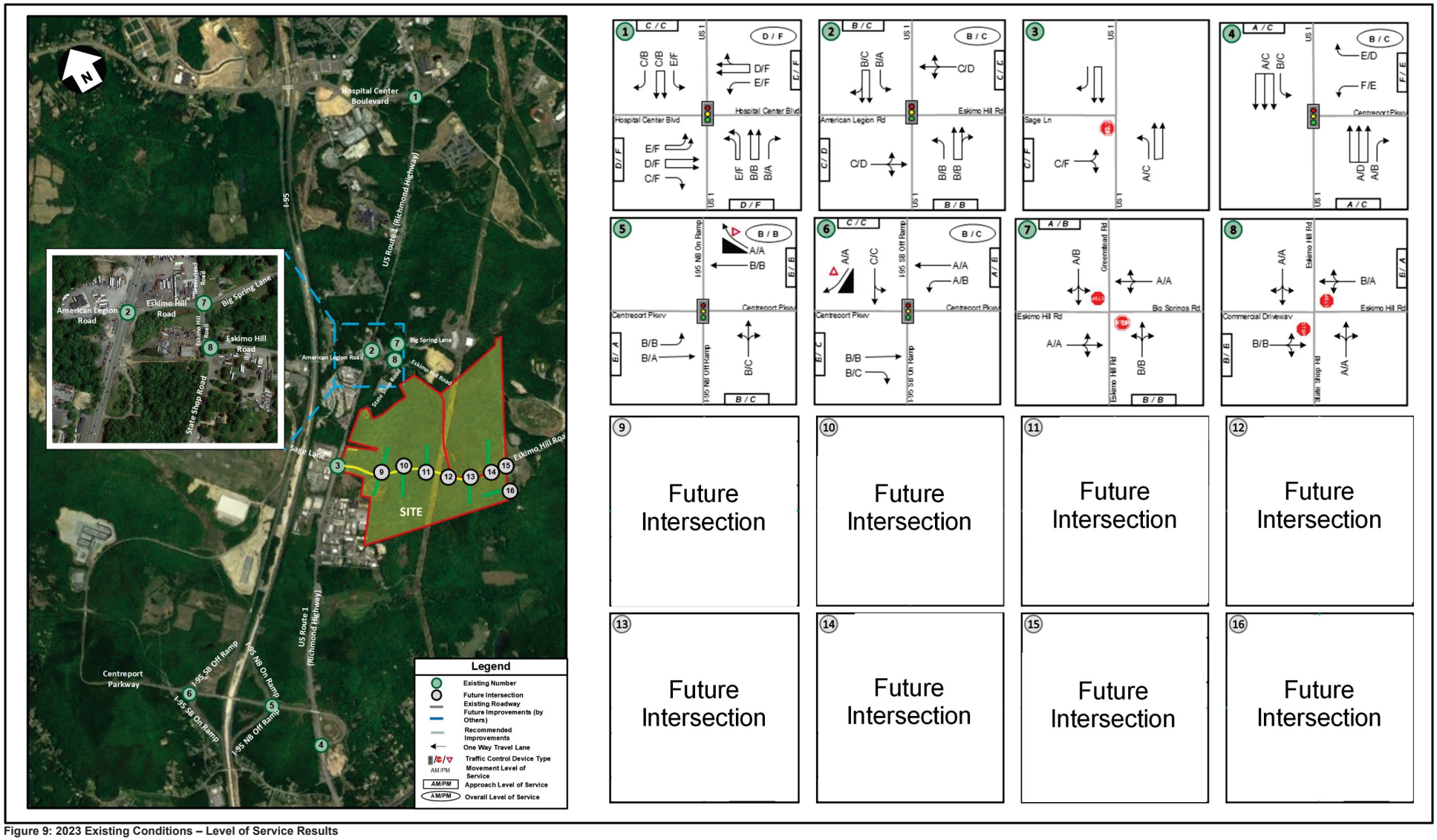

Figure 9: 2023 Existing Conditions – Level of Service Results

Based on the capacity analysis of 2023 Existing Conditions, all signalized study intersections operate at overall levels of service of D or better during both the AM and PM peak hour except for the following study intersection that operates at an overall level of service E of F during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard

Based on the capacity analysis of 2023 Existing Conditions, the approaches of all study intersections operate at approach levels of service of D or better during both the AM and PM peak hours, except for the following study intersections that have at least one approach that operates at levels of service E of F during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 3: US Route 1 at Sage Lane
- Study Intersection 4: US Route 1 at Centreport Parkway

Based on the queuing analysis performed for 2023 Existing Conditions, all turning movements at the study intersections have maximum queue lengths that are accommodated within the available storage lengths of the turn bays, except for the following study intersections which have queue lengths that exceed the available storage length of at least one existing turn bay during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 4: US Route 1 at Centreport Parkway

Analysis of 2026 Future Conditions Without Development

For the purposes of this study, the Development is anticipated to be constructed by 2030; this scenario analyzes the future without development conditions for the year 2030.

Future without Development Traffic Volumes

The derivation of future without development traffic volumes was based on assumptions and parameters discussed with VDOT and the County during the scoping process for this study. The future conditions include anticipated inherent regional growth, the inclusion of any potential background developments in the pipeline around the vicinity of the Site, and any anticipated roadway improvements.

Inherent Regional Growth

The Development is anticipated to be complete in 2030. In order to account for increased demand on the traffic network between 2023 and 2030, an inherent growth rate was applied to the future scenarios. This inherent growth was anticipated to account for regional development within the at-large area, which would ultimately result in increased roadway demand. Furthermore, the inherent growth was anticipated to account for any potential background developments unaccounted for within the vicinity of the study area.

As agreed upon in the scope for this study, to account for 2030 future conditions, an inherent growth rate of 2.5%, compounded annually over a seven-year period, between 2023 to 2030 (and totaling 18.87% growth of the existing volumes) was applied to all movements at the existing study intersections.

The inherent regional growth volumes (for the period between 2023 and 2030) are illustrated in **Figure 10.**

Potential Background Development(s)

In addition to the applied inherent regional growth reflecting increased regional traffic demand, a total of six “background” developments within the vicinity of the Site, with their locations depicted in **Figure 11**, were identified in the meeting with VDOT and Stafford County staff for inclusion in this study. The background developments included are as follows:

1. Centreport Gateway
    - Located along Centreport Parkway, the Centreport Gateway development is anticipated to be a large commercial development.
    - Based on a traffic impact study conducted for the site (titled *CenterPort Gateway Traffic Impact Study*, conducted by JMT, and dated October 2017), it is anticipated that the development would include 60 kSF of shopping center space, an additional 320 kSF of regional destination retail space, and a 90-room hotel. As agreed to in the scoping document, this study anticipated a “Phase 1” portion of the development, consisting of the 60 kSF shopping center space and the hotel.
2. Centreport Industrial
    - Located just north of the Stafford Regional Airport, this site is anticipated to consist of a total of approximately 80 kSF of light industrial uses along Centreport Parkway. Of note, approximately half of the site was recently constructed and was assumed in operation when counts were taken. Given that the counts at the Centreport Parkway and American Legion intersections were taken in October 2021 and therefore are assumed to include this portion of the development already built, only the remaining half of the site, or 40 kSF of light industrial use, was considered a background development.

3. Centreport Village
    - Located on Centreport Parkway in the vicinity of Mountain View Road, the development is anticipated to consist of 494 multifamily homes.
4. Crossroads Industrial
    - Located on US Route 1 between Centreport Parkway and Sage Lane, the development is anticipated to include up to 792,000 square feet of industrial park.
5. Project Ivy (Sycamore Grove)
    - The site is located along Centreport Parkway. There was a previous traffic impact study conducted for the site (titled *Sycamore Grove Traffic Impact Study*, conducted by VETTRA, and dated June 2016). However, the previous study included a mixed-use development. The site has since been updated to consist of 934,000 square feet of high cube (non-sort) warehouse and a 633 space storage lot.
6. The Hills at Big Springs
    - Located on Eskimo Hill Road at Greenstead Road, the development is anticipated to consist of 181 single family homes. The site is currently under construction. Based on a site visit, there is a negligible number of built homes and they do not appear to be occupied. For the purposes of this study, it was assumed that none of the 181 homes are built and occupied.

The combined background developments are expected to generate approximately 975 new trips during the AM peak hour, 1,260 new trips during the PM peak hour, and 15,008 new daily trips on a typical weekday. The assignment of the total combined background trips to the road network is depicted in **Figure 12**. Additional information, including the trips generated and the assignment of trips for each individual background development, and the relevant background traffic impact study excerpts are included in Appendix F.

Potential Roadway Improvement(s)

As discussed during the scoping meeting, there are three roadway improvements within the vicinity of the site that are either fully funded or would be completely constructed by 2030. The three roadway improvements are described below:

- Smartscale project to install a westbound left turn lane and an eastbound left turn lane at the intersection of US Route 1 at American Legion Road / Eskimo Hill Road (Study Intersection 2).
- Smartscale project to modify the side street lane configuration at the intersection of US Route 1 and Enon Road.

Relevant Smartscale excerpts and information are included in Appendix G.

The anticipated 2030 future road network (without the development) is illustrated in **Figure 13.**

Future without Development Traffic Volumes

In order to forecast future roadway traffic volumes for the year 2030, the 2023 existing traffic volumes were combined with the inherent regional growth traffic volumes and background developments' traffic volumes and associated background roadway improvement traffic volumes. The 2030 future conditions without Development traffic volumes are illustrated in **Figure 14.**

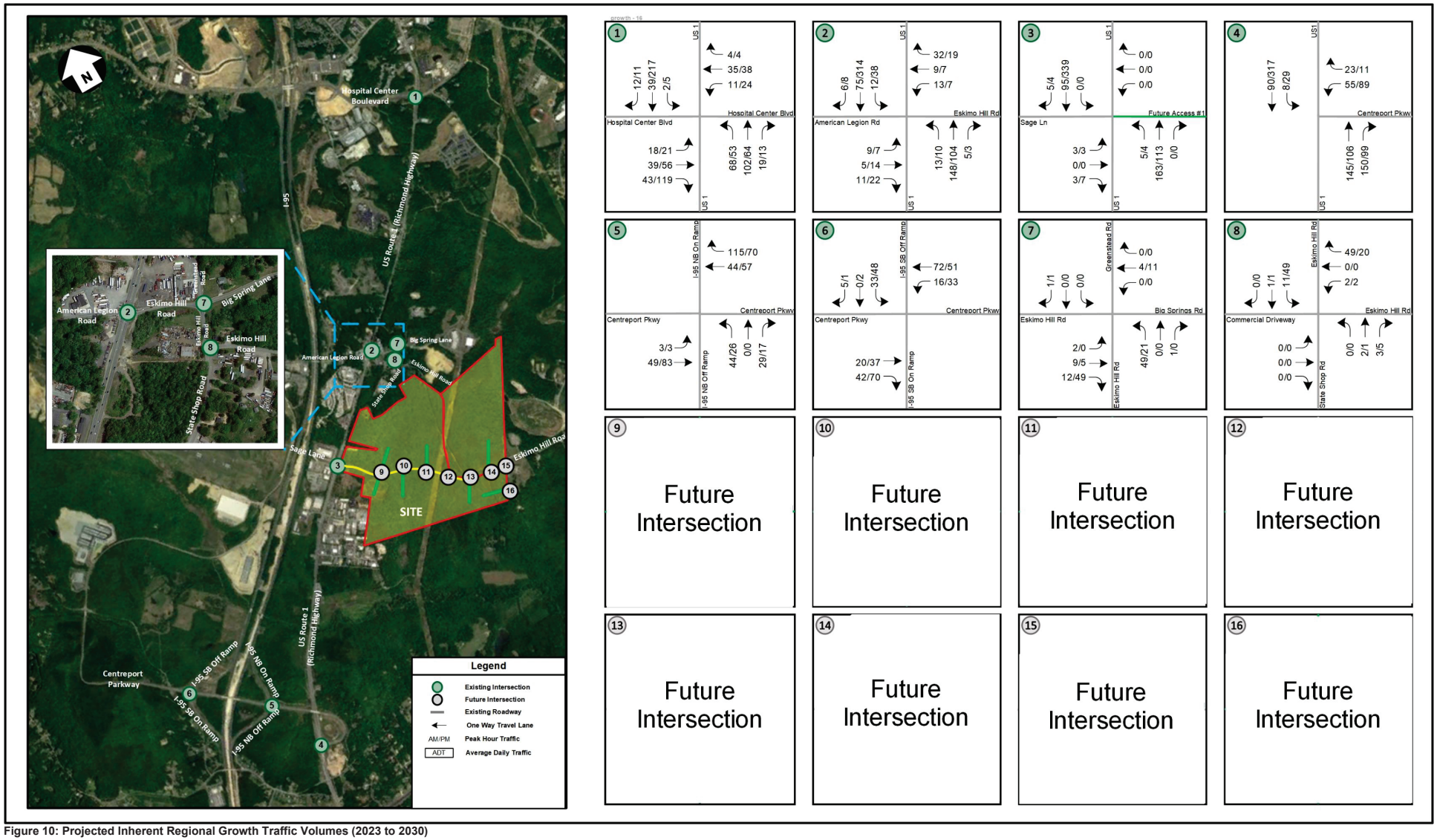

Figure 10: Projected Inherent Regional Growth Traffic Volumes (2023 to 2030)

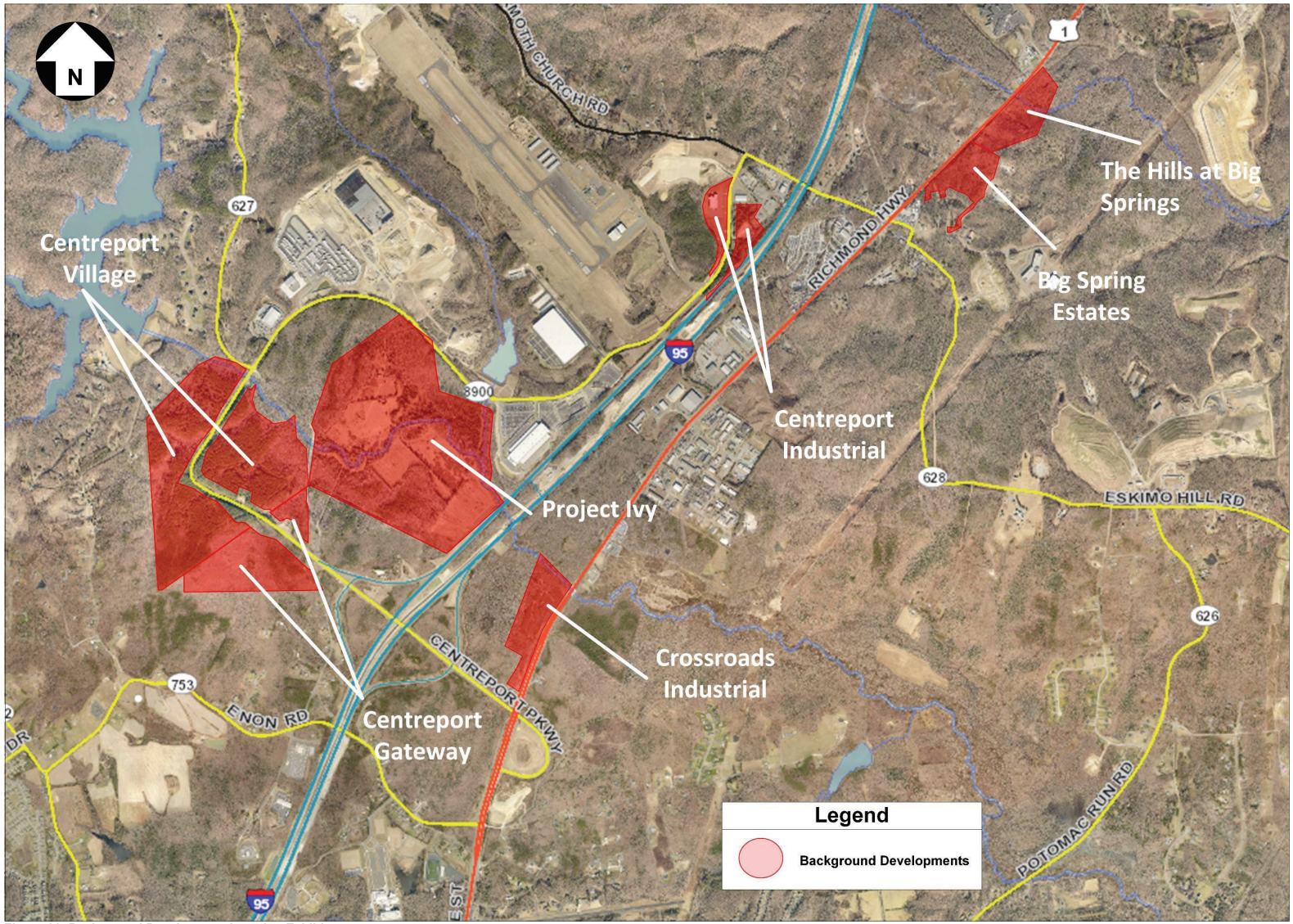

Figure 11: Background Development Location Exhibit

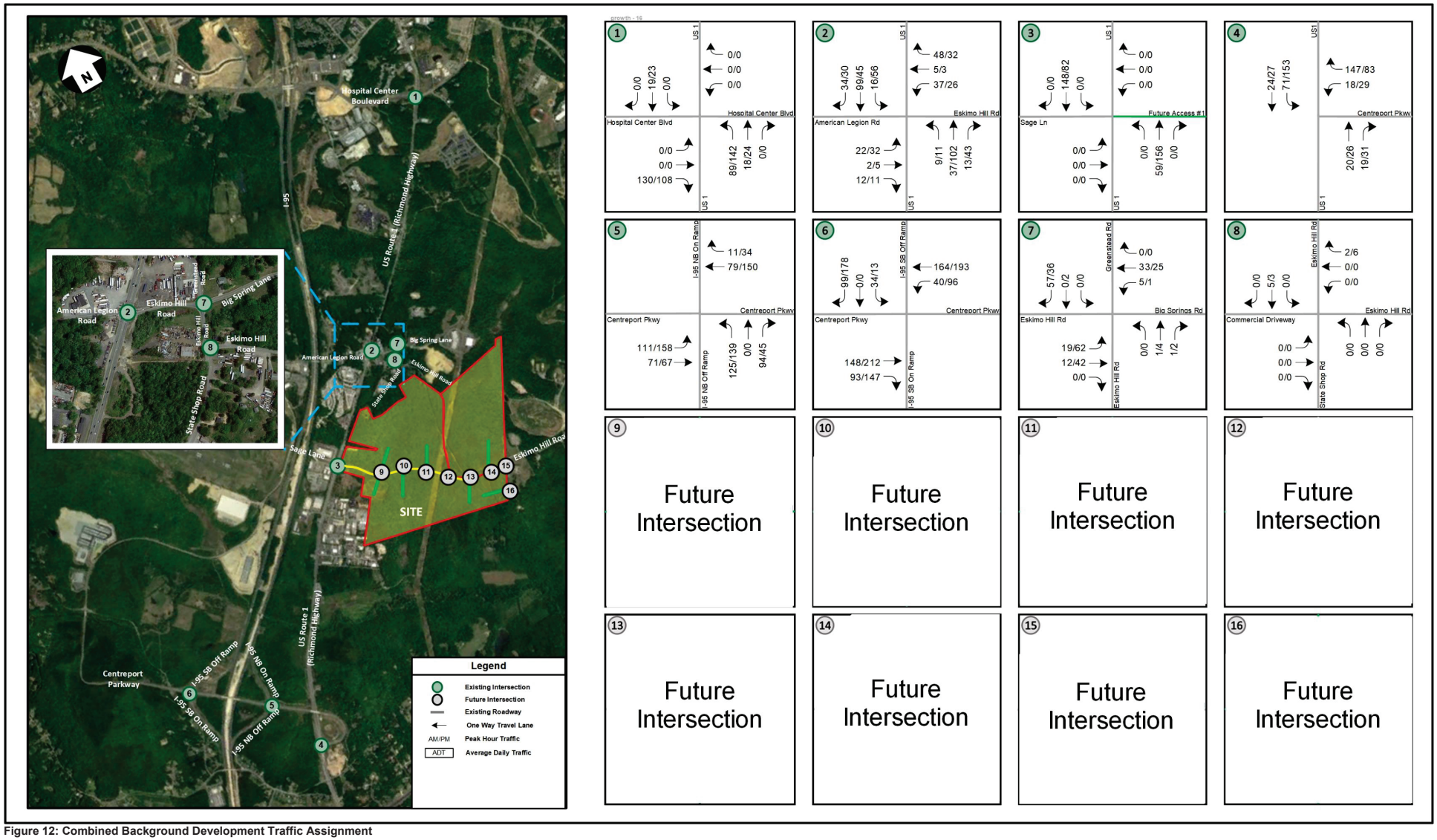

Figure 12: Combined Background Development Traffic Assignment

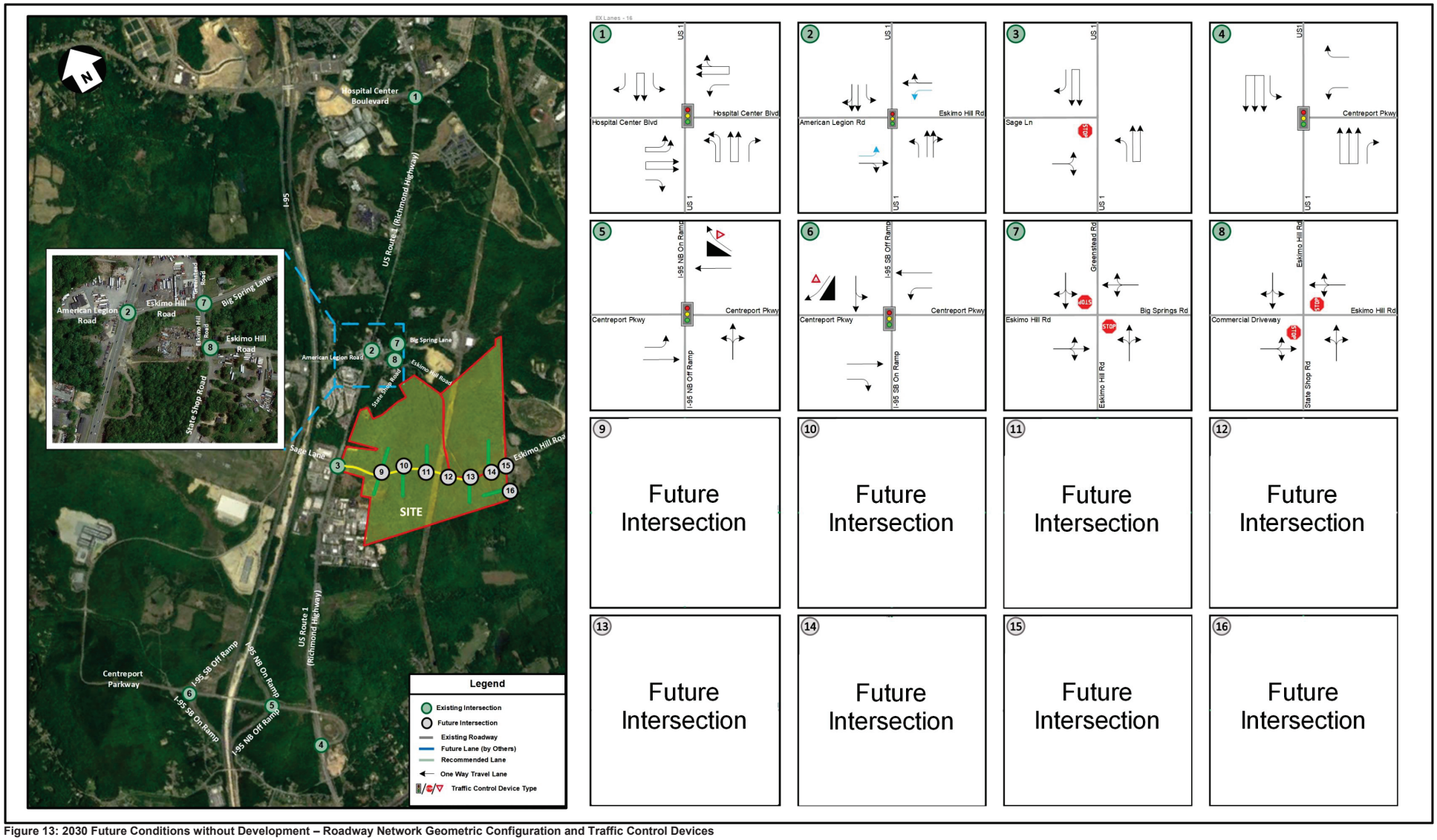

Figure 13: 2030 Future Conditions without Development – Roadway Network Geometric Configuration and Traffic Control Devices

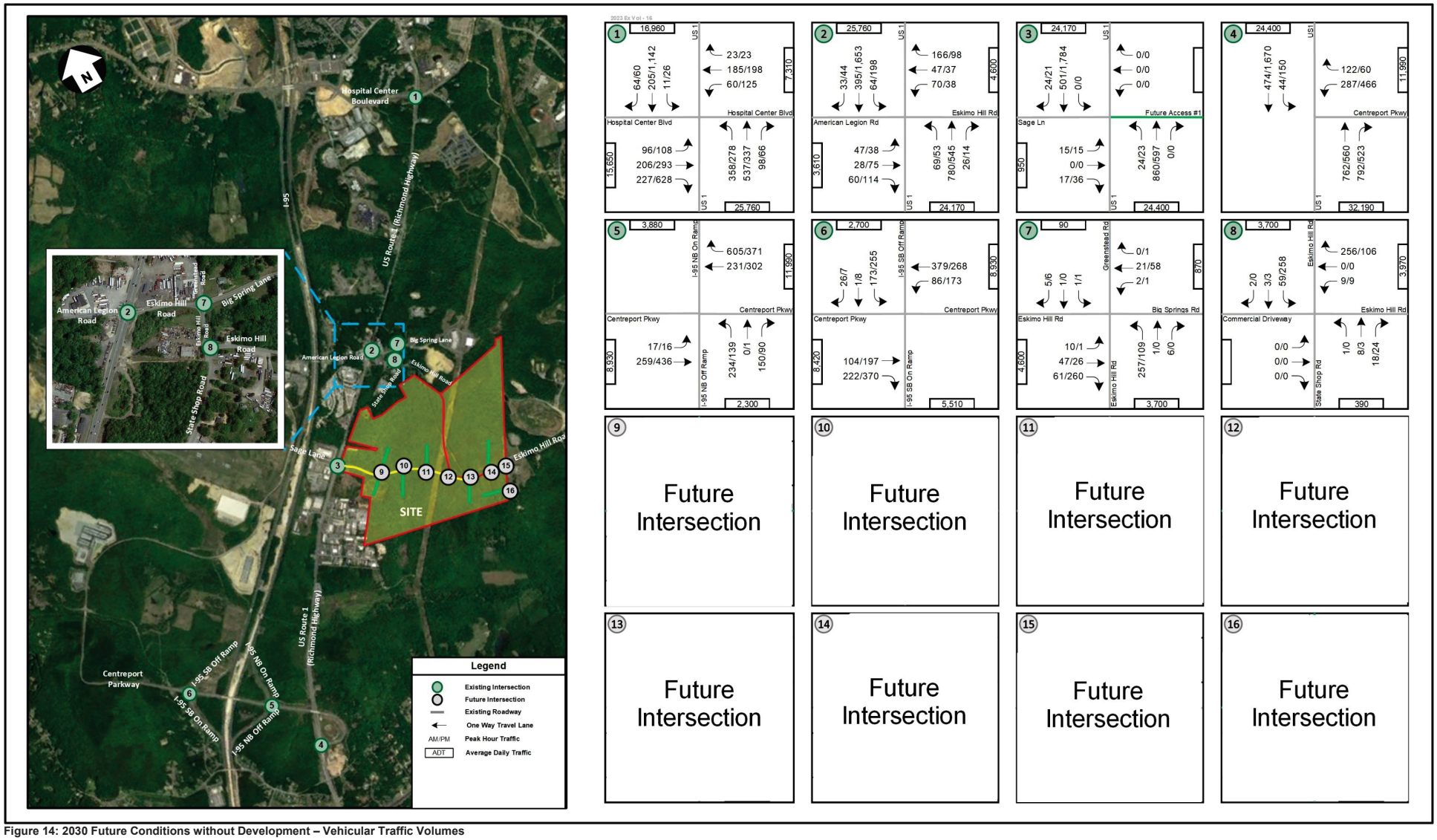

Figure 14: 2030 Future Conditions without Development – Vehicular Traffic Volumes

Future without Development Intersection Capacity and Queuing Analysis

Intersection capacity and queueing analyses were performed for the 2030 Future Conditions without Development scenario at the study area intersections during the AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro / SimTraffic,* version 11, was used to analyze the study intersections with results based on TRB's HCM 6th methodology and include LOS, delay, and queue length comparisons for the turning movements analyzed.

For the purposes of this analysis, the intersection PHF utilized in the analysis of future conditions was determined based on the existing traffic counts, with a minimum of 0.92 as agreed to in the scoping document. The HV% were based on the existing conditions scenario.

Stafford County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. The results of the intersection capacity and queuing analyses from *Synchro / SimTraffic* are presented in **Table 5** and graphically in **Figure 15**. The results are expressed in LOS and delay (seconds per vehicle) for overall signalized intersections and per approach and lane group for all study intersections. Any overall signalized intersection or approach that operates at LOS E or F is displayed in red.

The queue lengths were reported as the maximum queues determined from *SimTraffic* and are expressed in feet. The lane groups where the queue lengths exceeded the available effective storage capacity of existing turn lanes are displayed in red.

The detailed capacity analysis worksheets of the 2030 Future Conditions without Development are contained in Appendix H.

The detailed analysis worksheets for the 2030 Future Conditions without Development simulation analysis are included in Appendix I.

Table 5: 2030 Future Conditions without Development – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)		**E**	**64.0**		**F**	**380.2**	
	Eastbound Approach		***D***	***41.3***		***F***	***916.1***	
	Eastbound Left	500	E	58.3	97	F	92.0	124
	Eastbound Thru		D	38.2	160	F	219.1	2809
	Eastbound Right		D	38.3	189	F	1324.7	2804
	Westbound Approach		***D***	***44.4***		***F***	***145.3***	
	Westbound Left	150	E	64.5	140	F	235.1	299
	Westbound Thru / Right		D	38.7	186	F	95.2	478
	Northbound Approach		***F***	***91.2***		***F***	***289.9***	
	Northbound Left	400	F	196.2	371	F	587.3	400
	Northbound Thru		C	22.4	302	B	11.4	4485
	Northbound Right	700	B	15.2	50	A	6.6	37
	Southbound Approach		***C***	***31.0***		***C***	***23.3***	
	Southbound Left	550	E	63.2	48	F	92.8	101
	Southbound Thru		C	31.1	169	C	22.4	461
	Southbound Right	500	C	25.2	83	A	9.9	95
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)		**C**	**29.2**		**E**	**58.0**	
	Eastbound Approach		***D***	***35.1***		***F***	***130.8***	
	Eastbound Left	200	C	33.3	134	D	50.9	286
	Eastbound Thru / Right		C	36.3	178	D	156.2	487
	Westbound Approach		***D***	***44.7***		***F***	***93.5***	
	Westbound Left	100	C	29.8	259	D	51.5	237
	Westbound Thru / Right		C	50.5	351	D	108.7	323
	Northbound Approach		***C***	***26.7***		***C***	***22.2***	
	Northbound Left	300	B	16.9	83	D	44.6	108
	Northbound Thru / Right		C	27.7	373	C	20.1	326
	Southbound Approach		***C***	***22.2***		***E***	***57.6***	
	Southbound Left	200	C	20.5	130	B	16.3	272
	Southbound Thru / Right		C	22.4	249	F	61.5	521
3	**US Route 1 (N/S) & Sage Lane / Future Access #1 (E/W)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach		***D***	***27.0***		***F***	***$ 710.8***	
	Eastbound Left / Thru / Right		D	27.0	55	F	$ 710.8	113
	Northbound Approach							
	Northbound Left	200	A	9.7	46	D	25.8	72
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**C**	**30.0**		**D**	**43.2**	
	Westbound Approach		***F***	***112.6***		***E***	***61.9***	
	Westbound Left		F	125.5	722	E	68.8	796
	Westbound Right	225	F	96.7	291	D	36.0	135
	Northbound Approach		***A***	***8.8***		***D***	***40.4***	
	Northbound Thru		A	2.4	400	E	60.2	323
	Northbound Right	180	B	15.0	593	B	19.5	444
	Southbound Approach		***B***	***10.7***		***D***	***38.8***	
	Southbound Left	345	B	16.7	309	E	63.0	483
	Southbound Thru		A	9.5	159	C	34.8	505

Table 5: 2030 Future Conditions without Development – Intersection Capacity Analysis Results (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**D**	**42.2**		**C**	**29.5**	
	Eastbound Approach		***C***	***20.3***		***B***	***17.7***	
	Eastbound Left	275	C	23.6	136	C	22.5	274
	Eastbound Thru		B	19.1	238	B	16.2	379
	Westbound Approach		***D***	***35.3***		***C***	***34.5***	
	Westbound Thru		D	35.3	260	C	34.5	266
	Westbound Right	200	A	0.0	0	A	0.0	0
	Northbound Approach		***E***	***62.4***		***D***	***43.8***	
	Northbound Left / Thru / Right		F	62.4	1501	D	43.8	579
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**B**	**16.4**		**E**	**67.3**	
	Eastbound Approach		***B***	***19.2***		***F***	***101.8***	
	Eastbound Thru		B	16.7	208	D	40.7	446
	Eastbound Right	200	C	21.1	161	F	148.1	405
	Westbound Approach		***B***	***10.3***		***C***	***29.6***	
	Westbound Left	250	B	11.3	147	D	52.4	290
	Westbound Thru		B	10.1	267	B	16.1	337
	Southbound Approach		***C***	***27.9***		***D***	***52.1***	
	Southbound Left / Thru		C	27.9	213	D	52.1	231
	Southbound Right		A	0.0	0	A	0.0	0
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach							
	Eastbound Left		A	7.6	31	A	8.7	108
	Westbound Approach							
	Westbound Left		A	8.1	45	A	9.7	50
	Northbound Approach		***C***	***19.4***		***C***	***18.6***	
	Northbound Left / Thru / Right		C	19.4	169	C	18.6	125
	Southbound Approach		***A***	***9.6***		***B***	***10.2***	
	Southbound Left / Thru / Right		A	9.6	102	B	10.2	119
8	**Eskimo Hill Road (N/E) & State Shop Road (S)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach		***B***	***11.0***		***C***	***15.7***	
	Eastbound Left / Thru / Right		B	11.0	27	C	15.7	27
	Westbound Approach		***B***	***10.3***		***B***	***10.1***	
	Westbound Left / Thru / Right		B	10.3	143	B	10.1	98
	Northbound Approach							
	Northbound Left		A	7.2	0	A	7.2	8
	Southbound Approach							
	Southbound Left		A	7.6	41	A	7.9	64

NOTES:

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] Max queues are based on results from SimTraffic. Per TOSAM guidelines, the queues are based on the average to 10 simulations.

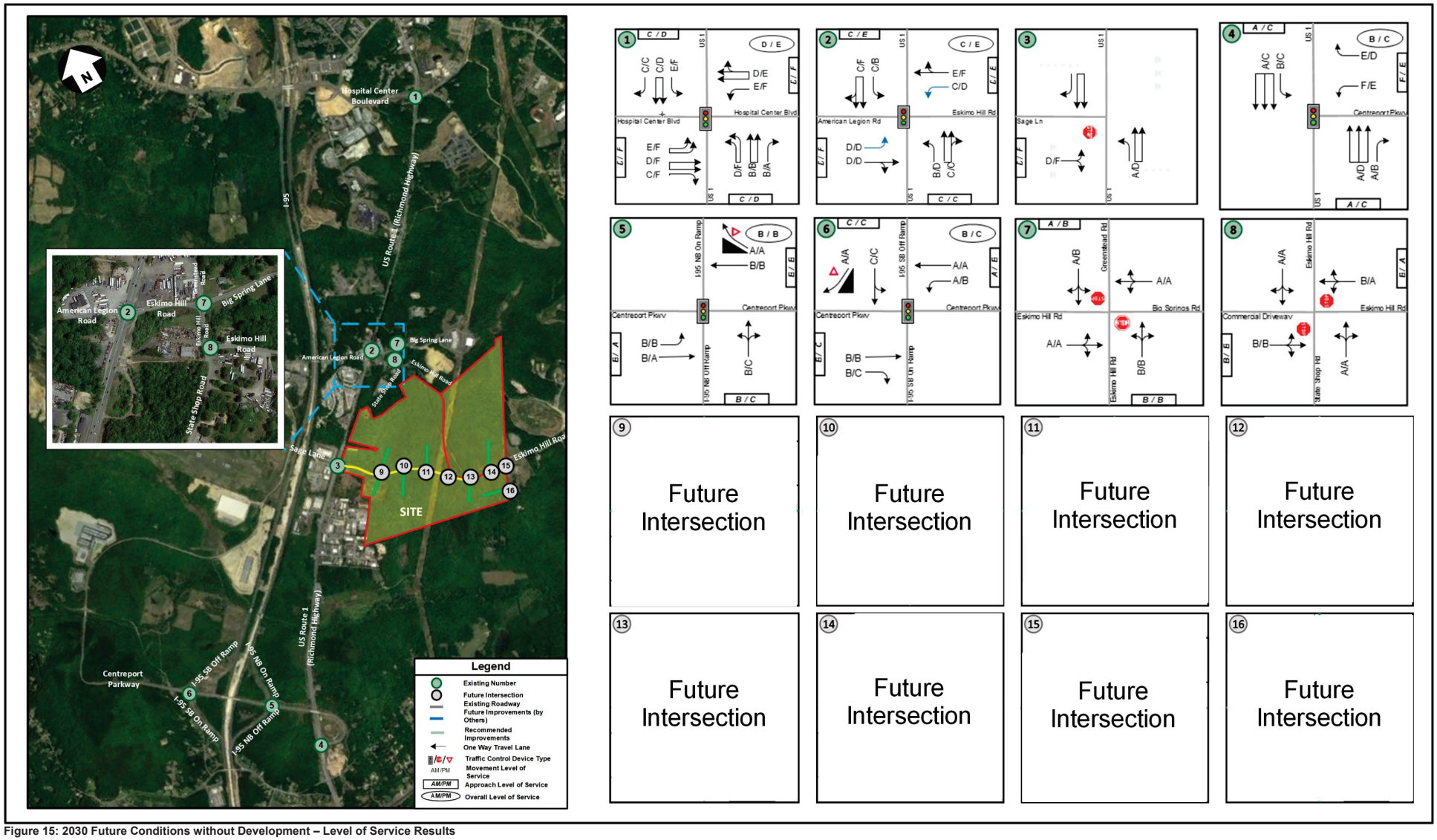

Figure 15: 2030 Future Conditions without Development – Level of Service Results

Based on the capacity analysis of the 2030 Future without Development Conditions, all signalized study intersections operate at overall levels of service of D or better during both the AM and PM peak hour except for the following study intersections that operate at an overall level of service E of F during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

Based on the capacity analysis of 2030 Future without Development Conditions, the approaches of all study intersections operate at approach levels of service of D or better during both the AM and PM peak hours, except for the following study intersections that have at least one approach that operates at levels of service E of F during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 3: US Route 1 at Sage Lane
- Study Intersection 4: US Route 1 at Centreport Parkway
- Study Intersection 5: I-95 Northbound Ramps at Centreport Parkway
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

Based on the queuing analysis performed, all turning movements at the study intersections have maximum queue lengths that are accommodated within the available storage lengths of the turn bays, except for the following study intersections which have queue lengths that exceed the available storage length of at least one existing turn bay during at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 4: US Route 1 at Centreport Parkway
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

Analysis of 2030 Future Conditions with Development

For the purposes of this study, the Development is anticipated to be constructed by 2030; this scenario analyzes the future with development conditions for the year 2030.

Site Description

The Site is currently undeveloped and consists of two parcels of land, fronting Eskimo Hill Road and fronting the east side of US Route 1. The Property, totaling approximately 523.84-acres, can be identified as Tax Map Numbers 38-124 and 38-29A. The Property is currently zoned as A-1.

The Applicant is proposing to rezone the parcels from A-1 to M-1 in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be completed and in operation by 2030.

A conceptual plan for the Site is illustrated in **Figure 16**.

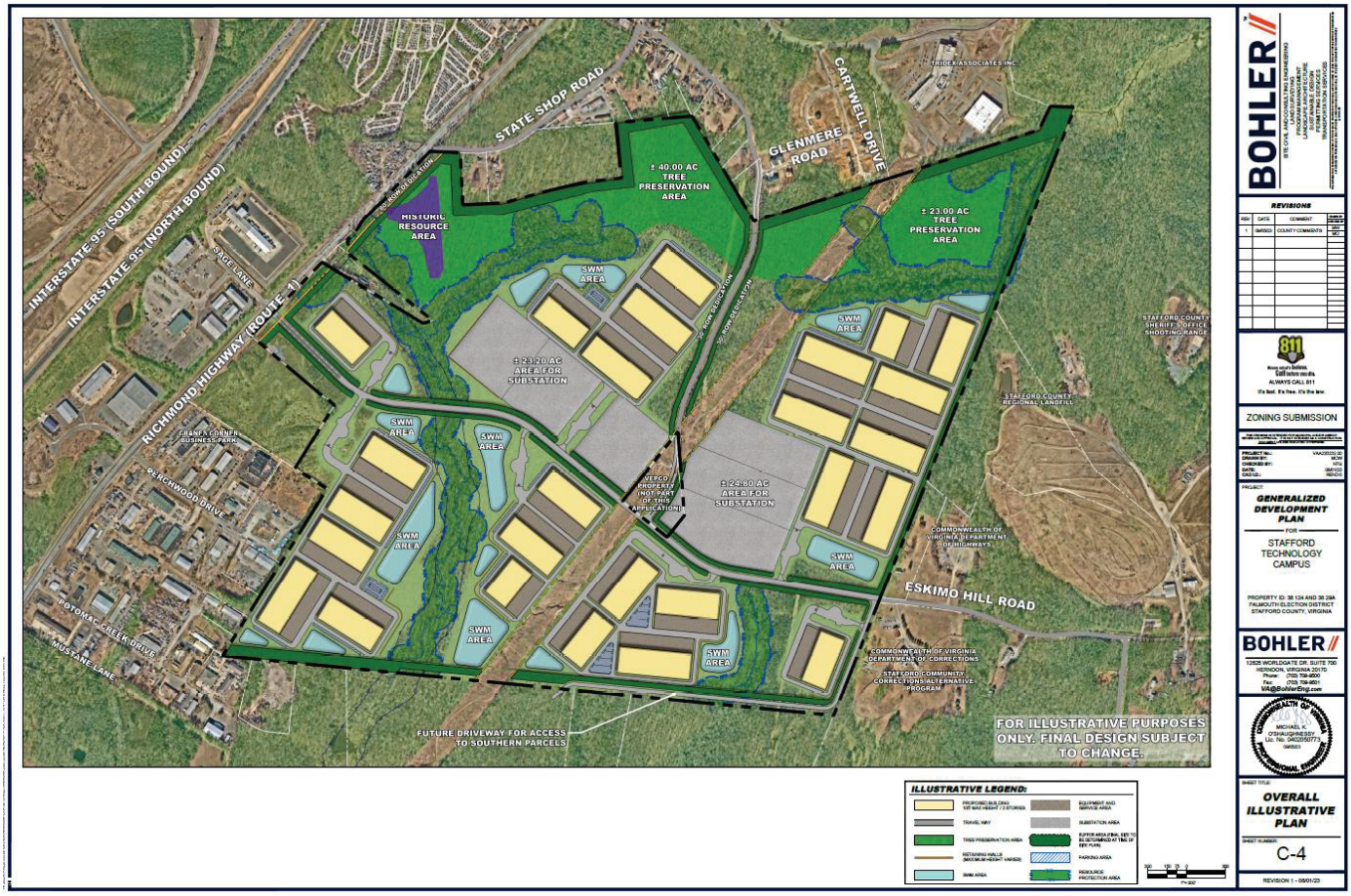

Figure 16: Conceptual Development Plan
Note: Plan provided by Bohler and is for conceptual purposes only.

Proposed Site Access

The proposed access plans include the construction of a connector road that was identified on the Stafford County Comprehensive Plan. This Connector Road will extend from Eskimo Hill Road to US Route 1, forming the fourth leg of the US Route 1 at Sage Lane intersection. The Site is anticipated to have six driveway connections along the new Connector Road.

Projected Site Trip Generation

In order to calculate the trips generated by the proposed Development, VDOT approved rates of 0.09 for the AM peak hour, 0.03 for the PM peak hour, and 0.75 for the weekday daily trips per 1,000 sf of data center land use based on recent data collection

in a study by Bowman Engineering. The projected trip generation for the proposed Development is depicted in **Table 6**. Of note, as agreed to in the scoping document, no internal capture or pass-by trip reductions were assumed with respect to the proposed Development, and therefore are not assumed within the table. Documentation for the approved trip rates is included in Appendix J.

Table 6: Site Trip Generation (Peak Hour of the Adjacent Street; ITE 11th Ed.)

Land Use	ITE Code	Size	------ Weekday ------						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Stafford Technology Campus									
Data Center [1]	160	5,808.0 kSF	288	235	523	52	123	175	4,356

[1] VDOT approved rates of 0.09 for AM, 0.03 for PM and 0.75 for Daily trips per 1,000 SF for Data Center land use.

As illustrated in the table above, the Site is expected to generate approximately 523 new trips during the AM peak hour, 175 new trips during the PM peak hour, and 4,356 new daily trips on a typical weekday.

Distribution and Assignment of Site Traffic

The distribution and assignment of the site generated trips were based on the existing traffic patterns, engineering judgement, the nature of the proposed Development, and with the guidance and input from the VDOT and the County staff. The site direction of approach and trip distribution are illustrated in **Figure 17**.

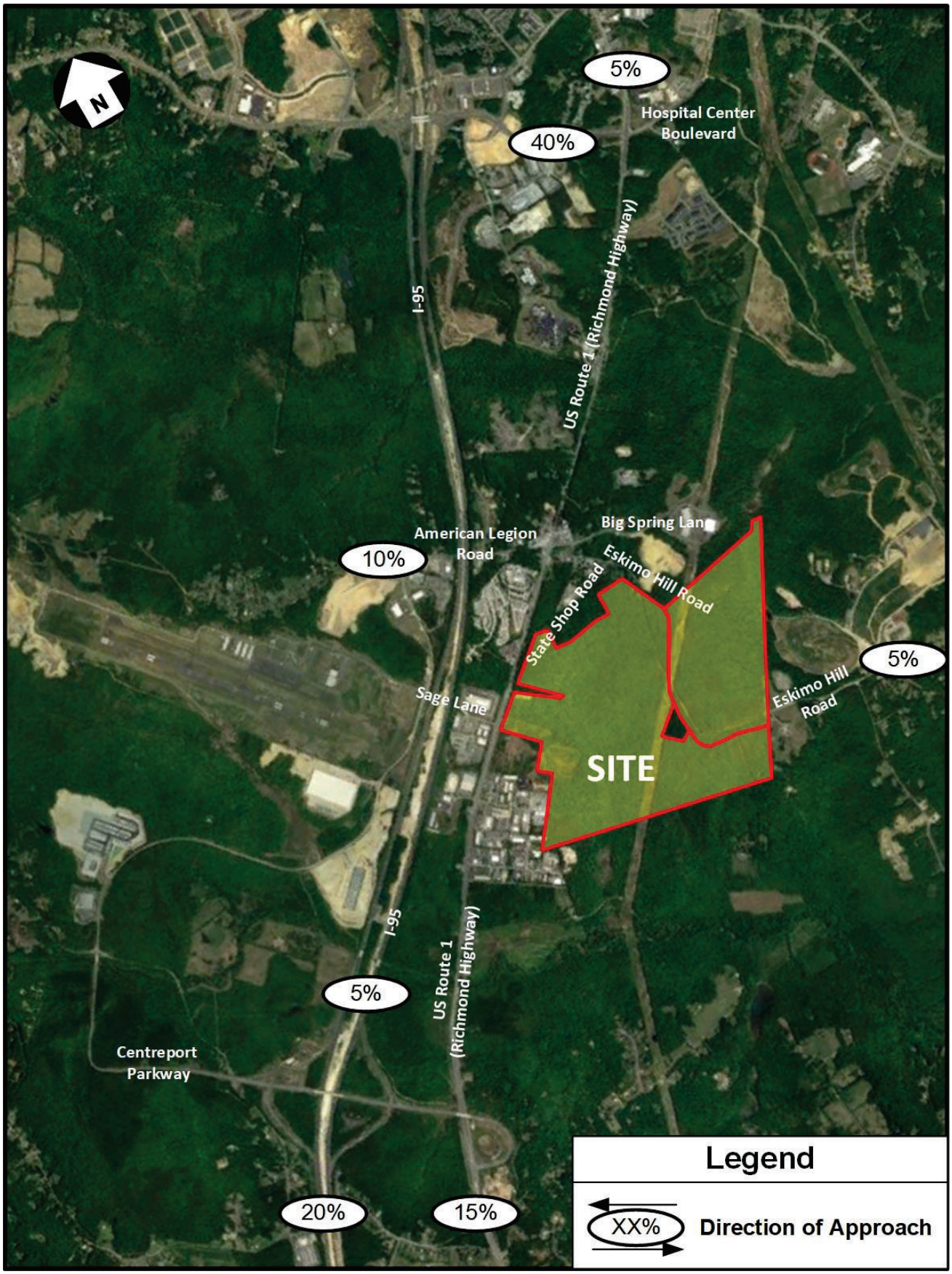

Figure 17: Global Vehicular Direction of Approach (Site Trip Distribution)

Future with Development Traffic Volumes

In order to project future traffic volumes on the roadways in the vicinity of the Development, trips generated from the Development were assigned to the road network based on the previously mentioned direction of approach. The site traffic assignment is illustrated for the AM and PM peak hours in **Figure 18**.

The future with development traffic volumes were determined by adding the assigned site generated traffic volumes to the 2030 future conditions without development traffic volumes. The 2030 Future Conditions with Development traffic volumes are depicted in **Figure 19**.

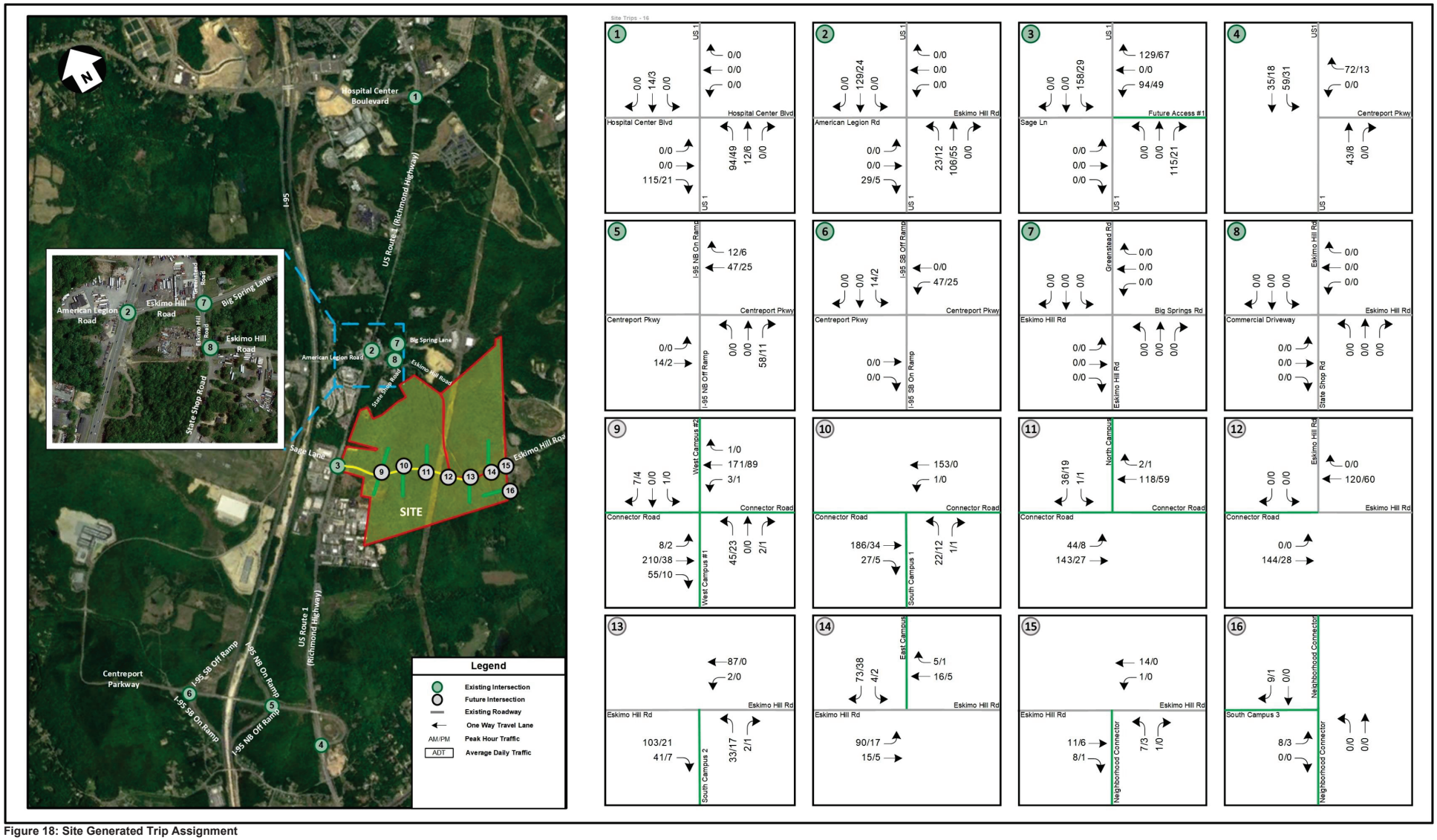

Figure 18: Site Generated Trip Assignment

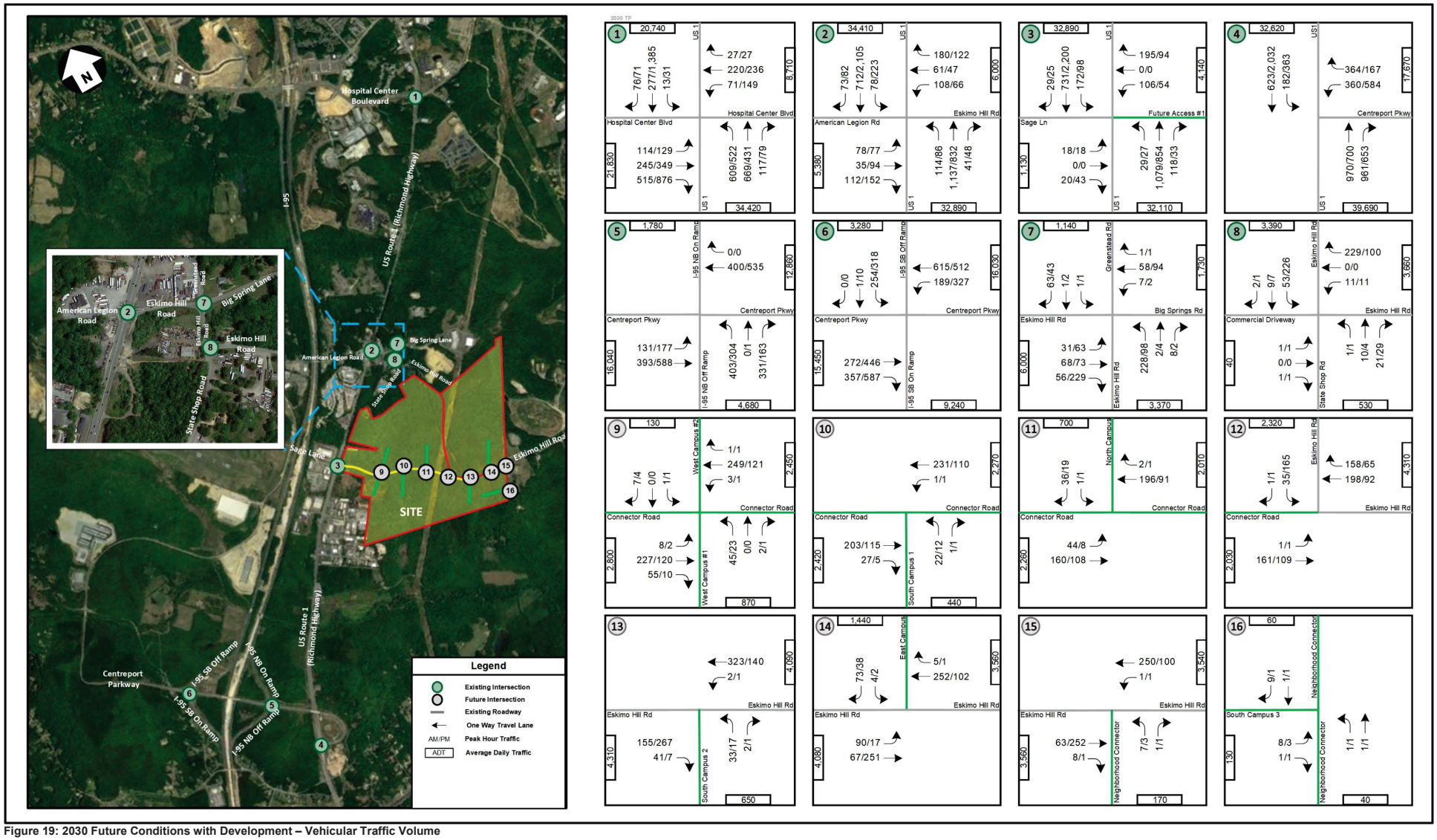

Figure 19: 2030 Future Conditions with Development – Vehicular Traffic Volume

Future with Development Intersection Capacity and Queuing Analysis

Intersection capacity and queueing analyses were performed for the 2030 Future Conditions with Development scenario at the study area intersections during the AM and PM peak hours, in accordance with VDOT's *TOSAM* (version 2) guidelines. *Synchro / SimTraffic,* version 11, was used to analyze the study intersections with results based on TRB's HCM 6th methodology and include LOS, delay, and queue length comparisons for the turning movements analyzed.

For the purposes of this analysis, the intersection PHF utilized in the analysis of future conditions was determined based on the existing traffic counts, with a minimum of 0.92 as agreed to in the scoping document. The HV% were based on the existing conditions scenario, with any new approaches utilizing a default *Synchro* value of 2.0% per movement.

Stafford County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.

The results of the intersection capacity and queuing analyses from *Synchro / SimTraffic* are presented in **Table 7** and graphically in Error! Reference source not found.. The results are expressed in LOS and delay (seconds per vehicle) for overall signalized i ntersections and per approach and lane group for all study intersections. The overall signalized intersections and any approaches that operate at LOS E or F are displayed in red.

The queue lengths were reported as the maximum queues determined from *SimTraffic* and are expressed in feet. The lane groups where the queue lengths exceeded the available effective storage capacity of existing turn lanes are displayed in red.

The detailed capacity analysis worksheets of the 2030 Future Conditions with Development are contained in Appendix K.

The detailed analysis worksheets for the 2030 Future Conditions with Development simulation analysis are included in Appendix L.

Table 7: 2030 Future Conditions with Development – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)		**F**	**94.4**		**F**	**406.1**	
	Eastbound Approach		***E***	***61.6***		***F***	***947.9***	
	Eastbound Left	500	E	58.3	119	F	92.0	121
	Eastbound Thru		D	38.2	158	F	219.1	2804
	Eastbound Right		E	73.4	318	F	1364.5	2818
	Westbound Approach		***D***	***44.4***		***F***	***145.3***	
	Westbound Left	150	E	64.5	138	F	235.1	288
	Westbound Thru / Right		D	38.7	190	F	95.2	518
	Northbound Approach		***F***	***142.9***		***F***	***351.2***	
	Northbound Left	400	F	299.5	399	F	683.7	400
	Northbound Thru		C	22.5	729	B	11.4	5197
	Northbound Right	700	B	15.2	43	A	6.6	98
	Southbound Approach		***C***	***31.2***		***C***	***23.3***	
	Southbound Left	550	E	63.2	45	F	92.8	140
	Southbound Thru		C	31.3	162	C	22.5	515
	Southbound Right	500	C	25.2	70	A	9.9	118
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Restripe to Provide Second EBR		**D**	**35.4**		**E**	**77.2**	
	Eastbound Approach		***D***	***36.9***		***F***	***120.8***	
	Eastbound Left	500	E	60.4	104	F	88.7	500
	Eastbound Thru		D	53.8	294	F	208.4	2524
	Eastbound Right		C	23.7	116	F	90.5	2401
	Westbound Approach		***D***	***48.8***		***F***	***101.2***	
	Westbound Left	150	E	68.4	136	F	168.3	293
	Westbound Thru / Right		D	43.3	174	E	63.3	418
	Northbound Approach		***C***	***32.4***		***D***	***53.4***	
	Northbound Left	400	E	56.4	387	F	92.2	395
	Northbound Thru		B	14.5	483	B	14.7	564
	Northbound Right	700	A	9.4	55	A	8.3	44
	Southbound Approach		***C***	***31.4***		***D***	***47.4***	
	Southbound Left	550	E	71.6	56	F	110.7	320
	Southbound Thru		C	31.2	160	D	47.3	702
	Southbound Right	500	C	25.5	84	C	21.2	252
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)		**C**	**27.5**		**E**	**64.4**	
	Eastbound Approach		***D***	***40.5***		***F***	***139.6***	
	Eastbound Left		D	36.2	141	D	50.1	305
	Eastbound Thru / Right		D	42.8	176	F	167.7	467
	Westbound Approach		***D***	***44.6***		***E***	***74.3***	
	Westbound Left		C	34.2	179	D	51.8	184
	Westbound Thru / Right		D	49.3	276	F	83.1	284
	Northbound Approach		***C***	***25.1***		***C***	***22.0***	
	Northbound Left	300	B	15.6	120	E	56.6	127
	Northbound Thru / Right		C	26.1	406	B	18.6	399
	Southbound Approach		***C***	***20.9***		***E***	***70.3***	
	Southbound Left	200	B	19.5	89	B	14.3	373
	Southbound Thru / Right		C	21.0	268	F	73.8	579
3	**US Route 1 (N/S) & Sage Lane / Future Connector Road (E/W)**							
	Overall Intersection: (Signalized)		**C**	**21.9**		**C**	**21.2**	
	Eastbound Approach		***D***	***44.1***		***D***	***54.7***	
	Eastbound Left / Right		D	44.1	82	D	54.7	93
	Westbound Approach		***D***	***37.9***		***D***	***49.7***	
	Westbound Left / Thru		D	40.1	143	D	52.0	95
	Westbound Right		D	36.7	171	D	48.4	93
	Northbound Approach		***C***	***21.8***		***B***	***15.3***	
	Northbound Left	200	B	13.4	55	B	18.4	117
	Northbound Thru		C	22.6	362	B	15.4	326
	Northbound Right		B	16.2	299	B	11.6	137
	Southbound Approach		***B***	***16.1***		***C***	***20.8***	
	Southbound Left		C	20.6	184	B	11.5	195
	Southbound Thru / Right		B	15.0	203	C	20.7	372

Table 7: 2030 Future Conditions with Development – Intersection Capacity Analysis Results (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**D**	**39.1**		**D**	**45.2**	
	Westbound Approach		***F***	***147.3***		***E***	***61.5***	
	Westbound Left		F	125.5	612	E	68.6	660
	Westbound Right	225	F	168.8	329	D	36.5	109
	Northbound Approach		***A***	***7.6***		***D***	***41.2***	
	Northbound Thru		A	0.3	308	E	60.9	360
	Northbound Right	180	B	15.0	468	C	20.0	462
	Southbound Approach		***B***	***17.4***		***D***	***42.3***	
	Southbound Left	345	D	44.4	639	F	82.1	636
	Southbound Thru		A	9.6	910	D	35.2	660
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Provide WBR Overlap Phase		**C**	**29.3**		**D**	**43.9**	
	Westbound Approach		***F***	***100.9***		***E***	***58.9***	
	Westbound Left		F	125.5	764	E	69.9	766
	Westbound Right	225	E	76.5	399	C	20.2	158
	Northbound Approach		***A***	***8.9***		***D***	***42.3***	
	Northbound Thru		A	0.4	569	E	61.9	352
	Northbound Right	180	B	17.4	764	C	21.2	496
	Southbound Approach		***B***	***13.8***		***D***	***40.1***	
	Southbound Left	345	C	28.5	707	E	69.7	659
	Southbound Thru		A	9.6	458	C	34.8	546
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**E**	**63.3**		**C**	**32.4**	
	Eastbound Approach		***B***	***19.9***		***B***	***18.5***	
	Eastbound Left	275	C	23.8	183	C	24.1	259
	Eastbound Thru		B	18.6	243	B	16.8	397
	Westbound Approach		***D***	***35.3***		***D***	***38.1***	
	Westbound Thru		D	35.3	263	D	38.1	267
	Westbound Right	200	A	0.0	0	A	0.0	0
	Northbound Approach		***F***	***109.6***		***D***	***48.6***	
	Northbound Left / Thru / Right		F	109.6	2014	D	48.6	592
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Modify Signal Timings		**D**	**43.6**		**C**	**32.4**	
	Eastbound Approach		***C***	***28.7***		***B***	***18.5***	
	Eastbound Left	275	D	37.4	238	C	24.1	274
	Eastbound Thru		C	25.7	310	B	16.8	414
	Westbound Approach		***D***	***44.0***		***D***	***38.1***	
	Westbound Thru		D	44.0	266	D	38.1	266
	Westbound Right	200	A	0.0	0	A	0.0	0
	Northbound Approach		***D***	***54.0***		***D***	***48.6***	
	Northbound Left / Thru / Right		D	54.0	1253	D	48.6	625
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)		**B**	**17.4**		**E**	**74.7**	
	Eastbound Approach		***C***	***20.9***		***F***	***113.4***	
	Eastbound Thru		B	18.1	241	D	44.7	444
	Eastbound Right	200	C	23.0	166	F	165.6	409
	Westbound Approach		***B***	***10.7***		***C***	***34.9***	
	Westbound Left	250	B	12.2	169	E	63.8	331
	Westbound Thru		B	10.3	298	B	16.4	315
	Southbound Approach		***C***	***29.6***		***D***	***54.4***	
	Southbound Left / Thru		C	29.6	222	D	54.4	230
	Southbound Right		A	0.0	0	A	0.0	0

Table 7: 2030 Future Conditions with Development – Intersection Capacity Analysis Results (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)** **Overall Intersection: (Signalized)** **MIT: Channelize EBR**		**B**	**16.1**		**D**	**38.2**	
	Eastbound Approach		***C***	***21.9***		***D***	***48.0***	
	Eastbound Thru		C	21.9	250	D	48.0	429
	Eastbound Right	200	A	0.0	205	A	0.0	396
	Westbound Approach		***B***	***11.7***		***C***	***29.5***	
	Westbound Left	250	B	13.1	190	D	50.5	269
	Westbound Thru		B	11.3	266	B	16.0	300
	Southbound Approach		***C***	***24.0***		***D***	***47.2***	
	Southbound Left / Thru		C	24.0	218	D	47.2	230
	Southbound Right		A	0.0	0	A	0.0	0
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S)** **Overall Intersection: (TWSC)**							
	Eastbound Approach							
	Eastbound Left / Thru / Right		A	7.6	40	A	8.7	91
	Westbound Approach							
	Westbound Left / Thru / Right		A	8.0	34	A	9.3	43
	Northbound Approach		***C***	***15.6***		***C***	***15.9***	
	Northbound Left / Thru / Right		C	15.6	115	C	15.9	88
	Southbound Approach		***A***	***9.6***		***B***	***10.2***	
	Southbound Left / Thru / Right		A	9.6	104	B	10.2	96
8	**Eskimo Hill Road (N/E) & State Shop Road (S)** **Overall Intersection: (TWSC)**							
	Eastbound Approach		***B***	***10.3***		***B***	***12.0***	
	Eastbound Left / Thru / Right		B	10.3	24	B	12.0	25
	Westbound Approach		***A***	***9.6***		***A***	***9.5***	
	Westbound Left / Thru / Right		A	9.6	85	A	9.5	70
	Northbound Approach							
	Northbound Left / Thru / Right		A	7.2	0	A	7.2	4
	Southbound Approach							
	Southbound Left / Thru / Right		A	7.4	23	A	7.7	58
9	**Future Connector Road (E/W) & West Campus #1 / West Campus #2 (N/S)** **Overall Intersection: (TWSC)**							
	Eastbound Approach							
	Eastbound Left / Thru / Right		A	7.8	39	A	7.5	7
	Westbound Approach							
	Westbound Left / Thru / Right		A	7.9	3	A	7.5	5
	Northbound Approach		***B***	***14.5***		***B***	***10.5***	
	Northbound Left / Thru / Right		B	14.5	64	B	10.5	39
	Southbound Approach		***B***	***10.2***		***A***	***9.2***	
	Southbound Left / Thru / Right		B	10.2	32	A	9.2	32
10	**Future Connector Road (E/W) & Future South Campus #1 (S)** **Overall Intersection: (TWSC)**							
	Westbound Approach							
	Westbound Left / Thru		A	7.7	6	A	7.5	36
	Northbound Approach		***B***	***11.9***		***A***	***9.9***	
	Northbound Left / Right		B	11.9	25	A	9.9	0
11	**Future Connector Road (E/W) & Future North Campus (N)** **Overall Intersection: (TWSC)**							
	Eastbound Approach							
	Eastbound Left / Thru		A	7.8	62	A	7.4	14
	Southbound Approach		***A***	***9.7***		***A***	***8.9***	
	Southbound Left / Right		A	9.7	57	A	8.9	34

Table 7: 2030 Future Conditions with Development – Intersection Capacity Analysis Results (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
12	**Future Connector Road (E/W) & Eskimo Hill Road (S)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach							
	Eastbound Left / Thru		A	8.1	5	A	7.6	3
	Southbound Approach		***B***	***12.1***		***B***	***11.5***	
	Southbound Left / Right		B	12.1	54	B	11.5	79
13	**Future Connector Road (E/W) & Future South Campus #2 (N)**							
	Overall Intersection: (TWSC)							
	Westbound Approach							
	WestboundLeft / Thru		A	7.7	8	A	7.9	3
	Northbound Approach		***B***	***12.6***		***B***	***11.5***	
	Northbound Left / Right		B	12.6	58	B	11.5	36
14	**Future Connector Road (E/W) & Future East Campus (S)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach							
	Eastbound Thru / Right		A	8.0	71	A	7.5	32
	Southbound Approach		***B***	***10.5***		***A***	***9.1***	
	Southbound Left / RIght		B	10.5	53	A	9.1	50
15	**Future Connector Road (E/W) & Future Neighborhood Connector (N)**							
	Overall Intersection: (TWSC)							
	Westbound Approach							
	Westbound Left / Thru		A	7.4	0	A	7.8	3
	Northbound Approach		***B***	***10.4***		***B***	***10.6***	
	Northbound Left / Right		B	10.4	26	B	10.6	20
16	**Future Neighborhood Connector (N/S) & Future South Campus #3 (E)**							
	Overall Intersection: (TWSC)							
	Eastbound Approach		***A***	***8.6***		***A***	***8.5***	
	Eastbound Left / Right		A	8.6	31	A	8.5	30
	Northbound Approach							
	Northbound Left / Thru		A	7.2	0	A	7.2	0

NOTES

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] Max queues are based on results from SimTraffic. Per TOSAM guidelines, the queues are based on the average to 10 simulations.

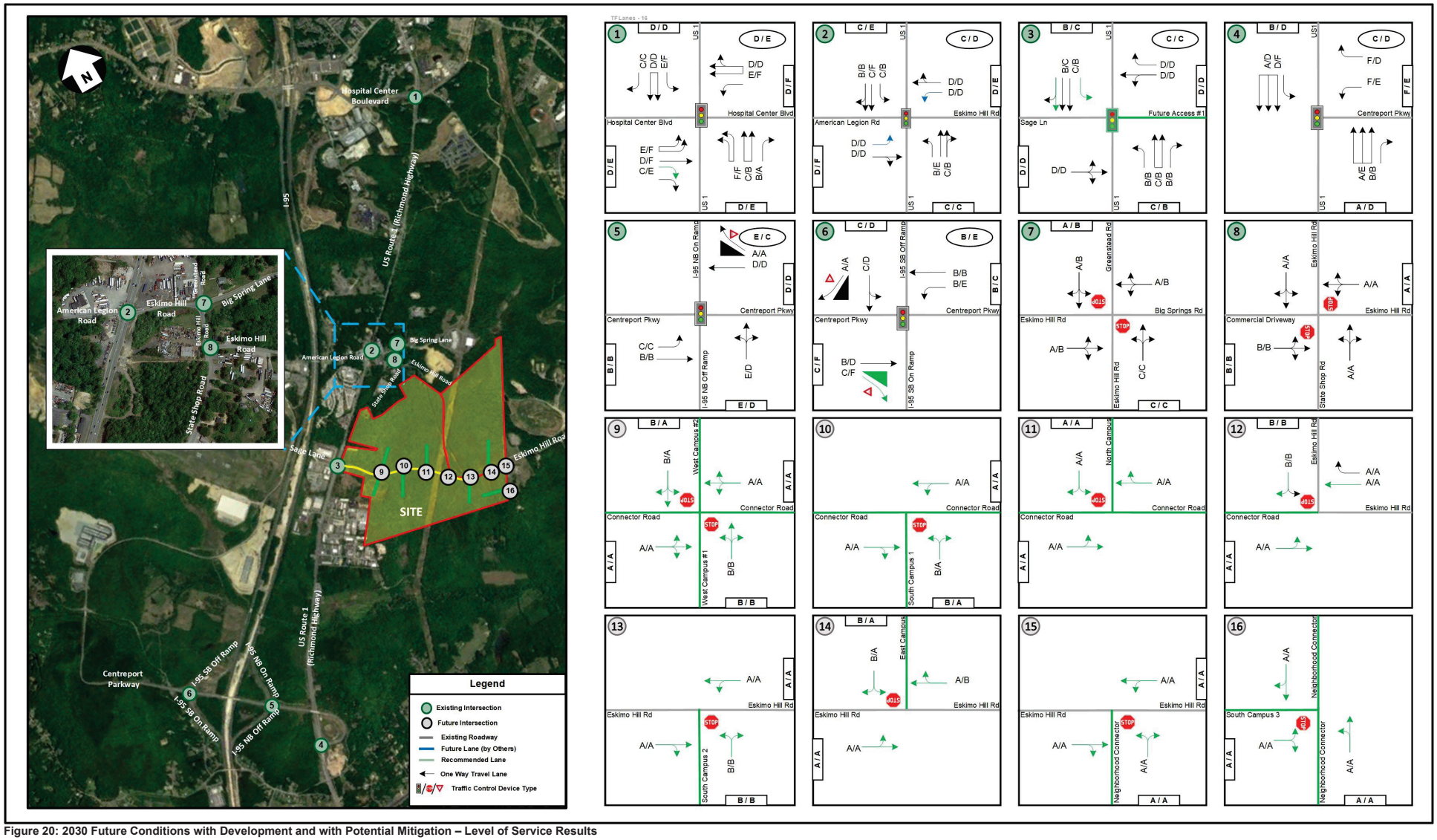

Figure 20: 2030 Future Conditions with Development and with Potential Mitigation – Level of Service Results

The following roadway improvements and mitigations are recommended (by intersection) under 2030 Future Conditions with Development in order to accommodate future roadway demand due to the changes in traffic patterns and increased vehicular traffic demand along the road network:

- Construct the two lane Connector Road from Eskimo Hill to US Route 1 across from Sage Lane
- Study Intersection 1: US Route 1 at Hospital Center Boulevard
  - Restripe the eastbound approach to provide dual left turn lanes, one through lane, and two right turn lanes
  - Modify signal as necessary
- Study Intersection 3: US Route 1 at Sage Lane / Future Full Movement Access #1
  - Install a traffic signal
  - Install a dedicated southbound left turn lane
  - Restripe the southbound right turn lane to provide a shared through / right lane
  - Install a dedicated northbound right turn lane
  - Construct the westbound Connector Road with one shared left / through lane and one right turn lane with appropriate storage and taper.
- Study Intersection 4: US Route 1 at Centreport Parkway
  - Modify signal timings and provide westbound right turn overlap phase
- Study Intersection 5: I-95 Northbound Ramps at Centreport Parkway
  - Modify signal timings
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway
  - Construct a channelized eastbound right turn lane
- Study Intersection 12: Eskimo Hill Road at Connector Road
  - Construct a westbound right turn lane
- Connector Road at All Site Driveways
  - Construct site driveways with one ingress lane and one egress lane

As mentioned previously, the County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.

Based on the capacity analysis of 2030 Future Conditions with Development and with the recommended mitigations in place, all signalized study intersections are anticipated to operate at a similar LOS to the 2030 Future Conditions without Development.

Based on the capacity analysis of the 2030 Future Conditions with Development with the recommended mitigations in place, the approaches of all study intersections are anticipated to operate at a similar LOS to the 2030 Future Conditions without Development.

Based on the queuing analysis performed for the 2030 Future Conditions with Development and with the recommended mitigations in place, all turning movements at the study intersections are anticipated to have maximum queue lengths that are

accommodated within the available storage lengths of the turn bays with the exception of the following intersections that are anticipated to exceed at least one turn bay storage length in at least one peak hour:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 4: US Route 1 at Centreport Parkway
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

In general, the signalized intersections would operate with longer vehicular delays for the side-streets and mainline left turning movements. These delays are a result of VDOT prioritization of through traffic on the mainline, as is typical along commuter corridors, to accommodate the largest possible volume of through traffic in the area along the mainlines and therefore have a better overall traffic operation than if all movements were prioritized equally.

Note that the results at Study Intersection 2 improves as a result of the Connector Road being constructed. It was assumed that approximately one-third of the existing Eskimo Hill through traffic will use the new Connector Road to access US Route 1 because it is more convenient.

Planning Scenario

At the request of VDOT, an additional scenario was added with the goal to see what improvements are needed to achieve an overall LOS D and to make every approach LOS D. Note that these are not improvements recommended to be constructed at build out of the proposed development. This is intended for informational purposes only.

To achieve LOS D for all approaches and overall, Study Intersection 1 conflicts from the intersection box would need to be removed. One way to achieve this may be a southeast quadrant roadway.

To achieve LOS D for all approaches and overall, Study Intersection 2, US Route1 could be widened to a six-lane roadway. As an alternative, right turn lanes with overlaps could be added to the southbound, eastbound, and westbound approaches.

To mitigate existing queuing at Study Intersection 4, a second westbound left turn lane and a second southbound left turn lane could be constructed.

To mitigate queuing at Study Intersection 5, a second northbound lane could be constructed.

The capacity analysis results for the planning scenario are shown in **Table 8**.

Table 8: 2030 Future Conditions with Development (Planning Scenario) – Intersection Capacity Analysis Results

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]	LOS	Delay (sec/veh)	Ave. Max Queue (ft.) [2]
			Synchro		SimTraffic	Synchro		SimTraffic
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: SE Quadrant Roadway		**C**	**33.9**		**D**	**42.0**	
	Eastbound Approach		***D***	***39.1***		***D***	***54.1***	
	Eastbound Thru		C	31.7	257	D	38.3	372
	Eastbound Right		D	42.0	173	E	59.6	483
	Westbound Approach		***D***	***53.2***		***D***	***43.2***	
	Westbound Thru / Right		D	53.3	542	D	43.2	487
	Northbound Approach		***B***	***14.3***		***C***	***22.7***	
	Northbound Thru		B	14.6	249	C	23.0	217
	Northbound Right	700	B	12.4	65	C	21.2	61
	Southbound Approach		***B***	***12.4***		***D***	***36.8***	
	Southbound Thru		B	12.5	152	D	37.5	677
	Southbound Right	500	B	12.0	84	C	21.1	500
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Widen US 1 to Six Lanes		**C**	**23.3**		**C**	**29.4**	
	Eastbound Approach		***D***	***35.3***		***D***	***51.0***	
	Eastbound Left		C	31.3	136	D	38.3	117
	Eastbound Thru / Right		D	37.4	173	D	55.0	284
	Westbound Approach		***D***	***38.7***		***D***	***45.4***	
	Westbound Left		C	29.6	166	D	40.2	147
	Westbound Thru / Right		D	42.8	246	D	47.4	224
	Northbound Approach		***C***	***20.0***		***C***	***20.9***	
	Northbound Left	300	B	14.6	132	C	28.6	122
	Northbound Thru / Right		C	20.3	322	C	20.0	261
	Southbound Approach		***B***	***18.7***		***C***	***28.4***	
	Southbound Left	200	B	16.0	101	B	15.1	200
	Southbound Thru / Right		B	18.8	180	C	28.4	805
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)							
	MIT: Construct second SBL		**D**	**35.7**		**D**	**39.2**	
	Westbound Approach		***D***	***54.5***		***D***	***54.7***	
	Westbound Left		E	57.7	414	E	62.9	668
	Westbound Right	225	D	51.3	222	C	26.1	101
	Northbound Approach		***D***	***36.2***		***D***	***35.5***	
	Northbound Thru		D	47.0	406	E	55.4	321
	Northbound Right	180	C	25.3	576	B	14.1	350
	Southbound Approach		***B***	***17.8***		***D***	***36.4***	
	Southbound Left	345	C	26.7	192	C	33.0	523
	Southbound Thru		B	15.2	231	D	37.0	752

NOTES:

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] Max queues are based on results from SimTraffic. Per TOSAM guidelines, the queues are based on the average to 10 simulations.

Preliminary Left and Right Turn Lane Warrant Assessments

Left and right turn lane warrants are based off of VDOT's Road Design Manual (RDM), Appendix F. In order to determine the need for exclusive left and/or right turn lanes or tapers at the site accesses along US Route 1 and Eskimo Hill Road, the traffic data and anticipated development program provided in the 2030 Future Conditions with Development scenario section were utilized.

Warrants for right-turn storage lanes on two- and four-lane highways at intersections are based on Figure 3-26 and Figure 3-27 in Appendix F of VDOT's RDM. These figures provide a graphical representation for determining the necessity of a right turn lane by comparing the total volumes of a given approach with their respective right turn volumes.

Warrants for left-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-5 to Figure 3-21 in Appendix F of VDOT's RDM. The figures provide graphical representations for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes with respect to the percentage of left turning vehicles of the advancing volumes and the design speed of a given roadway.

Warrants for left-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-3 in Appendix F of VDOT's RDM. The figure provides graphical representation for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes with respect to if the roadway is divided or undivided.

If the turn lanes and / or tapers are not provided or would not meet the minimum requirements per either VDOT's RDM, turn lane waivers requests would need to be submitted as separate documentation and be approved by VDOT and/or County staff.

A summary of the turn lane warrant analysis is presented in **Table 9 to Table 12**.

Table 9: Summary of Left Turn Lane Warrant Analysis on Four-Lane US Route 1

Study Scenario	Opposing Vol. (VPH)	Advancing Vol. (VPH)	Left Turning Vol.	Left Turn %	Treatment
INT 3 - SBL - 2030 TF AM Peak	1,226	932	172	18.5%	Full-width Turn Lane and Taper Warranted (for Undivided and Divided)
INT 3 - SBL - 2030 TF PM Peak	914	2,323	98	4.2%	Full-width Turn Lane and Taper Warranted (for Undivided and Divided)

Table 10: Summary of Right Turn Lane Warrant Analysis on Four-Lane US Route 1

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 3 - NBR - 2030 TF AM Peak	1,226	118	10	40	Full-width Lane and Taper Required
INT 3 - NBR - 2030 TF PM Peak	914	33	13	60	Taper Required

Table 11: Summary of Left Turn Lane Warrant Analysis on Two-Lane Connector Road

Study Scenario	Opposing Vol. (VPH)	Advancing Vol. (VPH)	Left Turn Vol. (VPH)	Left Turn %	Minimum Opposing Threshold (VPH)	VDOT RDM F Figure	Treatment
INT 9 - EBL - 2030 TF AM Peak	253	290	8	2.76%	914	Fig. 3-4	Not Warranted
INT 9 - EBL - 2030 TF PM Peak	132	123	1	0.81%	1,524	Fig. 3-4	Not Warranted
INT 9 - WBL - 2030 TF AM Peak	290	253	3	1.19%	1,031	Fig. 3-4	Not Warranted
INT 9 - WBL - 2030 TF PM Peak	123	132	1	0.76%	1,485	Fig. 3-4	Not Warranted
INT 10 - WBL - 2030 TF AM Peak	230	232	1	0.43%	1,101	Fig. 3-4	Not Warranted
INT 10 - WBL - 2030 TF PM Peak	120	111	1	0.90%	1,577	Fig. 3-4	Not Warranted
INT 11 - EBL - 2030 TF AM Peak	198	204	44	21.57%	578	Fig. 3-8	Not Warranted
INT 11 - EBL - 2030 TF PM Peak	92	116	8	6.90%	1,308	Fig. 3-5	Not Warranted
INT 12 - EBL - 2030 TF AM Peak	356	162	1	0.62%	1,361	Fig. 3-4	Not Warranted
INT 12 - EBL - 2030 TF PM Peak	157	110	1	0.91%	1581	Fig. 3-4	Not Warranted
INT 13 - WBL - 2030 TF AM Peak	196	325	2	0.62%	813	Fig. 3-4	Not Warranted
INT 13 - WBL - 2030 TF PM Peak	274	141	1	0.71%	1447	Fig. 3-4	Not Warranted
INT 14 - EBL - 2030 TF AM Peak	257	157	90	57.32%	754	Fig. 3-9	Not Warranted
INT 14 - EBL - 2030 TF PM Peak	103	268	17	6.34%	708	Fig. 3-5	Not Warranted
INT 15 - WBL - 2030 TF AM Peak	71	251	1	0.40%	1037	Fig. 3-4	Not Warranted
INT 15 - WBL - 2030 TF PM Peak	253	101	1	0.99%	1622	Fig. 3-4	Not Warranted

Table 12: Summary of Right Turn Lane Warrant Analysis on Two-Lane Connector Road

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 9 - WBR - 2030 TF AM Peak	253	1	45	85	Not Warranted
INT 9 - WBR - 2030 TF PM Peak	123	1	58	102	Not Warranted
INT 9 - EBR - 2030 TF AM Peak	290	55	41	80	Taper Required
INT 9 - EBR - 2030 TF PM Peak	132	10	57	101	Not Warranted
INT 10 - EBR - 2030 TF AM Peak	230	27	47	88	Not Warranted
INT 10 - EBR - 2030 TF PM Peak	120	5	58	102	Not Warranted
INT 11 - WBR - 2030 TF AM Peak	198	2	50	92	Not Warranted
INT 11 - WBR - 2030 TF PM Peak	92	1	61	106	Not Warranted
INT 12 - WBR - 2030 TF AM Peak	356	158	34	72	Full-width Lane and Taper Required
INT 12 - WBR - 2030 TF PM Peak	157	65	54	98	Taper Required
INT 13 - EBR - 2030 TF AM Peak	196	41	50	93	Not Warranted
INT 13 - EBR - 2030 TF PM Peak	274	7	43	82	Not Warranted
INT 14 - WBR - 2030 TF AM Peak	257	5	44	85	Not Warranted
INT 14 - WBR - 2030 TF PM Peak	103	1	60	105	Not Warranted
INT 15 - EBR - 2030 TF AM Peak	71	8	63	109	Not Warranted
INT 15 - EBR - 2030 TF PM Peak	253	1	45	85	Not Warranted
INT 16 - SBR - 2030 TF AM Peak	10	9	69	117	Not Warranted
INT 16 - SBR - 2030 TF PM Peak	2	1	70	118	Not Warranted

Graphics and information regarding the methodology used to determine the turn lane warrants is provided in Appendix M.

Conclusions

This report presents the findings of a TIS conducted for the proposed Stafford Technology Campus development which is generally situated along both sides of Eskimo Hill Road (Route 628) and east of US Route 1 (Richmond Highway) in Stafford County, Virginia.

The Development site is currently undeveloped and consists of two parcels of land, totaling approximately 523.84-acres. The Property is currently zoned as A-1 (and the Applicant is proposing to rezone the parcels to M-1 in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be completed and in operation by 2030.

The analysis presented in this report supports the following assumptions and major findings:

Analysis Components

- 2023 existing volumes were derived via turning movement counts collected at intersections within the study area in October 2021, June 2022, and February 2023. Turning movement counts conducted prior to 2023 were provided directly by VDOT. These traffic counts were then grown to 2023 at a rate of 2.5% (compounded per year) and applied to all movements at the counted existing study intersections to determine 2023 existing conditions.
- As determined based on the discussions and scoping document with VDOT and the County, an inherent regional growth of 2.5% per year was applied to all movements at the existing study intersections for the period between 2023 and 2030 to account for 2030 conditions.
- Six approved background developments in the vicinity of the Site were included in the study.
- The trip generation associated with the Site was based on custom data center rates as approved by VDOT. The Site in total is expected to generate approximately 523 new trips during the AM peak hour, 175 new trips during the PM peak hour, and 4,356 new daily trips on a typical weekday.
- Intersection capacity and queuing analyses were performed for all analysis scenarios at the study area intersections during the weekday morning (AM) and weekday afternoon (PM) peak hours. *Synchro*, version 11, was used to analyze the study intersections with results based on the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) methodology and analysis guidelines provided in VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) (version 2). The analysis herein includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.
- The analysis also includes preliminary turn lane warrant assessments for the Site access points along US Route 1 and the Connector Road, respectively.

Infrastructure

- The proposed access plans include the construction of a connector road that was identified on the Stafford County Comprehensive Plan. This Connector Road will extend from Eskimo Hill Road to US Route 1, forming the fourth leg of the US Route 1 at Sage Lane intersection. The Site is anticipated to have six driveway connections along the new Connector Road.

Proposed/Recommended Mitigation

The following roadway improvements are recommended to be implemented with the proposed development in 2030 in order to accommodate future roadway demand due to the changes in traffic patterns and increased vehicular traffic demand along the road network:

- Construct the two lane Connector Road from Eskimo Hill to US Route 1 across from Sage Lane
- Study Intersection 1: US Route 1 at Hospital Center Boulevard

- Restripe the eastbound approach to provide dual left turn lanes, one through lane, and two right turn lanes
- Modify the signal as necessary

- Study Intersection 3: US Route 1 at Sage Lane / Future Full Movement Access #1
  - Install traffic signal
  - Install a dedicated southbound left turn lane
  - Restripe the southbound right turn lane to provide a shared through / right lane
  - Install a dedicated northbound right turn lane
  - Construct a westbound Connector Road with one shared left / through lane and one right turn lane with appropriate storage and taper.
- Study Intersection 4: US Route 1 at Centreport Parkway
  - Modify the signal timings and provide for a westbound right turn overlap phase
- Study Intersection 5: I-95 Northbound Ramps at Centreport Parkway
  - Modify the signal timings
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway
  - Construct a channelized right turn lane
- Study Intersection 12: Eskimo Hill Road at Connector Road
  - Construct a westbound right turn lane
- Connector Road at All Site Driveways
  - Construct the site driveways with one ingress lane and one egress lane

Analysis Results

2023 Existing Conditions

- Based on the capacity analysis of Existing Conditions, all signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours, except for the following study intersection:
  - Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Based on the capacity analysis of Existing Conditions, three existing study intersections have at least one approach that operates at levels of service (LOS E or F) for at least one peak hour.
- Based on the queueing analysis of Existing Conditions, two existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.

2030 Future Conditions without Development

- Smartscale improvements of eastbound and westbound left turn lanes at Study Intersection 2 (US Route 1 at American Legion Road / Eskimo Hill Road) were included in the analysis.
- Based on the capacity analysis of 2030 Future Conditions without Development, all signalized study intersections operate at an overall level of service D or better during both the AM and PM peak hours, except for the following study intersections:

- Study Intersection 1: US Route 1 at Hospital Center Boulevard
- Study Intersection 2: US Route 1 at American Legion Road / Eskimo Hill Road
- Study Intersection 6: I-95 Southbound Ramps at Centreport Parkway

- Based on the capacity analysis of 2030 Future Conditions without Development, six existing study intersections are anticipated to have at least one approach that operates at levels of service E of F for at least one peak hour.
- Based on the queueing analysis of 2030 Future Conditions without Development, four existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.

2030 Future Conditions with Development

- The Site is expected to generate approximately 523 net new total trips during the AM peak hour, 175 net new trips during the PM peak hour and 4,356 net new trips during a typical weekday.
- The County's desired level of service is LOS C, while Appendix C of VDOT's Road Design Manual sets a minimum level of service standard of LOS D and includes provisions to modify that standard. Furthermore, if an overall intersection or approach was operating at an unacceptable LOS under future without development conditions, it was assumed acceptable to achieve non-degradation.
- Based on the capacity analysis of 2030 Future Conditions with Development and with the recommended mitigations in place, all signalized study intersections are anticipated to operate with similar levels of service, or better, to the 2030 Future Conditions without Development during the AM and PM peak hours.
- Based on the capacity analysis of the 2030 Future Conditions with Development and with the recommended mitigations in place, the approaches of all study intersections anticipated to operate with similar levels of service to the 2030 Future Conditions without Development during the AM and PM peak hours.
- Based on the queuing analysis performed for the 2030 Future Conditions with Development four existing study intersections have at least one turn lane that experiences a maximum queue length that is expected to exceed the available effective storage length of the turn bay during at least one peak hour.
- As listed previously, improvements are proposed to mitigate the transportation impacts of this project.

Overall Conclusion

The Applicant is proposing to construct up to 5.808 million square feet of data center uses. In order to offset the additional traffic volumes generated by the Site, the Applicant is proposing improvements in the study area to mitigate traffic operations. Based on the capacity and queueing analysis results, the proposed development will not have a substantial impact to the surrounding transportation and roadway network under 2030 conditions, assuming that all planned designs and recommended mitigation measures discussed in this report are implemented.

Transportation Technical Appendix

Stafford Technology Campus

Stafford County, Virginia

GOROVE SLADE
Transportation Planners and Engineers

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Appendix A – Signed Scoping Document

Appendix B –Turning Movement Counts Data

Appendix C – HCM Level of Service Definitions

Appendix D – 2023 Existing Conditions – Capacity Analysis Worksheets

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Appendix F – Background Development Information and Assignment

Appendix G – Roadway Improvement Excepts

Appendix H – 2030 Future Conditions without Development – Capacity Analysis Worksheets

Appendix I – 2030 Future Conditions without Development – Simulation Analysis Worksheets

Appendix J – Documentation for Data Center Rates

Appendix K – 2030 Future Conditions with Development – Capacity Analysis Worksheets

Appendix L – 2030 Future Conditions with Development – Simulation Analysis Worksheets

Appendix M – Turn Lane Warrant Tables and Graphics

A. Signed Scoping Document

THIS IS NOT A CHAPTER 870 STUDY

VDOT Virginia Department of Transportation	PRE-SCOPE OF WORK MEETING FORM Information on the Project Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information				
Consultant Name: Tele: E-mail:	Kevin Sitzman, Gorove Slade Associates, Inc. 703.787.9595 ksitzman@goroveslade.com			
Developer/Owner Name: Tele: E-mail:	Kevin McHugh KMcHugh@Petersoncos.com			
Project Information				
Project Name:	Stafford Technology Campus	Locality/County:	Stafford County	
Project Location: (Attach regional and site specific location map)	The proposed development site is generally situated south of State Street Road between Eskimo Hill Road (Route 628) and US Route 1 (Richmond Highway) in Stafford County, Virginia.			
Submission Type	Comp Plan ☒	REZ/CUP ☒	Site Plan ☐	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The site is situated across two parcels that can be identified on Stafford County Tax Maps with the following Tax Map ID #s: 38 124 and 38 29A. The property is 523.94 acres and is currently zoned as A1 (Agricultural). The Applicant is proposing to rezone the parcels to Industrial in order to construct up to 5.5 million square feet of data center uses and 150,000 square feet of general light industrial uses. The development is anticipated to be complete and in operation by 2030. Assess to the site will be provided via three proposed full-movement entrances along Eskimo Hill Road and one proposed full move-movement entrance on US Route 1 forming the fourth leg of the Sage Lane intersection.			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☐	Mixed Use ☐	Other ☒
	Residential Uses(s) ITE LU Code(s): Number of Units: **Commercial Use(s)** ITE LU Code(s): Square Ft or Other Variable:		**Other Use(s)** ITE LU Code(s): 160, 110 Square Ft or Other Variable: 5,500 kSF, 150 kSF	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☐	500 – 999 ☒	1,000 or more ☐

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Traffic Impact Analysis Assumptions					
Study Period	Existing Year: 2023		Build-out Year: 2030		Design Year: N/A
Study Area Boundaries (Attach map)	North: State Shop Road			South: N/A	
	West: US Route 1 (Richmond Highway)			East: Eskimo Hill Road (Route 628)	
External Factors That Could Affect Project (Planned road improvements, other nearby developments) **(Please refer to attached Figure 3 in Supplement.)**	Approved Developments: 1. Centreport Gateway: (60,000 sf Shopping Center, 90 Room Hotel) 2. Centreport Industrial: (40,000 sf General Light Industrial) 3. Centreport Village: (494 Multifamily Housing – Low Rise) 4. Crossroads Industrial: (762,000 sf Industrial Park) 5. Project Ivy: (934,000 sf High Cube Warehouse – Non Sort, 633 space Storage Lot) 6. The Hills at Big Springs: (181 Single Family Homes)				
Consistency With Comprehensive Plan (Land use, transportation plan)	Yes				
Available Traffic Data (Historical, forecasts)	2023 TMCs at US 1 at Sage Ln, Eskimo Hill at Greenstead, Eskimo Hill at State Shop 2022 TMC at US 1 at Hospital Center Blvd 2021 TMC's at US 1 at Eskimo Hill, US 1 at Centerport Parkway, I-95 (NB and SB) at Centerport Parkway VDOT Historical AADT Data				
Trip Distribution **(Please refer to attached Figure 2 in Supplement.)**	Road Name: US Route 1 (to/from the North) – 45%			Road Name: US Route 1 (to/from the South) – 40%	
	Road Name: American Legion Road (to/from the West) – 10%			Road Name: Eskimo Hill Road (to/from the East) – 5%	
Annual Vehicle Trip Growth Rate: (See Note 4.)	2.5%/yr. (2023-2030)		Peak Period for Study (check all that apply)	☒ AM ☒ PM ☐ SAT	
			Peak Hour of the Adj. (to be used in study)	AM: 606 / PM: 263 / Daily: 4,856	
Study Intersections and/or Road Segments (Attach additional sheets as necessary) **(Please refer to attached Figure 1 in Supplement.)**	1.	US Route 1 at Hospital Center Boulevard		7.	Eskimo Hill Road at Greenstead Road / Big Spring Lane
	2.	US Route 1 at American Legion Road / Eskimo Hill Road		8.	Eskimo Hill Road at State Shop Road
	3.	US Route 1 at Sage Lane / Future Access 1		9.	Eskimo Hill Road at Future Site Entrance 2 / Future Site Access 3
	4.	US Route 1 at Centreport Parkway		10.	Eskimo Hill Road at Future Site Entrance 4
	5.	I-95 Northbound Ramps at Centerport Parkway		11.	Eskimo Hill Road at Future Site Entrance 5
	6.	I-95 Southbound Ramps at Centerport Parkway		12.	

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Trip Adjustment Factors	Internal allowance Reduction: ☐ Yes ☒ No	Pass-by allowance Reduction: ☐ Yes ☒ No
Software Methodology	☒ Synchro ☐ HCS (v.2000/+) ☐ SIDRA ☐ CORSIM ☒ Other SimTraffic	
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	Existing traffic signals that could be affected: 1. US Route 1 at Hospital Center Boulevard 2. US Route 1 at American Legion Road / Eskimo Hill Road 3. US Route 1 at Centreport Parkway 4. I-95 Northbound Ramps at Centreport Parkway 5. I-95 Southbound Ramps at Centreport Parkway Analysis Software: Synchro version 11 Results: HCM 6 Methodology (See Note 11.) Queue Lengths to be Reported: SimTraffic Max Queues	
Improvement(s) Assumed or to be Considered	1. Smart Scale project to construct eastbound and westbound left turn lanes on American Legion Road and Eskimo Hill Road 2. Centreport Parkway Area Improvements	
Background Traffic Studies Considered	Project Pipeline Study (December 2022)	
Plan Submission	☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)	
Additional Issues to be Addressed	☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☐ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other (_____)	

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

NOTES on ASSUMPTIONS:

1. Synchro files/signal timings will be obtained from VDOT.
2. The scenarios to be included in the study are 2023 Existing Conditions, 2030 Future Conditions without Development, 2030 Future Conditions with Development. The study will analyze AM and PM peak hours for all above scenarios.
3. Existing 2023 turning movement counts will be collected and utilized to develop baseline conditions at the intersections of US Route 1 at Sage Lane, Eskimo Hill Rd at Big Springs Rd, and Eskimo Hill Rd at State Shop Rd.
4. Existing 2022 turning movement counts will be provided by VDOT at the intersection of US Route 1 at Hospital Center Boulevard. The 2022 counts will be grown for one year to 2023 using a growth rate of 2.5% compounded annually for all movements.
5. Existing 2021 turning movement counts will be provided by VDOT at the intersections of US Route 1 at Eskimo Hill Rd, US Route 1 at Centreport Pkwy, I-95 Northbound Ramps at Centreport Parkway, and I-95 Southbound Ramps at Centreport Parkway. The 2021 counts will be grown for two years to 2023 using a growth rate of 2.5% compounded annually for all movements.
6. In order to project 2030 future conditions, a regional growth rate of 2.5% (compounded per year) will be applied to all movements at all existing study intersections for the period between 2023 and 2030.
7. Existing peak hour factors will be based on the traffic counts and utilized on a by-intersection basis. Peak hours factors by intersection in the range of 0.85 to 1.00 will be used for existing scenario. Peak hour factors of 0.92 will be used for all future scenarios if the existing peak hour factor by intersection is less than 0.92, and for all new intersections.
8. Heavy vehicle percentages (HV%) will be based on existing counts. For any new intersection, the HV% will be based on the default *Synchro* value of 2.0% per movement.
9. Based on the County comp plan, for any approach, a level of service (LOS) C or better would be considered as acceptable/desirable for traffic operations. VDOT considers LOS D or better as acceptable/desirable. For all approaches, the projected future conditions without development LOS and delay will be maintained in the future with development condition. Will show intersection, approach, and movement LOS.
10. SimTraffic Max queue lengths will be provided in addition to the capacity analyses.
11. HCM 6 methodology will be utilized in the capacity analyses where applicable; HCM 2000 methodology will be utilized if HCM 6 methodology is not applicable.
12. Preliminary access management and turn lanes will be assessed at the proposed site entrances.
13. US Route 1 at Enon Rd intersection will be included in the Synchro model only to capture the signal coordination. No capacity analysis results will be reported at this intersection.

SIGNED:  DATE: 03/21/2023
Applicant or Consultant

PRINT NAME: Kevin Sitzman, PE
Applicant or Consultant

SIGNED: _____ DATE: _____
VDOT Representative

PRINT NAME: _____
VDOT Representative

SIGNED: _____ DATE: ____
Local Government Representative

PRINT NAME: _____
Local Government Representative

Table 1: Historic Growth (Based on VDOT Traffic Data)

Road Segment:	From:	To:	Published VDOT AADT					Growth Rate			
			2015	2016	2017	2018	2019	2015 - 2019	2016 - 2019	2017 - 2019	2018 - 2019
US 1 Jefferson Davis Highway	Cranes Corner Road	Eskimo Hill Road	18,000	19,000	18,000	21,000	21,000	4%	3%	8%	0%
US 1 Jefferson Davis Highway	Eskimo Hill Road	Hope Road	14,000	15,000	14,000	18,000	18,000	6%	6%	13%	0%
Eskimo Hill Road (Rte. 628)	US 1 Jefferson Davis Highway	Southern View Drive	2,900	3,000	3,000	2,900	3,000	1%	0%	0%	3%

Table 2: Trip Generation – Peak Hour of the Adjacent Street (ITE 11th Edition)

Land Use	ITE Code	Size	------ Weekday ------						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Stafford Technology Campus									
Data Center [1]	160	5,500.0 kSF	272	223	495	49	116	165	4,125
General Light Industrial	110	150.0 kSF of GFA	98	13	111	14	84	98	731
Total			**370**	**236**	**606**	**63**	**200**	**263**	**4,856**

[1] VDOT approved rates of 0.09 for AM, 0.03 for PM and 0.75 for Daily trips per 1,000 SF for Data Center land use.

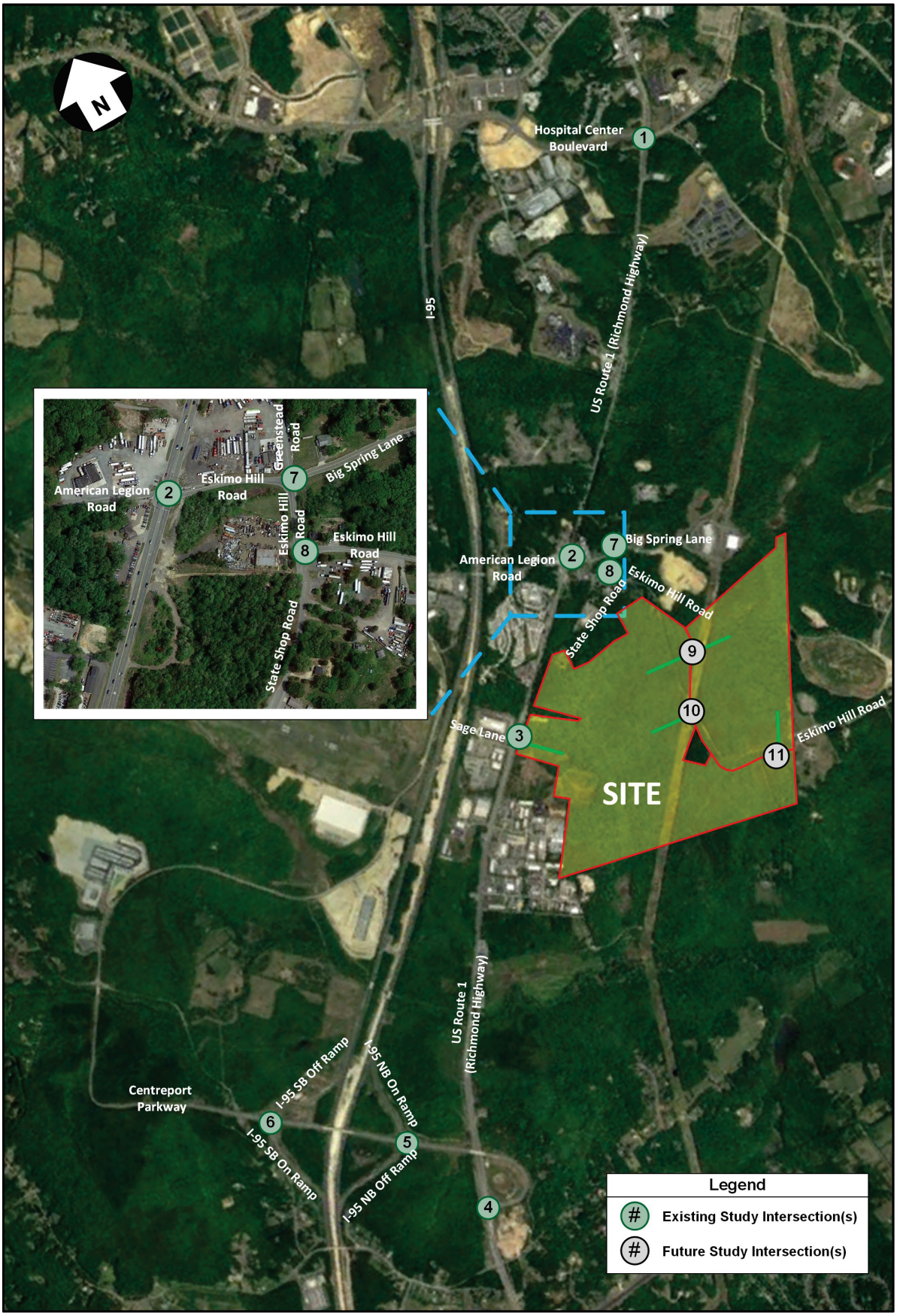

Figure 1: Site Location and Study Intersections

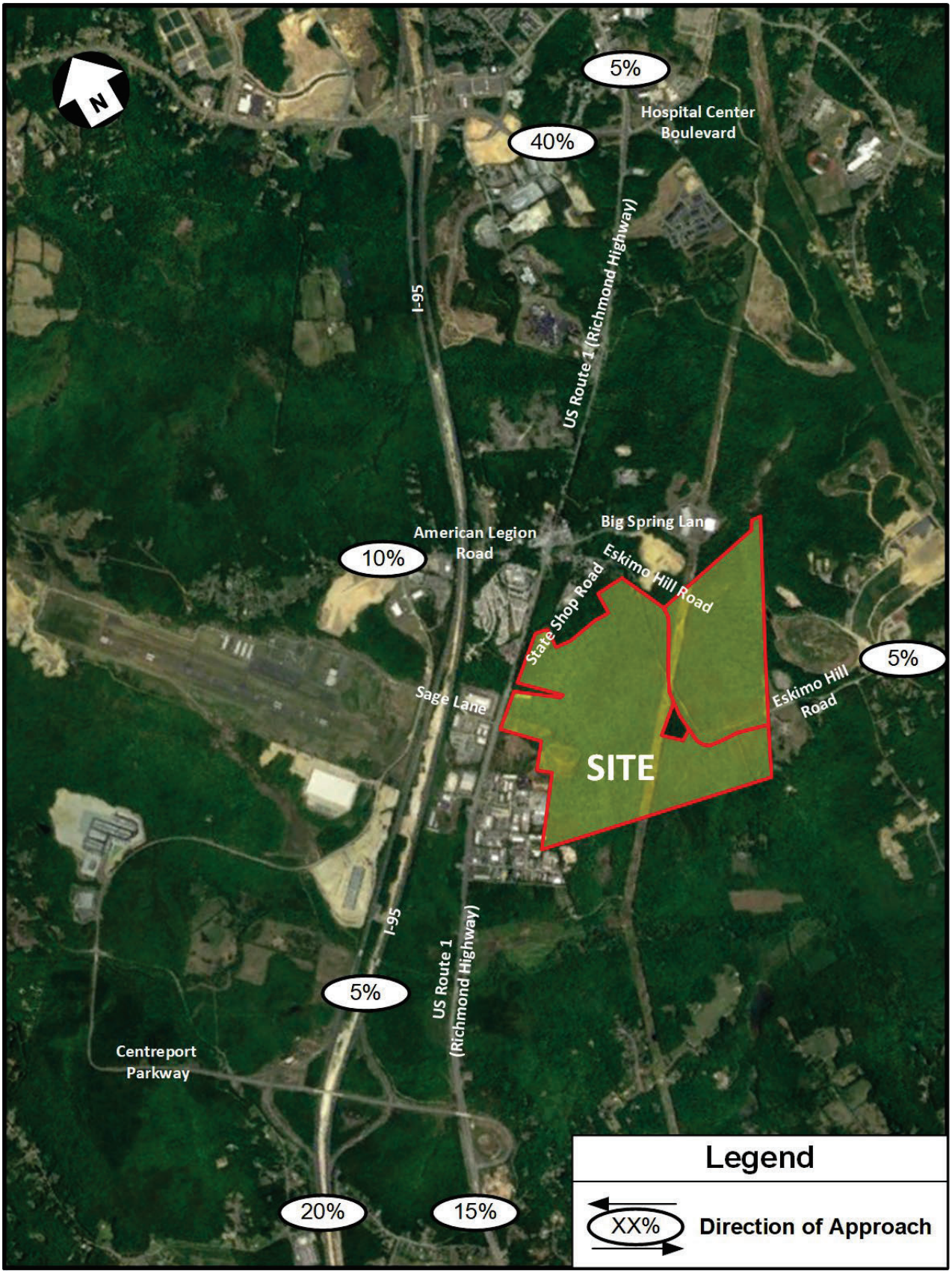

Figure 2: Direction of Approach

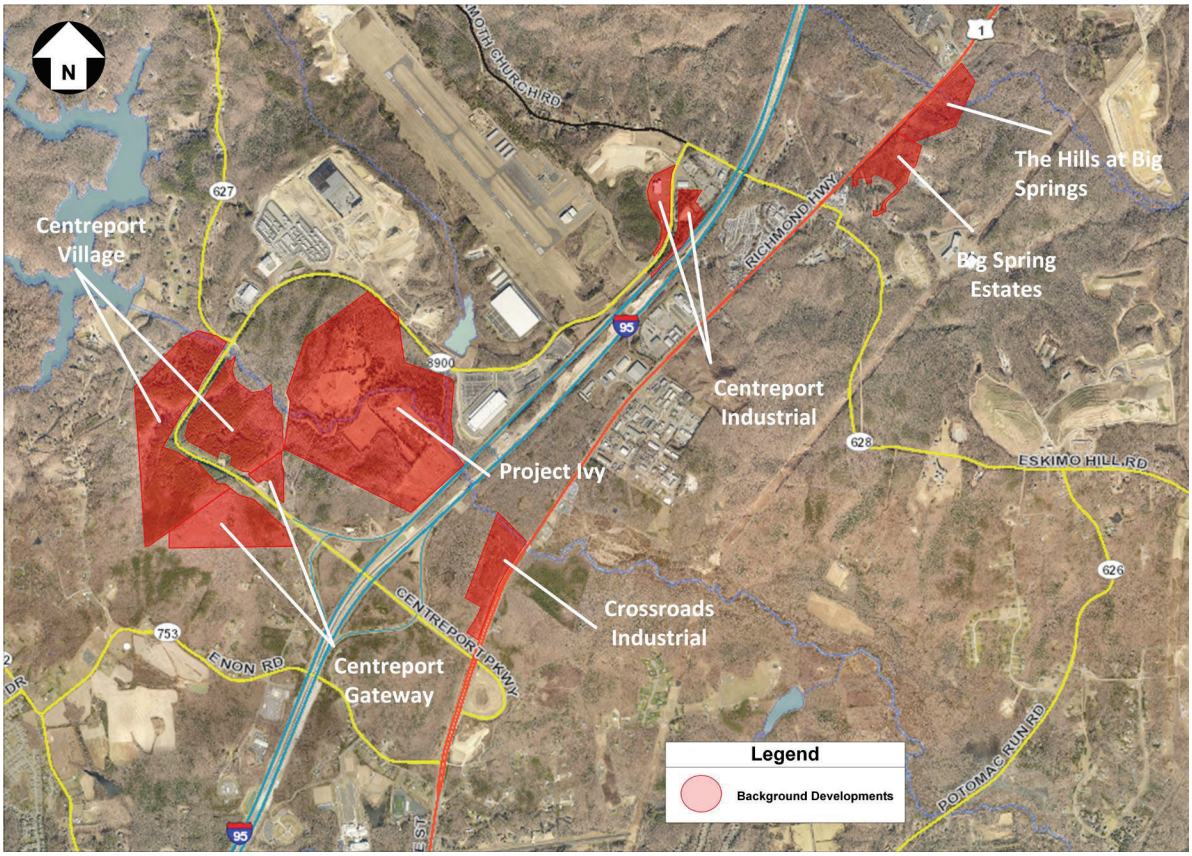

Figure 3: Background Developments



Figure 4: Conceptual Site Plan

B. Turning Movement Counts Data

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 1

Groups Printed- Cars

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	16	24	4	0	44	3	35	12	0	50	21	77	48	0	146	27	35	9	0	71	311
07:15 AM	20	36	2	0	58	7	44	13	0	64	12	83	52	0	147	46	37	24	0	107	376
07:30 AM	14	37	0	0	51	3	42	10	0	55	15	124	45	0	184	47	41	22	0	110	400
07:45 AM	11	54	5	0	70	7	51	10	0	68	23	94	45	0	162	42	76	26	0	144	444
Total	61	151	11	0	223	20	172	45	0	237	71	378	190	0	639	162	189	81	0	432	1531
08:00 AM	12	54	4	0	70	4	36	16	0	56	21	80	46	0	147	53	41	19	0	113	386
08:15 AM	13	47	5	0	65	5	46	10	0	61	17	79	34	0	130	45	56	16	0	117	373
08:30 AM	18	40	4	0	62	7	33	20	0	60	13	89	36	0	138	47	53	26	0	126	386
08:45 AM	14	47	6	0	67	4	38	15	0	57	16	78	27	0	121	35	36	38	0	109	354
Total	57	188	19	0	264	20	153	61	0	234	67	326	143	0	536	180	186	99	0	465	1499
09:00 AM	11	50	4	0	65	4	23	12	0	39	20	73	42	0	135	33	38	26	0	97	336
09:15 AM	9	48	6	0	63	10	37	9	0	56	13	62	41	0	116	44	28	22	0	94	329
09:30 AM	12	50	6	0	68	7	36	13	0	56	13	76	40	0	129	36	31	27	0	94	347
09:45 AM	11	42	8	0	61	5	35	12	0	52	14	47	44	0	105	34	50	33	0	117	335
Total	43	190	24	0	257	26	131	46	0	203	60	258	167	0	485	147	147	108	0	402	1347
10:00 AM	20	67	3	0	90	6	41	19	0	66	11	52	22	0	85	30	29	19	0	78	319
10:15 AM	9	52	8	0	69	5	34	8	0	47	14	60	28	0	102	27	27	19	0	73	291
10:30 AM	8	59	7	0	74	4	44	9	0	57	14	63	33	0	110	28	32	23	0	83	324
10:45 AM	12	51	8	0	71	8	41	11	0	60	13	70	36	0	119	36	30	25	0	91	341
Total	49	229	26	0	304	23	160	47	0	230	52	245	119	0	416	121	118	86	0	325	1275
11:00 AM	18	45	4	0	67	5	33	12	0	50	9	59	38	0	106	25	40	25	0	90	313
11:15 AM	18	73	6	0	97	9	37	12	0	58	9	65	27	0	101	32	40	21	0	93	349
11:30 AM	13	61	4	0	78	8	30	16	0	54	12	69	32	0	113	36	36	26	0	98	343
11:45 AM	15	68	6	0	89	7	36	18	0	61	17	65	34	0	116	49	42	25	0	116	382
Total	64	247	20	0	331	29	136	58	0	223	47	258	131	0	436	142	158	97	0	397	1387
12:00 PM	12	100	3	0	115	4	38	26	0	68	9	77	40	0	126	56	48	26	0	130	439
12:15 PM	16	99	4	0	119	5	34	11	0	50	11	103	32	0	146	49	38	23	0	110	425
12:30 PM	20	111	3	0	134	7	29	14	0	50	14	120	37	0	171	81	52	43	0	176	531
12:45 PM	28	111	6	0	145	10	19	13	0	42	17	119	29	0	165	89	63	96	0	248	600
Total	76	421	16	0	513	26	120	64	0	210	51	419	138	0	608	275	201	188	0	664	1995
01:00 PM	10	116	7	0	133	12	22	16	0	50	23	88	50	0	161	88	47	43	0	178	522
01:15 PM	19	110	8	0	137	6	31	7	0	44	13	97	40	0	150	85	48	51	0	184	515
01:30 PM	18	114	5	0	137	5	14	13	0	32	13	94	33	0	140	76	25	66	0	167	476
01:45 PM	18	128	11	0	157	17	17	17	0	51	13	125	28	0	166	69	43	60	0	172	546
Total	65	468	31	0	564	40	84	53	0	177	62	404	151	0	617	318	163	220	0	701	2059
02:00 PM	8	105	3	0	116	6	30	24	0	60	20	100	36	0	156	105	35	20	0	160	492
02:15 PM	19	146	5	0	170	6	17	18	0	41	12	109	33	0	154	81	59	23	0	163	528
02:30 PM	22	133	4	0	159	8	49	9	0	66	23	92	52	0	167	109	53	17	0	179	571
02:45 PM	16	167	8	0	191	9	41	21	0	71	15	85	32	0	132	116	46	28	0	190	584
Total	65	551	20	0	636	29	137	72	0	238	70	386	153	0	609	411	193	88	0	692	2175
03:00 PM	14	219	7	0	240	11	48	33	0	92	12	75	40	0	127	98	56	22	0	176	635
03:15 PM	22	168	6	0	196	8	45	23	0	76	19	83	45	0	147	119	50	18	0	187	606
03:30 PM	19	204	7	0	230	7	40	32	0	79	12	90	60	0	162	146	56	17	0	219	690
03:45 PM	26	224	10	0	260	4	38	23	0	65	16	79	64	0	159	151	64	26	0	241	725
Total	81	815	30	0	926	30	171	111	0	312	59	327	209	0	595	514	226	83	0	823	2656
04:00 PM	20	269	7	0	296	4	31	13	0	48	20	101	54	0	175	146	63	21	0	230	749
04:15 PM	16	234	11	0	261	7	42	25	0	74	16	72	68	0	156	139	60	20	0	219	710
04:30 PM	13	249	5	0	267	9	52	36	0	97	13	89	60	0	162	131	74	27	0	232	758
04:45 PM	9	321	4	0	334	3	36	24	0	63	15	96	59	0	170	143	62	24	0	229	796
Total	58	1073	27	0	1158	23	161	98	0	282	64	358	241	0	663	559	259	92	0	910	3013
05:00 PM	20	234	4	0	258	3	61	35	0	99	18	67	71	0	156	156	86	32	0	274	787
05:15 PM	13	247	5	0	265	3	44	32	0	79	19	84	65	0	168	158	67	27	0	252	764
05:30 PM	14	207	4	0	225	4	51	17	0	72	10	68	65	0	143	136	78	37	0	251	691
05:45 PM	19	159	4	0	182	5	47	10	0	62	13	83	57	0	153	125	66	42	0	233	630
Total	66	847	17	0	930	15	203	94	0	312	60	302	258	0	620	575	297	138	0	1010	2872
06:00 PM	21	178	4	0	203	3	44	16	0	63	17	65	32	0	114	109	53	34	0	196	576
06:15 PM	19	157	3	0	179	10	21	14	0	45	10	56	42	0	108	87	63	28	0	178	510
06:30 PM	7	137	4	0	148	5	29	8	0	42	13	59	41	0	113	95	58	42	0	195	498
06:45 PM	13	88	5	0	106	8	17	11	0	36	10	50	38	0	98	52	54	33	0	139	379
Total	60	560	16	0	636	26	111	49	0	186	50	230	153	0	433	343	228	137	0	708	1963

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 2

Groups Printed- Cars

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	745	5740	257	0	6742	307	1739	798	0	2844	713	3891	2053	0	6657	3747	2365	1417	0	7529	23772
Apprch %	11.1	85.1	3.8	0		10.8	61.1	28.1	0		10.7	58.4	30.8	0		49.8	31.4	18.8	0		
Total %	3.1	24.1	1.1	0	28.4	1.3	7.3	3.4	0	12	3	16.4	8.6	0	28	15.8	9.9	6	0	31.7	

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**20**	36	2	58	**7**	44	13	64	12	83	**52**	147	46	37	24	107	376
07:30 AM	14	37	0	51	3	42	10	55	15	**124**	45	**184**	47	41	22	110	400
07:45 AM	11	**54**	**5**	**70**	7	**51**	10	**68**	**23**	94	45	162	42	**76**	**26**	**144**	**444**
08:00 AM	12	54	4	70	4	36	**16**	56	21	80	46	147	**53**	41	19	113	386
Total Volume	57	181	11	249	21	173	49	243	71	381	188	640	188	195	91	474	1606
% App. Total	22.9	72.7	4.4		8.6	71.2	20.2		11.1	59.5	29.4		39.7	41.1	19.2		
PHF	.713	.838	.550	.889	.750	.848	.766	.893	.772	.768	.904	.870	.887	.641	.875	.823	.904
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	13	249	**5**	267	**9**	52	**36**	97	13	89	60	162	131	74	27	232	758
04:45 PM	9	**321**	4	**334**	3	36	24	63	15	**96**	59	**170**	143	62	24	229	**796**
05:00 PM	**20**	234	4	258	3	**61**	35	**99**	18	67	**71**	156	156	**86**	**32**	**274**	787
05:15 PM	13	247	5	265	3	44	32	79	**19**	84	65	168	**158**	67	27	252	764
Total Volume	55	1051	18	1124	18	193	127	338	65	336	255	656	588	289	110	987	3105
% App. Total	4.9	93.5	1.6		5.3	57.1	37.6		9.9	51.2	38.9		59.6	29.3	11.1		
PHF	.688	.819	.900	.841	.500	.791	.882	.854	.855	.875	.898	.965	.930	.840	.859	.901	.975

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 1

Groups Printed- Trucks

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	2	2	0	0	4	0	0	0	0	0	0	4	8	0	12	3	0	2	0	5	21
07:15 AM	1	2	0	0	3	1	1	0	0	2	1	5	17	0	23	8	1	0	0	9	37
07:30 AM	0	7	0	0	7	0	2	1	0	3	1	5	21	0	27	10	1	1	0	12	49
07:45 AM	3	6	0	0	9	0	3	0	0	3	0	4	22	0	26	10	2	2	0	14	52
Total	6	17	0	0	23	1	6	1	0	8	2	18	68	0	88	31	4	5	0	40	159
08:00 AM	1	4	0	0	5	0	1	1	0	2	0	5	19	0	24	5	2	0	0	7	38
08:15 AM	0	3	0	0	3	0	1	0	0	1	0	8	17	0	25	6	3	1	0	10	39
08:30 AM	0	1	1	0	2	0	2	1	0	3	0	6	17	0	23	7	3	1	0	11	39
08:45 AM	1	4	0	0	5	0	1	0	0	1	0	3	16	0	19	11	1	2	0	14	39
Total	2	12	1	0	15	0	5	2	0	7	0	22	69	0	91	29	9	4	0	42	155
09:00 AM	2	2	2	0	6	0	0	2	0	2	2	6	17	0	25	7	0	3	0	10	43
09:15 AM	0	2	0	0	2	2	2	1	0	5	1	4	15	0	20	10	1	3	0	14	41
09:30 AM	1	9	0	0	10	1	0	3	0	4	2	9	19	0	30	7	2	1	0	10	54
09:45 AM	3	2	0	0	5	0	0	3	0	3	3	3	8	0	14	15	1	1	0	17	39
Total	6	15	2	0	23	3	2	9	0	14	8	22	59	0	89	39	4	8	0	51	177
10:00 AM	1	6	1	0	8	3	1	0	0	4	0	4	24	0	28	11	0	1	0	12	52
10:15 AM	3	2	0	0	5	0	2	1	0	3	0	8	20	0	28	10	1	1	0	12	48
10:30 AM	1	3	1	0	5	0	2	1	0	3	1	0	8	0	9	9	0	1	0	10	27
10:45 AM	2	3	0	0	5	0	0	0	0	0	1	5	14	0	20	11	3	2	0	16	41
Total	7	14	2	0	23	3	5	2	0	10	2	17	66	0	85	41	4	5	0	50	168
11:00 AM	1	3	0	0	4	0	1	2	0	3	2	4	16	0	22	7	2	1	0	10	39
11:15 AM	2	4	0	0	6	2	3	1	0	6	0	4	18	0	22	10	3	0	0	13	47
11:30 AM	0	5	0	0	5	0	2	2	0	4	0	4	22	0	26	11	1	0	0	12	47
11:45 AM	2	1	1	0	4	0	1	0	0	1	0	3	17	0	20	10	0	2	0	12	37
Total	5	13	1	0	19	2	7	5	0	14	2	15	73	0	90	38	6	3	0	47	170
12:00 PM	0	2	0	0	2	0	2	2	0	4	1	3	11	0	15	7	4	1	0	12	33
12:15 PM	1	6	0	0	7	0	0	1	0	1	0	3	21	0	24	12	1	1	0	14	46
12:30 PM	1	7	2	0	10	2	2	1	0	5	1	7	17	0	25	12	4	3	0	19	59
12:45 PM	1	8	0	0	9	0	0	0	0	0	1	7	13	0	21	18	4	4	0	26	56
Total	3	23	2	0	28	2	4	4	0	10	3	20	62	0	85	49	13	9	0	71	194
01:00 PM	2	8	0	0	10	0	1	2	0	3	0	11	27	0	38	12	1	10	0	23	74
01:15 PM	2	5	0	0	7	1	1	0	0	2	1	8	6	0	15	15	4	5	0	24	48
01:30 PM	0	7	0	0	7	1	1	1	0	3	0	4	11	0	15	11	0	4	0	15	40
01:45 PM	0	7	0	0	7	0	0	0	0	0	0	7	16	0	23	7	1	2	0	10	40
Total	4	27	0	0	31	2	3	3	0	8	1	30	60	0	91	45	6	21	0	72	202
02:00 PM	2	4	0	0	6	1	0	0	0	1	0	5	20	0	25	7	2	0	0	9	41
02:15 PM	1	9	0	0	10	0	2	0	0	2	1	3	14	0	18	9	2	0	0	11	41
02:30 PM	0	6	1	0	7	1	0	1	0	2	1	9	18	0	28	9	0	1	0	10	47
02:45 PM	1	4	0	0	5	0	0	1	0	1	1	8	9	0	18	9	0	2	0	11	35
Total	4	23	1	0	28	2	2	2	0	6	3	25	61	0	89	34	4	3	0	41	164
03:00 PM	0	5	0	0	5	0	1	2	0	3	1	10	13	0	24	9	1	0	0	10	42
03:15 PM	0	8	0	0	8	1	4	3	0	8	0	4	8	0	12	9	3	1	0	13	41
03:30 PM	0	6	0	0	6	0	1	0	0	1	0	3	9	0	12	6	0	1	0	7	26
03:45 PM	0	8	0	0	8	0	1	1	0	2	0	2	2	0	4	5	1	2	0	8	22
Total	0	27	0	0	27	1	7	6	0	14	1	19	32	0	52	29	5	4	0	38	131
04:00 PM	0	12	0	0	12	0	1	1	0	2	0	1	5	0	6	10	3	1	0	14	34
04:15 PM	0	9	1	0	10	0	1	0	0	1	0	1	4	0	5	5	0	0	0	5	21
04:30 PM	0	5	0	0	5	0	0	1	0	1	0	2	6	0	8	5	1	1	0	7	21
04:45 PM	0	7	0	0	7	0	1	1	0	2	2	0	2	0	4	2	2	0	0	4	17
Total	0	33	1	0	34	0	3	3	0	6	2	4	17	0	23	22	6	2	0	30	93
05:00 PM	1	5	0	0	6	0	0	0	0	0	0	0	1	0	1	7	1	1	0	9	16
05:15 PM	0	11	0	0	11	0	2	0	0	2	1	0	2	0	3	8	0	1	0	9	25
05:30 PM	0	4	0	0	4	1	1	0	0	2	0	0	2	0	2	9	0	1	0	10	18
05:45 PM	0	4	0	0	4	0	0	0	0	0	1	3	2	0	6	6	2	0	0	8	18
Total	1	24	0	0	25	1	3	0	0	4	2	3	7	0	12	30	3	3	0	36	77
06:00 PM	1	5	0	0	6	0	1	2	0	3	2	3	0	0	5	4	2	0	0	6	20
06:15 PM	2	0	0	0	2	0	0	0	0	0	0	2	2	0	4	4	0	1	0	5	11
06:30 PM	2	2	0	0	4	0	2	2	0	4	0	0	0	0	0	3	0	0	0	3	11
06:45 PM	1	1	0	0	2	0	0	0	0	0	0	1	6	0	7	6	0	1	0	7	16
Total	6	8	0	0	14	0	3	4	0	7	2	6	8	0	16	17	2	2	0	21	58

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
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Groups Printed- Trucks

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	44	236	10	0	290	17	50	41	0	108	28	201	582	0	811	404	66	69	0	539	1748
Apprch %	15.2	81.4	3.4	0		15.7	46.3	38	0		3.5	24.8	71.8	0		75	12.2	12.8	0		
Total %	2.5	13.5	0.6	0	16.6	1	2.9	2.3	0	6.2	1.6	11.5	33.3	0	46.4	23.1	3.8	3.9	0	30.8	

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:30 AM																	
09:30 AM	1	**9**	0	**10**	1	0	**3**	**4**	2	**9**	19	**30**	7	**2**	**1**	10	**54**
09:45 AM	**3**	2	0	5	0	0	3	3	**3**	3	8	14	**15**	1	1	**17**	39
10:00 AM	1	6	**1**	8	**3**	1	0	4	0	4	**24**	28	11	0	1	12	52
10:15 AM	3	2	0	5	0	**2**	1	3	0	8	20	28	10	1	1	12	48
Total Volume	8	19	1	28	4	3	7	14	5	24	71	100	43	4	4	51	193
% App. Total	28.6	67.9	3.6		28.6	21.4	50		5	24	71		84.3	7.8	7.8		
PHF	.667	.528	.250	.700	.333	.375	.583	.875	.417	.667	.740	.833	.717	.500	1.00	.750	.894
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:30 PM																	
12:30 PM	1	7	**2**	**10**	**2**	**2**	1	**5**	**1**	7	17	25	12	**4**	3	19	59
12:45 PM	1	**8**	0	9	0	0	0	0	1	7	13	21	**18**	4	4	**26**	56
01:00 PM	**2**	8	0	10	0	1	**2**	3	0	**11**	**27**	**38**	12	1	**10**	23	**74**
01:15 PM	2	5	0	7	1	1	0	2	1	8	6	15	15	4	5	24	48
Total Volume	6	28	2	36	3	4	3	10	3	33	63	99	57	13	22	92	237
% App. Total	16.7	77.8	5.6		30	40	30		3	33.3	63.6		62	14.1	23.9		
PHF	.750	.875	.250	.900	.375	.500	.375	.500	.750	.750	.583	.651	.792	.813	.550	.885	.801

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
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Groups Printed- Bicycles on Crosswalk

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peggy Malone and Associates
904-992-8072

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Groups Printed- Bicycles on Crosswalk

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	0		
Total %	0	0	0	0	0	0	0	0	50	50	0	0	0	50	50	0	0	0	0	0	

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peggy Malone and Associates
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Groups Printed- Pedestrians

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
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Groups Printed- Pedestrians

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 1

Groups Printed- Combined

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	18	26	4	0	48	3	35	12	0	50	21	81	56	0	158	30	35	11	0	76	332
07:15 AM	21	38	2	0	61	8	45	13	0	66	13	88	69	0	170	54	38	24	0	116	413
07:30 AM	14	44	0	0	58	3	44	11	0	58	16	129	66	0	211	57	42	23	0	122	449
07:45 AM	14	60	5	0	79	7	54	10	0	71	23	98	67	0	188	52	78	28	0	158	496
Total	67	168	11	0	246	21	178	46	0	245	73	396	258	0	727	193	193	86	0	472	1690
08:00 AM	13	58	4	0	75	4	37	17	0	58	21	85	65	0	171	58	43	19	0	120	424
08:15 AM	13	50	5	0	68	5	47	10	0	62	17	87	51	0	155	51	59	17	0	127	412
08:30 AM	18	41	5	0	64	7	35	21	0	63	13	95	53	0	161	54	56	27	0	137	425
08:45 AM	15	51	6	0	72	4	39	15	0	58	16	81	43	0	140	46	37	40	0	123	393
Total	59	200	20	0	279	20	158	63	0	241	67	348	212	0	627	209	195	103	0	507	1654
09:00 AM	13	52	6	0	71	4	23	14	1	42	22	79	59	1	161	40	38	29	0	107	381
09:15 AM	9	50	6	0	65	12	39	10	0	61	14	66	56	0	136	54	29	25	0	108	370
09:30 AM	13	59	6	0	78	8	36	16	0	60	15	85	59	0	159	43	33	28	0	104	401
09:45 AM	14	44	8	0	66	5	35	15	0	55	17	50	52	0	119	49	51	34	0	134	374
Total	49	205	26	0	280	29	133	55	1	218	68	280	226	1	575	186	151	116	0	453	1526
10:00 AM	21	73	4	0	98	9	42	19	0	70	11	56	46	0	113	41	29	20	0	90	371
10:15 AM	12	54	8	0	74	5	36	9	0	50	14	68	48	0	130	37	28	20	0	85	339
10:30 AM	9	62	8	0	79	4	46	10	0	60	15	63	41	0	119	37	32	24	0	93	351
10:45 AM	14	54	8	0	76	8	41	11	0	60	14	75	50	0	139	47	33	27	0	107	382
Total	56	243	28	0	327	26	165	49	0	240	54	262	185	0	501	162	122	91	0	375	1443
11:00 AM	19	48	4	0	71	5	34	14	0	53	11	63	54	0	128	32	42	26	0	100	352
11:15 AM	20	77	6	0	103	11	40	13	0	64	9	69	45	0	123	42	43	21	0	106	396
11:30 AM	13	66	4	0	83	8	32	18	0	58	12	73	54	0	139	47	37	26	0	110	390
11:45 AM	17	69	7	0	93	7	37	18	0	62	17	68	51	0	136	59	42	27	0	128	419
Total	69	260	21	0	350	31	143	63	0	237	49	273	204	0	526	180	164	100	0	444	1557
12:00 PM	12	102	3	0	117	4	40	28	0	72	10	80	51	0	141	63	52	27	0	142	472
12:15 PM	17	105	4	0	126	5	34	12	0	51	11	106	53	0	170	61	39	24	0	124	471
12:30 PM	21	118	5	0	144	9	31	15	0	55	15	127	54	0	196	93	56	46	0	195	590
12:45 PM	29	119	6	0	154	10	19	13	0	42	18	126	42	0	186	107	67	100	0	274	656
Total	79	444	18	0	541	28	124	68	0	220	54	439	200	0	693	324	214	197	0	735	2189
01:00 PM	12	124	7	0	143	12	23	18	0	53	23	99	77	0	199	100	48	53	0	201	596
01:15 PM	21	115	8	0	144	7	32	7	0	46	14	105	46	0	165	100	52	56	0	208	563
01:30 PM	18	121	5	0	144	6	15	14	0	35	13	98	44	0	155	87	25	70	0	182	516
01:45 PM	18	135	11	0	164	17	17	17	0	51	13	132	44	0	189	76	44	62	0	182	586
Total	69	495	31	0	595	42	87	56	0	185	63	434	211	0	708	363	169	241	0	773	2261
02:00 PM	10	109	3	0	122	7	30	24	0	61	20	105	56	0	181	112	37	20	0	169	533
02:15 PM	20	155	5	0	180	6	19	18	0	43	13	112	47	0	172	90	61	23	0	174	569
02:30 PM	22	139	5	0	166	9	49	10	0	68	24	101	70	0	195	118	53	18	0	189	618
02:45 PM	17	171	8	0	196	9	41	22	0	72	16	93	41	0	150	125	46	30	0	201	619
Total	69	574	21	0	664	31	139	74	0	244	73	411	214	0	698	445	197	91	0	733	2339
03:00 PM	14	224	7	0	245	11	49	35	0	95	13	85	53	0	151	107	57	22	0	186	677
03:15 PM	22	176	6	0	204	9	49	26	0	84	19	87	53	0	159	128	53	19	0	200	647
03:30 PM	19	210	7	0	236	7	41	32	0	80	12	93	69	0	174	152	56	18	0	226	716
03:45 PM	26	232	10	0	268	4	39	24	0	67	16	81	66	0	163	156	65	28	0	249	747
Total	81	842	30	0	953	31	178	117	0	326	60	346	241	0	647	543	231	87	0	861	2787
04:00 PM	20	281	7	0	308	4	32	14	0	50	20	102	59	0	181	156	66	22	0	244	783
04:15 PM	16	243	12	0	271	7	43	25	0	75	16	73	72	0	161	144	60	20	0	224	731
04:30 PM	13	254	5	0	272	9	52	37	0	98	13	91	66	0	170	136	75	28	0	239	779
04:45 PM	9	328	4	0	341	3	37	25	0	65	17	96	61	0	174	145	64	24	0	233	813
Total	58	1106	28	0	1192	23	164	101	0	288	66	362	258	0	686	581	265	94	0	940	3106
05:00 PM	21	239	4	0	264	3	61	35	0	99	18	67	72	0	157	163	87	33	0	283	803
05:15 PM	13	258	5	0	276	3	46	32	0	81	20	84	67	0	171	166	67	28	0	261	789
05:30 PM	14	211	4	0	229	5	52	17	0	74	10	68	67	0	145	145	78	38	0	261	709
05:45 PM	19	163	4	0	186	5	47	10	0	62	14	86	59	0	159	131	68	42	0	241	648
Total	67	871	17	0	955	16	206	94	0	316	62	305	265	0	632	605	300	141	0	1046	2949
06:00 PM	22	183	4	0	209	3	45	18	0	66	19	68	32	0	119	113	55	34	0	202	596
06:15 PM	21	157	3	0	181	10	21	14	0	45	10	58	44	0	112	91	63	29	0	183	521
06:30 PM	9	139	4	0	152	5	31	10	0	46	13	59	41	0	113	98	58	42	0	198	509
06:45 PM	14	89	5	0	108	8	17	11	0	36	10	51	44	0	105	58	54	34	0	146	395
Total	66	568	16	0	650	26	114	53	0	193	52	236	161	0	449	360	230	139	0	729	2021

Peggy Malone and Associates
904-992-8072

File Name : US 1 & Hospital Center Blvd
Site Code :
Start Date : 6/16/2022
Page No : 2

Groups Printed- Combined

	US 1 Southbound					Hospital Center Blvd Westbound					US 1 Northbound					Hospital Center Blvd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	789	5976	267	0	7032	324	1789	839	1	2953	741	4092	2635	1	7469	4151	2431	1486	0	8068	25522
Apprch %	11.2	85	3.8	0		11	60.6	28.4	0		9.9	54.8	35.3	0		51.5	30.1	18.4	0		
Total %	3.1	23.4	1	0	27.6	1.3	7	3.3	0	11.6	2.9	16	10.3	0	29.3	16.3	9.5	5.8	0	31.6	

	US 1 Southbound				Hospital Center Blvd Westbound				US 1 Northbound				Hospital Center Blvd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**21**	38	2	61	**8**	45	13	66	13	88	**69**	170	54	38	24	116	413
07:30 AM	14	44	0	58	3	44	11	58	16	**129**	66	**211**	57	42	23	122	449
07:45 AM	14	**60**	**5**	**79**	7	**54**	10	**71**	**23**	98	67	188	52	**78**	**28**	**158**	**496**
08:00 AM	13	58	4	75	4	37	**17**	58	21	85	65	171	**58**	43	19	120	424
Total Volume	62	200	11	273	22	180	51	253	73	400	267	740	221	201	94	516	1782
% App. Total	22.7	73.3	4		8.7	71.1	20.2		9.9	54.1	36.1		42.8	39	18.2		
PHF	.738	.833	.550	.864	.688	.833	.750	.891	.793	.775	.967	.877	.953	.644	.839	.816	.898
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	13	254	**5**	272	**9**	52	**37**	98	13	91	66	170	136	75	28	239	779
04:45 PM	9	**328**	4	**341**	3	37	25	65	17	**96**	61	**174**	145	64	24	233	**813**
05:00 PM	**21**	239	4	264	3	**61**	35	**99**	18	67	**72**	157	163	**87**	**33**	**283**	803
05:15 PM	13	258	5	276	3	46	32	81	**20**	84	67	171	**166**	67	28	261	789
Total Volume	56	1079	18	1153	18	196	129	343	68	338	266	672	610	293	113	1016	3184
% App. Total	4.9	93.6	1.6		5.2	57.1	37.6		10.1	50.3	39.6		60	28.8	11.1		
PHF	.667	.822	.900	.845	.500	.803	.872	.866	.850	.880	.924	.966	.919	.842	.856	.898	.979

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd
City: Fredericksburg
Control: Signalized

Project ID: 23-260018-002
Date: 2/1/2023

Data - Total

NS/EW Streets:	US 1/Rlchmond Hwy				US 1/Rlchmond Hwy				American Legion Rd/Eskimo Hill Rd				American Legion Rd/Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	4	98	3	0	5	33	0	0	2	0	1	0	1	1	22	0	170
6:15 AM	5	151	3	0	7	53	3	0	6	0	1	0	3	1	26	0	259
6:30 AM	7	176	2	0	4	49	5	0	6	2	5	0	4	6	15	0	281
6:45 AM	10	234	4	0	11	73	8	0	4	2	6	0	9	9	28	0	398
7:00 AM	7	182	2	0	6	57	5	0	7	4	4	0	11	9	47	0	341
7:15 AM	3	197	4	0	19	75	5	0	4	5	4	0	8	8	70	0	402
7:30 AM	10	371	8	0	12	105	0	0	8	4	9	0	6	11	73	0	617
7:45 AM	13	289	9	0	16	92	9	0	7	8	15	0	3	5	53	0	519
8:00 AM	9	285	7	0	19	83	3	0	11	2	6	0	10	3	35	0	473
8:15 AM	3	271	4	0	28	102	3	0	5	1	7	0	7	2	38	0	471
8:30 AM	5	198	11	0	24	113	4	0	6	4	11	0	7	3	35	0	421
8:45 AM	5	178	18	0	22	80	6	0	4	1	12	0	5	1	21	0	353
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	81	2630	75	0	173	915	51	0	70	33	81	0	74	59	463	0	4705
APPROACH %'s :	2.91%	94.40%	2.69%	0.00%	15.19%	80.33%	4.48%	0.00%	38.04%	17.93%	44.02%	0.00%	12.42%	9.90%	77.68%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	35	1216	28	0	75	382	15	0	31	15	37	0	26	21	199	0	2080
PEAK HR FACTOR :	0.673	0.819	0.778	0.000	0.670	0.910	0.417	0.000	0.705	0.469	0.617	0.000	0.650	0.477	0.682	0.000	0.843
	0.822				0.887				0.692				0.683				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	101	2	0	44	349	9	0	12	11	18	0	9	6	19	0	589
4:15 PM	6	104	5	0	58	326	10	0	4	13	18	0	16	5	32	0	597
4:30 PM	9	130	4	0	56	399	8	0	10	5	14	0	8	6	15	0	664
4:45 PM	4	114	7	0	51	353	10	0	9	19	9	0	9	8	14	0	607
5:00 PM	15	121	6	0	48	258	10	0	7	5	13	0	9	4	12	0	508
5:15 PM	8	123	5	0	3	9	0	0	4	6	11	0	8	3	17	0	197
5:30 PM	12	97	3	0	7	44	0	0	7	2	17	0	18	4	12	0	223
5:45 PM	14	76	4	0	18	154	10	0	9	6	15	0	9	8	12	0	335
6:00 PM	13	80	2	0	14	203	14	0	6	1	8	0	10	4	21	0	376
6:15 PM	11	81	4	0	30	192	12	0	9	2	11	0	7	1	13	0	373
6:30 PM	6	75	4	0	22	120	20	0	3	4	6	0	2	1	8	0	271
6:45 PM	4	52	5	0	16	106	14	0	9	1	1	0	4	1	3	0	216
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	111	1154	51	0	367	2513	117	0	89	75	141	0	109	51	178	0	4956
APPROACH %'s :	8.43%	87.69%	3.88%	0.00%	12.25%	83.85%	3.90%	0.00%	29.18%	24.59%	46.23%	0.00%	32.25%	15.09%	52.66%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	28	449	18	0	209	1427	37	0	35	48	59	0	42	25	80	0	2457
PEAK HR FACTOR :	0.778	0.863	0.643	0.000	0.901	0.894	0.925	0.000	0.729	0.632	0.819	0.000	0.656	0.781	0.625	0.000	0.925
	0.865				0.903				0.866				0.693				

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd
City: Fredericksburg
Control: Signalized

Project ID: 23-260018-002
Date: 2/1/2023

Data - Cars

NS/EW Streets:	US 1/Rlchmond Hwy				US 1/Rlchmond Hwy				American Legion Rd/Eskimo Hill Rd				American Legion Rd/Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	4	95	3	0	3	33	0	0	2	0	1	0	1	1	22	0	165
6:15 AM	5	141	3	0	7	53	3	0	6	0	1	0	2	0	25	0	246
6:30 AM	6	160	2	0	2	46	5	0	6	2	4	0	4	6	15	0	258
6:45 AM	10	220	3	0	9	68	7	0	4	2	6	0	9	9	27	0	374
7:00 AM	7	168	1	0	5	52	5	0	7	3	4	0	10	9	45	0	316
7:15 AM	3	186	4	0	17	66	5	0	4	3	3	0	8	8	67	0	374
7:30 AM	10	357	7	0	12	98	0	0	5	4	9	0	5	10	67	0	584
7:45 AM	13	280	8	0	15	84	8	0	6	8	14	0	2	5	48	0	491
8:00 AM	8	270	7	0	14	74	3	0	10	1	6	0	10	3	34	0	440
8:15 AM	3	262	3	0	22	98	3	0	4	1	5	0	6	2	35	0	444
8:30 AM	5	188	10	0	22	105	3	0	6	4	8	0	5	3	32	0	391
8:45 AM	4	164	17	0	19	73	6	0	4	1	10	0	5	1	18	0	322
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	78	2491	68	0	147	850	48	0	64	29	71	0	67	57	435	0	4405
APPROACH %'s :	2.96%	94.46%	2.58%	0.00%	14.07%	81.34%	4.59%	0.00%	39.02%	17.68%	43.29%	0.00%	11.99%	10.20%	77.82%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	34	1169	25	0	63	354	14	0	25	14	34	0	23	20	184	0	1959
PEAK HR FACTOR :	0.654	0.819	0.781	0.000	0.716	0.903	0.438	0.000	0.625	0.438	0.607	0.000	0.575	0.500	0.687	0.000	0.839
	0.821				0.876				0.652				0.692				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	94	2	0	42	343	9	0	12	11	18	0	9	6	14	0	569
4:15 PM	6	100	3	0	53	317	9	0	4	13	18	0	15	5	29	0	572
4:30 PM	9	123	4	0	56	381	7	0	9	4	13	0	6	6	14	0	632
4:45 PM	4	111	7	0	51	338	10	0	8	19	9	0	9	7	14	0	587
5:00 PM	15	117	6	0	47	248	10	0	5	5	13	0	9	4	12	0	491
5:15 PM	8	118	3	0	3	8	0	0	4	6	11	0	8	3	16	0	188
5:30 PM	12	96	3	0	7	44	0	0	6	2	17	0	17	4	11	0	219
5:45 PM	14	74	4	0	17	144	8	0	9	6	15	0	8	7	11	0	317
6:00 PM	12	79	2	0	14	197	14	0	6	1	8	0	9	4	21	0	367
6:15 PM	10	78	4	0	30	187	11	0	9	2	11	0	4	1	13	0	360
6:30 PM	6	74	3	0	22	117	16	0	3	4	6	0	2	1	8	0	262
6:45 PM	4	51	4	0	16	105	14	0	9	1	1	0	4	1	3	0	213
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	109	1115	45	0	358	2429	108	0	84	74	140	0	100	49	166	0	4777
APPROACH %'s :	8.59%	87.86%	3.55%	0.00%	12.37%	83.90%	3.73%	0.00%	28.19%	24.83%	46.98%	0.00%	31.75%	15.56%	52.70%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	28	428	16	0	202	1379	35	0	33	47	58	0	39	24	71	0	2360
PEAK HR FACTOR :	0.778	0.870	0.571	0.000	0.902	0.905	0.875	0.000	0.688	0.618	0.806	0.000	0.650	0.857	0.612	0.000	0.934
	0.868				0.910				0.841				0.684				

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd
City: Fredericksburg
Control: Signalized

Project ID: 23-260018-002
Date: 2/1/2023

Data - HT

NS/EW Streets:	US 1/Rlchmond Hwy				US 1/Rlchmond Hwy				American Legion Rd/Eskimo Hill Rd				American Legion Rd/Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5
6:15 AM	0	10	0	0	0	0	0	0	0	0	0	0	1	1	1	0	13
6:30 AM	1	16	0	0	2	3	0	0	0	0	1	0	0	0	0	0	23
6:45 AM	0	14	1	0	2	5	1	0	0	0	0	0	0	0	1	0	24
7:00 AM	0	14	1	0	1	5	0	0	0	1	0	0	1	0	2	0	25
7:15 AM	0	11	0	0	2	9	0	0	0	2	1	0	0	0	3	0	28
7:30 AM	0	14	1	0	0	7	0	0	3	0	0	0	1	1	6	0	33
7:45 AM	0	9	1	0	1	8	1	0	1	0	1	0	1	0	5	0	28
8:00 AM	1	15	0	0	5	9	0	0	1	1	0	0	0	0	1	0	33
8:15 AM	0	9	1	0	6	4	0	0	1	0	2	0	1	0	3	0	27
8:30 AM	0	10	1	0	2	8	1	0	0	0	3	0	2	0	3	0	30
8:45 AM	1	14	1	0	3	7	0	0	0	0	2	0	0	0	3	0	31
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	139	7	0	26	65	3	0	6	4	10	0	7	2	28	0	300
APPROACH %'s :	2.01%	93.29%	4.70%	0.00%	27.66%	69.15%	3.19%	0.00%	30.00%	20.00%	50.00%	0.00%	18.92%	5.41%	75.68%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	47	3	0	12	28	1	0	6	1	3	0	3	1	15	0	121
PEAK HR FACTOR :	0.250	0.783	0.750	0.000	0.500	0.778	0.250	0.000	0.500	0.250	0.375	0.000	0.750	0.250	0.625	0.000	0.917
	0.797				0.732				0.833				0.594				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	7	0	0	2	6	0	0	0	0	0	0	0	0	5	0	20
4:15 PM	0	4	2	0	5	9	1	0	0	0	0	0	1	0	3	0	25
4:30 PM	0	7	0	0	0	18	1	0	1	1	1	0	2	0	1	0	32
4:45 PM	0	3	0	0	0	15	0	0	1	0	0	0	0	1	0	0	20
5:00 PM	0	4	0	0	1	10	0	0	2	0	0	0	0	0	0	0	17
5:15 PM	0	5	2	0	0	1	0	0	0	0	0	0	0	0	1	0	9
5:30 PM	0	1	0	0	0	0	0	0	1	0	0	0	1	0	1	0	4
5:45 PM	0	2	0	0	1	10	2	0	0	0	0	0	1	1	1	0	18
6:00 PM	1	1	0	0	0	6	0	0	0	0	0	0	1	0	0	0	9
6:15 PM	1	3	0	0	0	5	1	0	0	0	0	0	3	0	0	0	13
6:30 PM	0	1	1	0	0	3	4	0	0	0	0	0	0	0	0	0	9
6:45 PM	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	39	6	0	9	84	9	0	5	1	1	0	9	2	12	0	179
APPROACH %'s :	4.26%	82.98%	12.77%	0.00%	8.82%	82.35%	8.82%	0.00%	71.43%	14.29%	14.29%	0.00%	39.13%	8.70%	52.17%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	21	2	0	7	48	2	0	2	1	1	0	3	1	9	0	97
PEAK HR FACTOR :	0.000	0.750	0.250	0.000	0.350	0.667	0.500	0.000	0.500	0.250	0.250	0.000	0.375	0.250	0.450	0.000	0.758
	0.821				0.750				0.333				0.650				

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd
City: Fredericksburg
Control: Signalized

Project ID: 23-260018-002
Date: 2/1/2023

Data - Bikes

NS/EW Streets:	US 1/Rlchmond Hwy				US 1/Rlchmond Hwy				American Legion Rd/Eskimo Hill Rd				American Legion Rd/Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: US 1/Richmond Hwy & American Legion Rd/Eskimo Hill Rd **Project ID:** 23-260018-002
City: Fredericksburg **Date:** 2/1/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	US 1/Richmond Hwy		US 1/Richmond Hwy		American Legion Rd/Eskimo Hill Rd		American Legion Rd/Eskimo Hill Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:30 AM - 08:30 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**04:00 PM - 05:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

US 1/Rlchmond Hwy & American Legion Rd/Eskimo Hill Rd

Peak Hour Turning Movement Count

ID: 23-260018-002
City: Fredericksburg

Day: Wednesday
Date: 2/1/2023

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	6:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	4:00 PM - 07:00 PM

SOUTHBOUND — US 1/Rlchmond Hwy

AM	15	382	75	0	1446	AM
NOON	0	0	0	0	0	NOON
PM	37	1427	209	0	564	PM

EASTBOUND — American Legion Rd/Eskimo Hill Rd

AM	NOON	PM		
71	0	90		
0	0	0	0	
31	0	35	0	
15	0	48	1	
37	0	59	0	
AM	NOON	PM		

WESTBOUND — American Legion Rd/Eskimo Hill Rd

PM	NOON	AM		
80	0	199	0	
25	0	21	1	
42	0	26	0	
0	0	0	0	
275	0	118		
PM	NOON	AM		

NORTHBOUND — US 1/Rlchmond Hwy

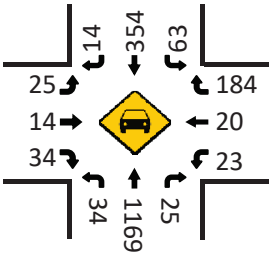
PM	1528	0	28	449	18	PM
NOON	0	0	0	0	0	NOON
AM	445	0	35	1216	28	AM

CONTROL

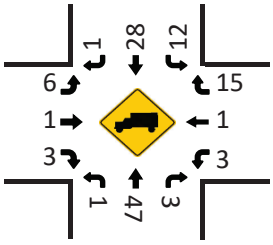
Signalized

TEV	2080 AM	0 NOON	2457 PM
PHF	0.84		0.93

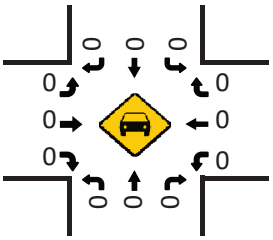
Cars (AM)



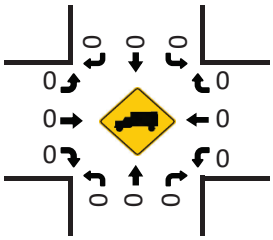
HT (AM)



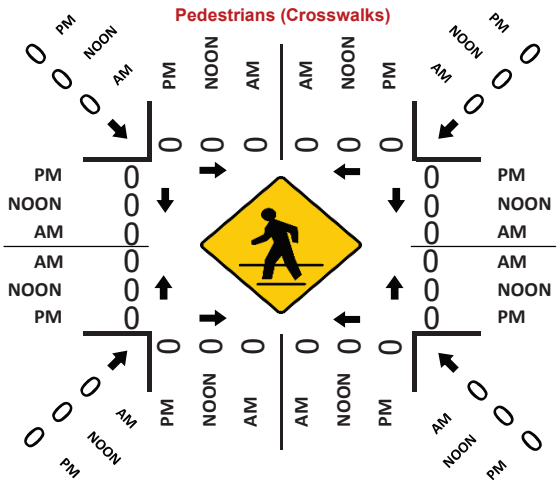
Cars (NOON)



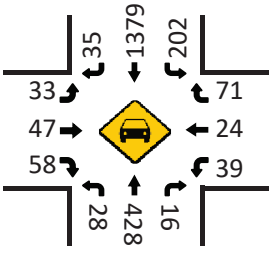
HT (NOON)



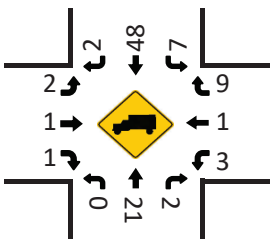
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Project ID:
Location: US 1 / Sage Lane
City: Fredericksburg

Day: Wednesday
Date: 2/1/2023

Groups Printed - Cars, PU, Vans - Heavy Trucks

	US 1/Richmond Hwy Northbound						US 1/Richmond Hwy Southbound						Sage Lane Eastbound						N/A Westbound						
Start Time	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	8	0	0	0	0	8	0	0	1	0	0	1	6	0	8	0	0	14	0	0	0	0	0	0	23
7:15 AM	1	0	0	0	0	1	0	0	8	0	0	8	4	0	5	0	0	9	0	0	0	0	0	0	18
7:30 AM	8	0	0	0	0	8	0	0	4	0	0	4	3	0	6	0	0	9	0	0	0	0	0	0	21
7:45 AM	9	0	0	0	0	9	0	0	6	0	0	6	5	0	3	0	0	8	0	0	0	0	0	0	23
Total	26	0	0	0	0	26	0	0	19	0	0	19	18	0	22	0	0	40	0	0	0	0	0	0	85
8:00 AM	6	0	0	0	0	6	0	0	6	0	0	6	3	0	3	0	0	6	0	0	0	0	0	0	18
8:15 AM	9	0	0	0	0	9	0	0	9	0	0	9	5	0	2	0	0	7	0	0	0	0	0	0	25
8:30 AM	6	0	0	0	0	6	0	0	4	0	0	4	5	0	2	0	0	7	0	0	0	0	0	0	17
8:45 AM	11	0	0	0	0	11	0	0	6	0	0	6	4	0	3	0	0	7	0	0	0	0	0	0	24
Total	32	0	0	0	0	32	0	0	25	0	0	25	17	0	10	0	0	27	0	0	0	0	0	0	84
BREAK																									
4:00 PM	3	0	0	0	0	3	0	0	5	0	0	5	4	0	2	0	0	6	0	0	0	0	0	0	14
4:15 PM	6	0	0	0	0	6	0	0	6	0	0	6	4	0	2	0	0	6	0	0	0	0	0	0	18
4:30 PM	2	0	0	0	0	2	0	0	5	0	0	5	3	0	10	0	0	13	0	0	0	0	0	0	20
4:45 PM	4	0	0	0	0	4	0	0	5	0	0	5	3	0	11	0	0	14	0	0	0	0	0	0	23
Total	15	0	0	0	0	15	0	0	21	0	0	21	14	0	25	0	0	39	0	0	0	0	0	0	75
5:00 PM	11	0	0	0	0	11	0	0	5	0	0	5	5	0	13	0	0	18	0	0	0	0	0	0	34
5:15 PM	6	0	0	0	0	6	0	0	5	0	0	5	5	0	6	0	0	11	0	0	0	0	0	0	22
5:30 PM	6	0	0	0	0	6	0	0	3	0	0	3	5	0	10	0	0	15	0	0	0	0	0	0	24
5:45 PM	4	0	0	0	0	4	0	0	6	0	0	6	6	0	7	0	0	13	0	0	0	0	0	0	23
Total	27	0	0	0	0	27	0	0	19	0	0	19	21	0	36	0	0	57	0	0	0	0	0	0	103
Grand Total	100	0	0	0	0	100	0	0	84	0	0	84	70	0	93	0	0	163	0	0	0	0	0	0	347
Apprch %	100.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		42.9	0.0	57.1	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	28.8	0.0	0.0	0.0	0.0	28.8	0.0	0.0	24.2	0.0	0.0	24.2	20.2	0.0	26.8	0.0	0.0	47.0	0.0	0.0	0.0	0.0	0.0	0.0	

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Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	22	2	0	24	19	18	0	37	136	77	0	0	213	274
06:15 AM	41	12	0	53	13	14	0	27	143	84	0	0	227	307
06:30 AM	42	8	0	50	18	28	0	46	152	113	0	0	265	361
06:45 AM	45	7	0	52	29	42	0	71	190	140	0	0	330	453
Total	150	29	0	179	79	102	0	181	621	414	0	0	1035	1395
07:00 AM	59	9	0	68	19	51	0	70	191	129	0	0	320	458
07:15 AM	67	6	0	73	33	44	0	77	193	175	1	0	369	519
07:30 AM	88	12	0	100	22	55	0	77	212	182	5	0	399	576
07:45 AM	98	6	0	104	34	65	0	99	184	195	1	0	380	583
Total	312	33	0	345	108	215	0	323	780	681	7	0	1468	2136
08:00 AM	74	6	0	80	25	81	0	106	152	133	0	0	285	471
08:15 AM	74	3	0	77	18	56	0	74	152	141	0	0	293	444
08:30 AM	87	3	0	90	22	55	0	77	148	135	0	0	283	450
08:45 AM	77	2	0	79	17	61	0	78	113	125	0	0	238	395
Total	312	14	0	326	82	253	0	335	565	534	0	0	1099	1760
09:00 AM	91	6	0	97	14	58	0	72	122	111	1	0	234	403
09:15 AM	95	13	0	108	18	43	0	61	118	107	3	0	228	397
09:30 AM	77	5	0	82	14	60	0	74	102	74	0	0	176	332
09:45 AM	84	11	0	95	14	44	0	58	94	75	1	0	170	323
Total	347	35	0	382	60	205	0	265	436	367	5	0	808	1455
10:00 AM	83	10	0	93	14	34	0	48	82	77	0	0	159	300
10:15 AM	81	7	0	88	18	39	0	57	85	72	0	0	157	302
10:30 AM	82	10	0	92	11	57	0	68	100	74	1	0	175	335
10:45 AM	94	8	0	102	15	53	0	68	76	88	0	0	164	334
Total	340	35	0	375	58	183	0	241	343	311	1	0	655	1271
11:00 AM	98	7	0	105	11	46	0	57	81	81	0	0	162	324
11:15 AM	98	1	0	99	7	59	0	66	65	77	1	0	143	308
11:30 AM	99	12	0	111	8	53	0	61	79	93	1	0	173	345
11:45 AM	107	10	0	117	4	46	0	50	68	65	0	0	133	300
Total	402	30	0	432	30	204	0	234	293	316	2	0	611	1277
12:00 PM	118	9	0	127	3	53	0	56	65	100	0	0	165	348
12:15 PM	108	11	0	119	13	72	0	85	80	110	2	0	192	396
12:30 PM	100	8	0	108	10	73	0	83	74	115	0	0	189	380
12:45 PM	106	6	0	112	14	60	0	74	77	94	3	0	174	360
Total	432	34	0	466	40	258	0	298	296	419	5	0	720	1484
01:00 PM	112	13	0	125	11	65	0	76	76	65	3	0	144	345
01:15 PM	116	6	0	122	6	69	0	75	79	102	1	0	182	379
01:30 PM	109	13	0	122	9	82	0	91	82	91	0	0	173	386
01:45 PM	109	7	0	116	14	78	0	92	82	73	0	0	155	363
Total	446	39	0	485	40	294	0	334	319	331	4	0	654	1473
02:00 PM	142	9	0	151	17	83	0	100	76	95	2	0	173	424
02:15 PM	153	12	0	165	14	87	0	101	80	90	1	0	171	437
02:30 PM	181	18	0	199	13	85	0	98	71	91	1	0	163	460
02:45 PM	197	13	0	210	9	72	0	81	64	93	1	0	158	449
Total	673	52	0	725	53	327	0	380	291	369	5	0	665	1770
03:00 PM	230	26	0	256	16	84	0	100	76	78	2	0	156	512
03:15 PM	294	14	0	308	9	94	0	103	101	121	2	0	224	635
03:30 PM	299	12	0	311	19	72	0	91	102	116	1	0	219	621
03:45 PM	284	32	0	316	12	96	0	108	107	109	0	0	216	640
Total	1107	84	0	1191	56	346	0	402	386	424	5	0	815	2408
04:00 PM	399	41	0	440	13	91	0	104	120	93	0	0	213	757
04:15 PM	374	23	0	397	15	111	0	126	124	93	0	0	217	740
04:30 PM	422	35	0	457	15	104	0	119	123	87	0	0	210	786
04:45 PM	382	20	0	402	12	125	0	137	127	81	3	0	211	750
Total	1577	119	0	1696	55	431	0	486	494	354	3	0	851	3033
05:00 PM	372	64	0	436	8	84	0	92	117	121	0	0	238	766
05:15 PM	369	27	0	396	14	104	0	118	164	85	0	0	249	763
05:30 PM	349	53	0	402	13	98	0	111	140	116	1	0	257	770
05:45 PM	393	97	0	490	12	76	0	88	124	101	0	0	225	803
Total	1483	241	0	1724	47	362	0	409	545	423	1	0	969	3102

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	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	7581	745	0	8326	708	3180	0	3888	5369	4943	38	0	10350	22564
Apprch %	91.1	8.9	0		18.2	81.8	0		51.9	47.8	0.4	0		
Total %	33.6	3.3	0	36.9	3.1	14.1	0	17.2	23.8	21.9	0.2	0	45.9	

	US 1 Southbound			Centreport Pkwy Westbound			US 1 Northbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	67	6	73	33	44	77	193	175	1	369	519
07:30 AM	88	**12**	100	22	55	77	**212**	182	**5**	**399**	576
07:45 AM	**98**	6	**104**	**34**	65	99	184	**195**	1	380	**583**
08:00 AM	74	6	80	25	**81**	**106**	152	133	0	285	471
Total Volume	327	30	357	114	245	359	741	685	7	1433	2149
% App. Total	91.6	8.4		31.8	68.2		51.7	47.8	0.5		
PHF	.834	.625	.858	.838	.756	.847	.874	.878	.350	.898	.922
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 05:00 PM											
05:00 PM	372	64	436	8	84	92	117	**121**	0	238	766
05:15 PM	369	27	396	**14**	**104**	**118**	**164**	85	0	249	763
05:30 PM	349	53	402	13	98	111	140	116	**1**	**257**	770
05:45 PM	**393**	**97**	**490**	12	76	88	124	101	0	225	**803**
Total Volume	1483	241	1724	47	362	409	545	423	1	969	3102
% App. Total	86	14		11.5	88.5		56.2	43.7	0.1		
PHF	.943	.621	.880	.839	.870	.867	.831	.874	.250	.943	.966

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Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	2	1	0	3	3	0	0	3	5	5	0	0	10	16
06:15 AM	1	1	0	2	1	0	0	1	3	3	0	0	6	9
06:30 AM	3	0	0	3	4	1	0	5	5	6	0	0	11	19
06:45 AM	1	1	0	2	1	4	0	5	10	10	0	0	20	27
Total	7	3	0	10	9	5	0	14	23	24	0	0	47	71
07:00 AM	1	4	0	5	1	1	0	2	6	4	0	0	10	17
07:15 AM	3	1	0	4	1	1	0	2	1	6	0	0	7	13
07:30 AM	7	0	0	7	1	0	0	1	5	11	0	0	16	24
07:45 AM	7	2	0	9	0	2	0	2	8	9	0	0	17	28
Total	18	7	0	25	3	4	0	7	20	30	0	0	50	82
08:00 AM	5	1	0	6	0	9	0	9	6	10	0	0	16	31
08:15 AM	3	2	0	5	0	5	0	5	8	9	0	0	17	27
08:30 AM	6	0	0	6	2	4	0	6	2	5	0	0	7	19
08:45 AM	7	2	0	9	2	2	0	4	11	10	0	0	21	34
Total	21	5	0	26	4	20	0	24	27	34	0	0	61	111
09:00 AM	9	4	0	13	0	4	0	4	5	10	0	0	15	32
09:15 AM	8	1	0	9	2	8	0	10	9	7	0	0	16	35
09:30 AM	18	2	0	20	2	4	0	6	7	12	0	0	19	45
09:45 AM	12	0	0	12	1	8	0	9	6	6	1	0	13	34
Total	47	7	0	54	5	24	0	29	27	35	1	0	63	146
10:00 AM	7	1	0	8	1	12	0	13	6	9	0	0	15	36
10:15 AM	6	1	0	7	4	5	0	9	3	5	0	0	8	24
10:30 AM	7	2	0	9	5	8	0	13	4	10	0	0	14	36
10:45 AM	7	3	0	10	1	2	0	3	5	11	0	0	16	29
Total	27	7	0	34	11	27	0	38	18	35	0	0	53	125
11:00 AM	5	4	0	9	2	5	0	7	5	13	0	0	18	34
11:15 AM	10	2	0	12	0	1	0	1	1	14	1	0	16	29
11:30 AM	6	2	0	8	3	4	0	7	4	4	0	0	8	23
11:45 AM	7	0	0	7	0	2	0	2	2	8	0	0	10	19
Total	28	8	0	36	5	12	0	17	12	39	1	0	52	105
12:00 PM	11	1	0	12	2	3	0	5	2	16	0	0	18	35
12:15 PM	12	0	0	12	1	1	0	2	7	4	0	0	11	25
12:30 PM	5	0	0	5	3	6	0	9	3	7	0	0	10	24
12:45 PM	10	1	0	11	3	2	0	5	7	7	0	0	14	30
Total	38	2	0	40	9	12	0	21	19	34	0	0	53	114
01:00 PM	12	3	0	15	1	1	0	2	3	9	0	0	12	29
01:15 PM	7	1	0	8	1	1	0	2	3	6	0	0	9	19
01:30 PM	9	1	0	10	3	2	0	5	9	11	0	0	20	35
01:45 PM	4	3	0	7	2	1	0	3	3	11	0	0	14	24
Total	32	8	0	40	7	5	0	12	18	37	0	0	55	107
02:00 PM	2	2	0	4	1	3	0	4	3	9	0	0	12	20
02:15 PM	12	0	0	12	1	5	0	6	7	6	0	0	13	31
02:30 PM	10	0	0	10	4	3	0	7	2	9	0	0	11	28
02:45 PM	9	1	0	10	1	5	0	6	6	6	0	0	12	28
Total	33	3	0	36	7	16	0	23	18	30	0	0	48	107
03:00 PM	9	1	0	10	0	3	0	3	5	4	0	0	9	22
03:15 PM	11	0	0	11	2	1	0	3	1	5	0	0	6	20
03:30 PM	13	1	0	14	3	6	0	9	4	8	0	0	12	35
03:45 PM	10	1	0	11	6	3	0	9	5	6	0	0	11	31
Total	43	3	0	46	11	13	0	24	15	23	0	0	38	108
04:00 PM	18	2	0	20	2	1	0	3	4	2	0	0	6	29
04:15 PM	12	0	0	12	5	3	0	8	1	0	0	0	1	21
04:30 PM	11	0	0	11	2	4	0	6	2	4	0	0	6	23
04:45 PM	9	0	0	9	0	6	0	6	2	2	0	0	4	19
Total	50	2	0	52	9	14	0	23	9	8	0	0	17	92
05:00 PM	8	1	0	9	0	7	0	7	2	3	0	0	5	21
05:15 PM	3	0	0	3	1	3	0	4	3	2	0	0	5	12
05:30 PM	3	2	0	5	2	2	0	4	2	1	0	0	3	12
05:45 PM	8	3	0	11	1	0	0	1	1	0	0	0	1	13
Total	22	6	0	28	4	12	0	16	8	6	0	0	14	58

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	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	366	61	0	427	84	164	0	248	214	335	2	0	551	1226
Apprch %	85.7	14.3	0		33.9	66.1	0		38.8	60.8	0.4	0		
Total %	29.9	5	0	34.8	6.9	13.4	0	20.2	17.5	27.3	0.2	0	44.9	

	US 1 Southbound			Centreport Pkwy Westbound			US 1 Northbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 09:15 AM											
09:15 AM	8	1	9	**2**	8	10	**9**	7	0	16	35
09:30 AM	**18**	**2**	**20**	2	4	6	7	**12**	0	**19**	**45**
09:45 AM	12	0	12	1	8	9	6	6	**1**	13	34
10:00 AM	7	1	8	1	**12**	**13**	6	9	0	15	36
Total Volume	45	4	49	6	32	38	28	34	1	63	150
% App. Total	91.8	8.2		15.8	84.2		44.4	54	1.6		
PHF	.625	.500	.613	.750	.667	.731	.778	.708	.250	.829	.833
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 03:30 PM											
03:30 PM	13	1	14	3	**6**	**9**	4	**8**	0	**12**	**35**
03:45 PM	10	1	11	**6**	3	9	**5**	6	0	11	31
04:00 PM	**18**	**2**	**20**	2	1	3	4	2	0	6	29
04:15 PM	12	0	12	5	3	8	1	0	0	1	21
Total Volume	53	4	57	16	13	29	14	16	0	30	116
% App. Total	93	7		55.2	44.8		46.7	53.3	0		
PHF	.736	.500	.713	.667	.542	.806	.700	.500	.000	.625	.829

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Groups Printed- Combined

	US 1 Southbound				Centreport Pkwy Westbound				US 1 Northbound					
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	24	3	0	27	22	18	0	40	141	82	0	0	223	290
06:15 AM	42	13	0	55	14	14	0	28	146	87	0	0	233	316
06:30 AM	45	8	0	53	22	29	0	51	157	119	0	0	276	380
06:45 AM	46	8	0	54	30	46	0	76	200	150	0	0	350	480
Total	157	32	0	189	88	107	0	195	644	438	0	0	1082	1466
07:00 AM	60	13	0	73	20	52	0	72	197	133	0	0	330	475
07:15 AM	70	7	0	77	34	45	0	79	194	181	1	0	376	532
07:30 AM	95	12	0	107	23	55	0	78	217	193	5	0	415	600
07:45 AM	105	8	0	113	34	67	0	101	192	204	1	0	397	611
Total	330	40	0	370	111	219	0	330	800	711	7	0	1518	2218
08:00 AM	79	7	0	86	25	90	0	115	158	143	0	0	301	502
08:15 AM	77	5	0	82	18	61	0	79	160	150	0	0	310	471
08:30 AM	93	3	0	96	24	59	0	83	150	140	0	0	290	469
08:45 AM	84	4	0	88	19	63	0	82	124	135	0	0	259	429
Total	333	19	0	352	86	273	0	359	592	568	0	0	1160	1871
09:00 AM	100	10	0	110	14	62	0	76	127	121	1	0	249	435
09:15 AM	103	14	0	117	20	51	0	71	127	114	3	0	244	432
09:30 AM	95	7	0	102	16	64	0	80	109	86	0	0	195	377
09:45 AM	96	11	0	107	15	52	0	67	100	81	2	0	183	357
Total	394	42	0	436	65	229	0	294	463	402	6	0	871	1601
10:00 AM	90	11	0	101	15	46	0	61	88	86	0	0	174	336
10:15 AM	87	8	0	95	22	44	0	66	88	77	0	0	165	326
10:30 AM	89	12	0	101	16	65	0	81	104	84	1	0	189	371
10:45 AM	101	11	0	112	16	55	0	71	81	99	0	0	180	363
Total	367	42	0	409	69	210	0	279	361	346	1	0	708	1396
11:00 AM	103	11	0	114	13	51	0	64	86	94	0	0	180	358
11:15 AM	108	3	0	111	7	60	0	67	66	91	2	0	159	337
11:30 AM	105	14	0	119	11	57	0	68	83	97	1	0	181	368
11:45 AM	114	10	0	124	4	48	0	52	70	73	0	0	143	319
Total	430	38	0	468	35	216	0	251	305	355	3	0	663	1382
12:00 PM	129	10	0	139	5	56	0	61	67	116	0	0	183	383
12:15 PM	120	11	0	131	14	73	0	87	87	114	2	0	203	421
12:30 PM	105	8	0	113	13	79	0	92	77	122	0	0	199	404
12:45 PM	116	7	0	123	17	62	0	79	84	101	3	0	188	390
Total	470	36	0	506	49	270	0	319	315	453	5	0	773	1598
01:00 PM	124	16	0	140	12	66	0	78	79	74	3	0	156	374
01:15 PM	123	7	0	130	7	70	0	77	82	108	1	0	191	398
01:30 PM	118	14	0	132	12	84	0	96	91	102	0	0	193	421
01:45 PM	113	10	0	123	16	79	0	95	85	84	0	0	169	387
Total	478	47	0	525	47	299	0	346	337	368	4	0	709	1580
02:00 PM	144	11	0	155	18	86	0	104	79	104	2	0	185	444
02:15 PM	165	12	0	177	15	92	0	107	87	96	1	0	184	468
02:30 PM	191	18	0	209	17	88	0	105	73	100	1	0	174	488
02:45 PM	206	14	0	220	10	77	0	87	70	99	1	0	170	477
Total	706	55	0	761	60	343	0	403	309	399	5	0	713	1877
03:00 PM	239	27	0	266	16	87	0	103	81	82	2	0	165	534
03:15 PM	305	14	0	319	11	95	0	106	102	126	2	0	230	655
03:30 PM	312	13	0	325	22	78	0	100	106	124	1	0	231	656
03:45 PM	294	33	0	327	18	99	0	117	112	115	0	0	227	671
Total	1150	87	0	1237	67	359	0	426	401	447	5	0	853	2516
04:00 PM	417	43	0	460	15	92	0	107	124	95	0	0	219	786
04:15 PM	386	23	0	409	20	114	0	134	125	93	0	0	218	761
04:30 PM	433	35	0	468	17	108	0	125	125	91	0	0	216	809
04:45 PM	391	20	0	411	12	131	0	143	129	83	3	0	215	769
Total	1627	121	0	1748	64	445	0	509	503	362	3	0	868	3125
05:00 PM	380	65	0	445	8	91	0	99	119	124	0	0	243	787
05:15 PM	372	27	0	399	15	107	0	122	167	87	0	0	254	775
05:30 PM	352	55	0	407	15	100	0	115	142	117	1	0	260	782
05:45 PM	401	100	0	501	13	76	0	89	125	101	0	0	226	816
Total	1505	247	0	1752	51	374	0	425	553	429	1	0	983	3160

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Groups Printed- Combined

	US 1 Southbound				Centreport Pkwy Westbound				US 1 Northbound					
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	7947	806	0	8753	792	3344	0	4136	5583	5278	40	0	10901	23790
Apprch %	90.8	9.2	0		19.1	80.9	0		51.2	48.4	0.4	0		
Total %	33.4	3.4	0	36.8	3.3	14.1	0	17.4	23.5	22.2	0.2	0	45.8	

	US 1 Southbound			Centreport Pkwy Westbound			US 1 Northbound				
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:15 AM											
07:15 AM	70	7	77	**34**	45	79	194	181	1	376	532
07:30 AM	95	**12**	107	23	55	78	**217**	193	**5**	**415**	600
07:45 AM	**105**	8	**113**	34	67	101	192	**204**	1	397	**611**
08:00 AM	79	7	86	25	**90**	**115**	158	143	0	301	502
Total Volume	349	34	383	116	257	373	761	721	7	1489	2245
% App. Total	91.1	8.9		31.1	68.9		51.1	48.4	0.5		
PHF	.831	.708	.847	.853	.714	.811	.877	.884	.350	.897	.919
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 05:00 PM											
05:00 PM	380	65	445	8	91	99	119	**124**	0	243	787
05:15 PM	372	27	399	**15**	**107**	**122**	**167**	87	0	254	775
05:30 PM	352	55	407	15	100	115	142	117	**1**	**260**	782
05:45 PM	**401**	**100**	**501**	13	76	89	125	101	0	226	**816**
Total Volume	1505	247	1752	51	374	425	553	429	1	983	3160
% App. Total	85.9	14.1		12	88		56.3	43.6	0.1		
PHF	.938	.618	.874	.850	.874	.871	.828	.865	.250	.945	.968

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File Name : 42-US 1 & Enon Rd_Cranes Corner Rd
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Groups Printed- Cars

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	9	28	1	0	38	1	0	0	0	1	1	183	16	0	200	4	0	42	0	46	285
06:15 AM	10	48	0	0	58	2	0	1	0	3	0	192	12	0	204	5	0	20	0	25	290
06:30 AM	15	58	0	0	73	0	0	0	0	0	0	229	16	0	245	3	0	35	0	38	356
06:45 AM	22	65	0	0	87	1	0	1	0	2	1	286	22	0	309	6	0	54	0	60	458
Total	56	199	1	0	256	4	0	2	0	6	2	890	66	0	958	18	0	151	0	169	1389
07:00 AM	26	77	0	0	103	3	1	2	0	6	0	249	17	0	266	13	1	63	0	77	452
07:15 AM	26	77	1	0	104	2	1	1	0	4	3	302	30	0	335	17	0	63	0	80	523
07:30 AM	36	121	0	0	157	0	1	3	0	4	0	325	50	0	375	19	0	66	0	85	621
07:45 AM	41	120	2	0	163	4	1	5	0	10	2	321	50	0	373	27	0	67	0	94	640
Total	129	395	3	0	527	9	4	11	0	24	5	1197	147	0	1349	76	1	259	0	336	2236
08:00 AM	37	105	0	0	142	0	1	5	0	6	4	231	50	0	285	22	0	53	0	75	508
08:15 AM	32	85	0	0	117	4	2	0	0	6	6	259	61	0	326	18	0	60	0	78	527
08:30 AM	28	106	0	0	134	1	3	3	0	7	3	229	99	0	331	16	0	63	0	79	551
08:45 AM	33	108	0	0	141	2	1	1	0	4	1	188	126	0	315	85	1	58	0	144	604
Total	130	404	0	0	534	7	7	9	0	23	14	907	336	0	1257	141	1	234	0	376	2190
09:00 AM	49	83	2	0	134	1	14	5	0	20	13	202	129	0	344	74	1	41	0	116	614
09:15 AM	41	104	0	0	145	2	1	2	0	5	0	163	35	0	198	66	1	52	0	119	467
09:30 AM	22	103	0	0	125	2	0	3	0	5	2	146	15	0	163	28	0	30	0	58	351
09:45 AM	31	105	1	0	137	2	0	0	0	2	1	132	19	0	152	25	0	25	0	50	341
Total	143	395	3	0	541	7	15	10	0	32	16	643	198	0	857	193	2	148	0	343	1773
10:00 AM	21	93	0	0	114	4	0	1	0	5	1	124	15	0	140	14	0	33	0	47	306
10:15 AM	22	101	1	0	124	0	1	1	0	2	0	115	15	0	130	14	1	35	0	50	306
10:30 AM	29	109	2	0	140	0	1	3	0	4	2	130	9	0	141	17	1	45	0	63	348
10:45 AM	23	122	0	0	145	0	1	3	0	4	1	123	25	0	149	19	1	42	0	62	360
Total	95	425	3	0	523	4	3	8	0	15	4	492	64	0	560	64	3	155	0	222	1320
11:00 AM	27	118	0	0	145	2	0	1	0	3	1	121	11	0	133	16	0	32	0	48	329
11:15 AM	26	125	1	0	152	0	0	1	0	1	2	113	17	0	132	14	0	35	0	49	334
11:30 AM	38	119	0	0	157	2	1	0	0	3	1	120	16	0	137	18	1	35	0	54	351
11:45 AM	35	114	0	0	149	0	1	2	0	3	2	108	14	0	124	20	1	32	0	53	329
Total	126	476	1	0	603	4	2	4	0	10	6	462	58	0	526	68	2	134	0	204	1343
12:00 PM	31	139	1	0	171	0	0	1	0	1	2	138	18	0	158	28	0	30	0	58	388
12:15 PM	44	122	0	0	166	0	0	1	0	1	2	159	22	0	183	24	1	34	0	59	409
12:30 PM	35	132	1	0	168	1	1	2	0	4	4	154	17	0	175	24	0	33	0	57	404
12:45 PM	41	135	1	0	177	1	0	2	0	3	4	142	24	0	170	17	0	30	0	47	397
Total	151	528	3	0	682	2	1	6	0	9	12	593	81	0	686	93	1	127	0	221	1598
01:00 PM	26	141	5	0	172	2	2	1	0	5	3	123	12	0	138	22	0	29	0	51	366
01:15 PM	24	151	4	0	179	1	1	3	0	5	2	141	16	0	159	21	1	26	0	48	391
01:30 PM	34	156	4	0	194	0	0	1	0	1	2	147	15	0	164	27	0	22	0	49	408
01:45 PM	27	149	1	0	177	3	0	1	0	4	0	117	23	0	140	19	1	29	0	49	370
Total	111	597	14	0	722	6	3	6	0	15	7	528	66	0	601	89	2	106	0	197	1535
02:00 PM	36	181	2	0	219	2	0	1	0	3	1	137	24	0	162	44	0	28	0	72	456
02:15 PM	57	166	3	0	226	2	0	1	0	3	2	138	17	0	157	30	0	28	0	58	444
02:30 PM	47	240	1	0	288	3	0	1	0	4	2	132	28	0	162	27	1	28	0	56	510
02:45 PM	48	211	2	0	261	1	0	0	0	1	3	121	48	0	172	24	1	29	0	54	488
Total	188	798	8	0	994	8	0	3	0	11	8	528	117	0	653	125	2	113	0	240	1898
03:00 PM	57	256	0	0	313	1	0	1	0	2	0	120	37	0	157	21	0	34	0	55	527
03:15 PM	74	297	0	0	371	2	2	4	0	8	2	174	70	0	246	27	1	45	0	73	698
03:30 PM	78	246	2	0	326	0	1	3	0	4	5	135	48	0	188	151	1	67	0	219	737
03:45 PM	101	282	0	0	383	2	2	2	0	6	3	167	28	0	198	158	0	43	0	201	788
Total	310	1081	2	0	1393	5	5	10	0	20	10	596	183	0	789	357	2	189	0	548	2750
04:00 PM	102	444	1	0	547	0	1	0	0	1	1	164	39	0	204	84	1	48	0	133	885
04:15 PM	109	359	0	0	468	0	1	1	0	2	1	161	40	0	202	54	1	52	0	107	779
04:30 PM	109	406	1	0	516	2	1	0	0	3	2	158	40	0	200	88	0	42	0	130	849
04:45 PM	114	390	6	0	510	1	1	2	0	4	4	186	56	0	246	69	0	50	0	119	879
Total	434	1599	8	0	2041	3	4	3	0	10	8	669	175	0	852	295	2	192	0	489	3392
05:00 PM	105	413	1	0	519	2	1	0	0	3	3	166	54	0	223	75	2	51	0	128	873
05:15 PM	109	382	5	0	496	2	1	4	0	7	4	188	79	0	271	75	0	57	0	132	906
05:30 PM	97	345	5	0	447	2	1	3	0	6	0	195	50	0	245	73	2	63	0	138	836
05:45 PM	108	381	3	0	492	1	1	1	0	3	2	163	48	0	213	57	1	49	0	107	815
Total	419	1521	14	0	1954	7	4	8	0	19	9	712	231	0	952	280	5	220	0	505	3430

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Groups Printed- Cars

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	2292	8418	60	0	10770	66	48	80	0	194	101	8217	1722	0	10040	1799	23	2028	0	3850	24854
Apprch %	21.3	78.2	0.6	0		34	24.7	41.2	0		1	81.8	17.2	0		46.7	0.6	52.7	0		
Total %	9.2	33.9	0.2	0	43.3	0.3	0.2	0.3	0	0.8	0.4	33.1	6.9	0	40.4	7.2	0.1	8.2	0	15.5	

	US 1 Southbound				Cranes Corner Rd Westbound				US 1 Northbound				Enon Rd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	36	**121**	0	157	0	1	3	4	0	**325**	50	**375**	19	0	66	85	621
07:45 AM	**41**	120	**2**	**163**	**4**	1	**5**	**10**	2	321	50	373	**27**	0	**67**	**94**	**640**
08:00 AM	37	105	0	142	0	1	5	6	4	231	50	285	22	0	53	75	508
08:15 AM	32	85	0	117	4	**2**	0	6	**6**	259	**61**	326	18	0	60	78	527
Total Volume	146	431	2	579	8	5	13	26	12	1136	211	1359	86	0	246	332	2296
% App. Total	25.2	74.4	0.3		30.8	19.2	50		0.9	83.6	15.5		25.9	0	74.1		
PHF	.890	.890	.250	.888	.500	.625	.650	.650	.500	.874	.865	.906	.796	.000	.918	.883	.897
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	109	406	1	516	**2**	**1**	0	3	2	158	40	200	**88**	0	42	130	849
04:45 PM	**114**	390	**6**	510	1	1	2	4	**4**	186	56	246	69	0	50	119	879
05:00 PM	105	**413**	1	**519**	2	1	0	3	3	166	54	223	75	**2**	51	128	873
05:15 PM	109	382	5	496	2	1	**4**	**7**	4	**188**	**79**	**271**	75	0	**57**	**132**	**906**
Total Volume	437	1591	13	2041	7	4	6	17	13	698	229	940	307	2	200	509	3507
% App. Total	21.4	78	0.6		41.2	23.5	35.3		1.4	74.3	24.4		60.3	0.4	39.3		
PHF	.958	.963	.542	.983	.875	1.00	.375	.607	.813	.928	.725	.867	.872	.250	.877	.964	.968

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Groups Printed- Trucks

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	1	0	0	2	0	0	0	0	0	0	6	0	0	6	0	1	5	0	6	14
06:15 AM	1	0	0	0	1	1	0	0	0	1	0	2	0	0	2	0	0	3	0	3	7
06:30 AM	2	2	0	0	4	0	0	0	0	0	0	4	0	0	4	1	0	6	0	7	15
06:45 AM	2	3	0	0	5	0	2	0	0	2	0	6	0	0	6	3	0	11	0	14	27
Total	6	6	0	0	12	1	2	0	0	3	0	18	0	0	18	4	1	25	0	30	63
07:00 AM	1	1	0	0	2	0	0	0	0	0	0	7	0	0	7	6	1	4	0	11	20
07:15 AM	0	4	0	0	4	0	1	0	0	1	0	6	0	0	6	2	0	7	0	9	20
07:30 AM	3	4	0	0	7	1	0	0	0	1	0	8	2	0	10	1	0	4	0	5	23
07:45 AM	2	7	0	0	9	0	0	0	0	0	0	12	1	0	13	5	0	3	0	8	30
Total	6	16	0	0	22	1	1	0	0	2	0	33	3	0	36	14	1	18	0	33	93
08:00 AM	2	11	0	0	13	0	1	0	0	1	1	15	5	0	21	2	0	2	0	4	39
08:15 AM	0	10	0	0	10	0	0	0	0	0	0	12	0	0	12	1	0	6	0	7	29
08:30 AM	3	10	0	0	13	0	0	0	0	0	0	8	0	0	8	1	0	2	0	3	24
08:45 AM	3	9	0	0	12	0	0	0	0	0	0	10	3	0	13	2	0	7	0	9	34
Total	8	40	0	0	48	0	1	0	0	1	1	45	8	0	54	6	0	17	0	23	126
09:00 AM	4	9	0	0	13	0	0	0	0	0	0	9	25	0	34	9	0	6	0	15	62
09:15 AM	11	7	0	0	18	0	0	0	0	0	0	14	12	0	26	13	0	2	0	15	59
09:30 AM	12	12	0	0	24	0	0	0	0	0	0	14	2	0	16	3	0	5	0	8	48
09:45 AM	14	10	0	0	24	0	0	0	0	0	0	8	2	0	10	3	0	4	0	7	41
Total	41	38	0	0	79	0	0	0	0	0	0	45	41	0	86	28	0	17	0	45	210
10:00 AM	14	5	0	0	19	0	0	0	0	0	0	11	3	0	14	3	0	5	0	8	41
10:15 AM	8	4	0	0	12	0	0	0	0	0	0	6	0	0	6	2	0	2	0	4	22
10:30 AM	6	8	0	0	14	0	0	0	0	0	1	8	0	0	9	0	1	6	0	7	30
10:45 AM	2	7	0	0	9	0	0	1	0	1	0	4	1	0	5	5	0	10	0	15	30
Total	30	24	0	0	54	0	0	1	0	1	1	29	4	0	34	10	1	23	0	34	123
11:00 AM	2	10	0	0	12	1	0	0	0	1	0	13	0	0	13	4	0	5	0	9	35
11:15 AM	5	8	0	0	13	0	0	0	0	0	0	12	3	0	15	2	0	4	0	6	34
11:30 AM	2	8	0	0	10	0	0	0	0	0	0	7	3	0	10	2	0	5	0	7	27
11:45 AM	2	6	0	0	8	0	0	0	0	0	0	7	4	0	11	3	1	8	0	12	31
Total	11	32	0	0	43	1	0	0	0	1	0	39	10	0	49	11	1	22	0	34	127
12:00 PM	6	10	0	0	16	1	0	0	0	1	0	11	0	0	11	0	0	6	0	6	34
12:15 PM	3	11	0	0	14	0	0	0	0	0	0	6	0	0	6	1	0	5	0	6	26
12:30 PM	10	2	0	0	12	0	0	0	0	0	0	7	2	0	9	1	0	3	0	4	25
12:45 PM	3	8	0	0	11	0	0	0	0	0	0	6	1	0	7	4	0	6	0	10	28
Total	22	31	0	0	53	1	0	0	0	1	0	30	3	0	33	6	0	20	0	26	113
01:00 PM	10	4	0	0	14	0	0	0	0	0	0	12	1	0	13	2	0	2	0	4	31
01:15 PM	5	6	0	0	11	0	0	0	0	0	0	8	2	0	10	3	0	3	0	6	27
01:30 PM	2	10	0	0	12	0	0	0	0	0	0	4	1	0	5	6	0	14	0	20	37
01:45 PM	2	4	0	0	6	0	0	0	0	0	0	9	0	0	9	7	0	8	0	15	30
Total	19	24	0	0	43	0	0	0	0	0	0	33	4	0	37	18	0	27	0	45	125
02:00 PM	2	4	0	0	6	0	0	0	0	0	0	8	1	0	9	5	0	4	0	9	24
02:15 PM	7	11	0	0	18	0	0	0	0	0	0	9	1	0	10	2	0	5	0	7	35
02:30 PM	5	9	0	0	14	0	0	0	0	0	1	7	1	0	9	2	0	3	0	5	28
02:45 PM	6	10	0	0	16	0	1	0	0	1	0	9	0	0	9	1	0	3	0	4	30
Total	20	34	0	0	54	0	1	0	0	1	1	33	3	0	37	10	0	15	0	25	117
03:00 PM	5	9	0	0	14	0	0	0	0	0	0	7	2	0	9	6	0	4	0	10	33
03:15 PM	6	4	0	0	10	0	1	0	0	1	1	7	3	0	11	0	0	1	0	1	23
03:30 PM	8	11	0	0	19	0	0	0	0	0	0	5	13	0	18	2	0	9	0	11	48
03:45 PM	7	8	0	0	15	0	0	0	0	0	0	7	11	0	18	19	0	5	0	24	57
Total	26	32	0	0	58	0	1	0	0	1	1	26	29	0	56	27	0	19	0	46	161
04:00 PM	2	10	0	0	12	1	0	0	0	1	0	4	6	0	10	11	1	2	0	14	37
04:15 PM	8	11	0	0	19	0	0	0	0	0	0	3	6	0	9	3	0	4	0	7	35
04:30 PM	10	3	0	0	13	0	0	0	0	0	0	4	2	0	6	0	0	2	0	2	21
04:45 PM	7	9	1	0	17	0	0	0	0	0	0	3	4	0	7	0	0	3	0	3	27
Total	27	33	1	0	61	1	0	0	0	1	0	14	18	0	32	14	1	11	0	26	120
05:00 PM	4	7	0	0	11	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	17
05:15 PM	3	4	0	0	7	0	0	0	0	0	0	5	0	0	5	2	0	1	0	3	15
05:30 PM	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7
05:45 PM	1	6	0	0	7	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	8
Total	8	22	0	0	30	0	0	0	0	0	0	13	0	0	13	3	0	1	0	4	47

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Groups Printed- Trucks

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	224	332	1	0	557	5	6	1	0	12	4	358	123	0	485	151	5	215	0	371	1425
Apprch %	40.2	59.6	0.2	0		41.7	50	8.3	0		0.8	73.8	25.4	0		40.7	1.3	58	0		
Total %	15.7	23.3	0.1	0	39.1	0.4	0.4	0.1	0	0.8	0.3	25.1	8.6	0	34	10.6	0.4	15.1	0	26	

	US 1 Southbound				Cranes Corner Rd Westbound				US 1 Northbound				Enon Rd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 AM																	
09:00 AM	4	9	0	13	0	0	0	0	0	9	**25**	**34**	9	0	**6**	**15**	**62**
09:15 AM	11	7	0	18	0	0	0	0	0	**14**	12	26	**13**	0	2	15	59
09:30 AM	12	**12**	0	**24**	0	0	0	0	0	14	2	16	3	0	5	8	48
09:45 AM	**14**	10	0	24	0	0	0	0	0	8	2	10	3	0	4	7	41
Total Volume	41	38	0	79	0	0	0	0	0	45	41	86	28	0	17	45	210
% App. Total	51.9	48.1	0		0	0	0		0	52.3	47.7		62.2	0	37.8		
PHF	.732	.792	.000	.823	.000	.000	.000	.000	.000	.804	.410	.632	.538	.000	.708	.750	.847
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	**8**	**11**	0	**19**	0	0	0	0	0	5	**13**	**18**	2	0	**9**	11	48
03:45 PM	7	8	0	15	0	0	0	0	0	**7**	11	18	**19**	0	5	**24**	**57**
04:00 PM	2	10	0	12	**1**	0	0	**1**	0	4	6	10	11	**1**	2	14	37
04:15 PM	8	11	0	19	0	0	0	0	0	3	6	9	3	0	4	7	35
Total Volume	25	40	0	65	1	0	0	1	0	19	36	55	35	1	20	56	177
% App. Total	38.5	61.5	0		100	0	0		0	34.5	65.5		62.5	1.8	35.7		
PHF	.781	.909	.000	.855	.250	.000	.000	.250	.000	.679	.692	.764	.461	.250	.556	.583	.776

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Groups Printed- Combined

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	10	29	1	0	40	1	0	0	0	1	1	189	16	0	206	4	1	47	0	52	299
06:15 AM	11	48	0	0	59	3	0	1	0	4	0	194	12	0	206	5	0	23	0	28	297
06:30 AM	17	60	0	0	77	0	0	0	0	0	0	233	16	0	249	4	0	41	0	45	371
06:45 AM	24	68	0	0	92	1	2	1	0	4	1	292	22	0	315	9	0	65	0	74	485
Total	62	205	1	0	268	5	2	2	0	9	2	908	66	0	976	22	1	176	0	199	1452
07:00 AM	27	78	0	0	105	3	1	2	0	6	0	256	17	0	273	19	2	67	0	88	472
07:15 AM	26	81	1	0	108	2	2	1	0	5	3	308	30	0	341	19	0	70	0	89	543
07:30 AM	39	125	0	0	164	1	1	3	0	5	0	333	52	0	385	20	0	70	0	90	644
07:45 AM	43	127	2	0	172	4	1	5	0	10	2	333	51	0	386	32	0	70	0	102	670
Total	135	411	3	0	549	10	5	11	0	26	5	1230	150	0	1385	90	2	277	0	369	2329
08:00 AM	39	116	0	0	155	0	2	5	0	7	5	246	55	0	306	24	0	55	0	79	547
08:15 AM	32	95	0	0	127	4	2	0	0	6	6	271	61	0	338	19	0	66	0	85	556
08:30 AM	31	116	0	0	147	1	3	3	0	7	3	237	99	0	339	17	0	65	0	82	575
08:45 AM	36	117	0	0	153	2	1	1	0	4	1	198	129	0	328	87	1	65	0	153	638
Total	138	444	0	0	582	7	8	9	0	24	15	952	344	0	1311	147	1	251	0	399	2316
09:00 AM	53	92	2	0	147	1	14	5	0	20	13	211	154	0	378	83	1	47	0	131	676
09:15 AM	52	111	0	0	163	2	1	2	0	5	0	177	47	0	224	79	1	54	0	134	526
09:30 AM	34	115	0	0	149	2	0	3	0	5	2	160	17	0	179	31	0	35	0	66	399
09:45 AM	45	115	1	0	161	2	0	0	0	2	1	140	21	0	162	28	0	29	0	57	382
Total	184	433	3	0	620	7	15	10	0	32	16	688	239	0	943	221	2	165	0	388	1983
10:00 AM	35	98	0	0	133	4	0	1	0	5	1	135	18	0	154	17	0	38	0	55	347
10:15 AM	30	105	1	0	136	0	1	1	0	2	0	121	15	0	136	16	1	37	0	54	328
10:30 AM	35	117	2	0	154	0	1	3	0	4	3	138	9	0	150	17	2	51	0	70	378
10:45 AM	25	129	0	0	154	0	1	4	0	5	1	127	26	0	154	24	1	52	0	77	390
Total	125	449	3	0	577	4	3	9	0	16	5	521	68	0	594	74	4	178	0	256	1443
11:00 AM	29	128	0	0	157	3	0	1	0	4	1	134	11	0	146	20	0	37	0	57	364
11:15 AM	31	133	1	0	165	0	0	1	0	1	2	125	20	0	147	16	0	39	0	55	368
11:30 AM	40	127	0	0	167	2	1	0	0	3	1	127	19	0	147	20	1	40	0	61	378
11:45 AM	37	120	0	0	157	0	1	2	0	3	2	115	18	0	135	23	2	40	0	65	360
Total	137	508	1	0	646	5	2	4	0	11	6	501	68	0	575	79	3	156	0	238	1470
12:00 PM	37	149	1	0	187	1	0	1	0	2	2	149	18	0	169	28	0	36	0	64	422
12:15 PM	47	133	0	0	180	0	0	1	0	1	2	165	22	0	189	25	1	39	0	65	435
12:30 PM	45	134	1	0	180	1	1	2	0	4	4	161	19	0	184	25	0	36	0	61	429
12:45 PM	44	143	1	0	188	1	0	2	0	3	4	148	25	0	177	21	0	36	0	57	425
Total	173	559	3	0	735	3	1	6	0	10	12	623	84	0	719	99	1	147	0	247	1711
01:00 PM	36	145	5	0	186	2	2	1	0	5	3	135	13	0	151	24	0	31	0	55	397
01:15 PM	29	157	4	0	190	1	1	3	0	5	2	149	18	0	169	24	1	29	0	54	418
01:30 PM	36	166	4	0	206	0	0	1	0	1	2	151	16	0	169	33	0	36	0	69	445
01:45 PM	29	153	1	0	183	3	0	1	0	4	0	126	23	0	149	26	1	37	0	64	400
Total	130	621	14	0	765	6	3	6	0	15	7	561	70	0	638	107	2	133	0	242	1660
02:00 PM	38	185	2	0	225	2	0	1	0	3	1	145	25	0	171	49	0	32	0	81	480
02:15 PM	64	177	3	0	244	2	0	1	0	3	2	147	18	0	167	32	0	33	0	65	479
02:30 PM	52	249	1	0	302	3	0	1	0	4	3	139	29	0	171	29	1	31	0	61	538
02:45 PM	54	221	2	0	277	1	1	0	0	2	3	130	48	0	181	25	1	32	0	58	518
Total	208	832	8	0	1048	8	1	3	0	12	9	561	120	0	690	135	2	128	0	265	2015
03:00 PM	62	265	0	0	327	1	0	1	0	2	0	127	39	0	166	27	0	38	0	65	560
03:15 PM	80	301	0	0	381	2	3	4	0	9	3	181	73	0	257	27	1	46	0	74	721
03:30 PM	86	257	2	0	345	0	1	3	0	4	5	140	61	0	206	153	1	76	0	230	785
03:45 PM	108	290	0	0	398	2	2	2	0	6	3	174	39	0	216	177	0	48	0	225	845
Total	336	1113	2	0	1451	5	6	10	0	21	11	622	212	0	845	384	2	208	0	594	2911
04:00 PM	104	454	1	0	559	1	1	0	0	2	1	168	45	0	214	95	2	50	0	147	922
04:15 PM	117	370	0	0	487	0	1	1	0	2	1	164	46	0	211	57	1	56	0	114	814
04:30 PM	119	409	1	0	529	2	1	0	0	3	2	162	42	0	206	88	0	44	0	132	870
04:45 PM	121	399	7	0	527	1	1	2	0	4	4	189	60	0	253	69	0	53	0	122	906
Total	461	1632	9	0	2102	4	4	3	0	11	8	683	193	0	884	309	3	203	0	515	3512
05:00 PM	109	420	1	0	530	2	1	0	0	3	3	171	54	0	228	76	2	51	0	129	890
05:15 PM	112	386	5	0	503	2	1	4	0	7	4	193	79	0	276	77	0	58	0	135	921
05:30 PM	97	350	5	0	452	2	1	3	0	6	0	197	50	0	247	73	2	63	0	138	843
05:45 PM	109	387	3	0	499	1	1	1	0	3	2	164	48	0	214	57	1	49	0	107	823
Total	427	1543	14	0	1984	7	4	8	0	19	9	725	231	0	965	283	5	221	0	509	3477

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Groups Printed- Combined

	US 1 Southbound					Cranes Corner Rd Westbound					US 1 Northbound					Enon Rd Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	2516	8750	61	0	11327	71	54	81	0	206	105	8575	1845	0	10525	1950	28	2243	0	4221	26279
Apprch %	22.2	77.2	0.5	0		34.5	26.2	39.3	0		1	81.5	17.5	0		46.2	0.7	53.1	0		
Total %	9.6	33.3	0.2	0	43.1	0.3	0.2	0.3	0	0.8	0.4	32.6	7	0	40.1	7.4	0.1	8.5	0	16.1	

	US 1 Southbound				Cranes Corner Rd Westbound				US 1 Northbound				Enon Rd Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:15 AM																	
08:15 AM	32	95	0	127	**4**	2	0	6	6	**271**	61	338	19	0	**66**	85	556
08:30 AM	31	116	0	147	1	3	3	7	3	237	99	339	17	0	65	82	575
08:45 AM	36	**117**	0	**153**	2	1	1	4	1	198	129	328	**87**	**1**	65	**153**	638
09:00 AM	**53**	92	**2**	147	1	**14**	**5**	**20**	**13**	211	**154**	**378**	83	1	47	131	**676**
Total Volume	152	420	2	574	8	20	9	37	23	917	443	1383	206	2	243	451	2445
% App. Total	26.5	73.2	0.3		21.6	54.1	24.3		1.7	66.3	32		45.7	0.4	53.9		
PHF	.717	.897	.250	.938	.500	.357	.450	.463	.442	.846	.719	.915	.592	.500	.920	.737	.904
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	119	409	1	529	**2**	**1**	0	3	2	162	42	206	**88**	0	44	132	870
04:45 PM	**121**	399	**7**	527	1	1	2	4	**4**	189	60	253	69	0	53	122	906
05:00 PM	109	**420**	1	**530**	2	1	0	3	3	171	54	228	76	**2**	51	129	890
05:15 PM	112	386	5	503	2	1	**4**	**7**	4	**193**	**79**	**276**	77	0	**58**	**135**	**921**
Total Volume	461	1614	14	2089	7	4	6	17	13	715	235	963	310	2	206	518	3587
% App. Total	22.1	77.3	0.7		41.2	23.5	35.3		1.3	74.2	24.4		59.8	0.4	39.8		
PHF	.952	.961	.500	.985	.875	1.00	.375	.607	.813	.926	.744	.872	.881	.250	.888	.959	.974

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File Name : 40-Centreport Pkwy & I-95 NB Ramps
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Groups Printed- Cars

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	135	18	0	0	153	25	1	16	0	42	0	12	4	0	16	211
06:15 AM	0	0	0	0	0	123	30	0	0	153	13	0	21	0	34	0	19	4	0	23	210
06:30 AM	0	0	0	0	0	129	27	0	0	156	20	0	62	0	82	0	31	2	0	33	271
06:45 AM	0	0	0	0	0	155	42	0	0	197	33	1	60	0	94	0	35	1	0	36	327
Total	0	0	0	0	0	542	117	0	0	659	91	2	159	0	252	0	97	11	0	108	1019
07:00 AM	0	0	0	0	0	166	37	0	0	203	22	0	55	0	77	0	46	0	0	46	326
07:15 AM	0	0	0	0	0	160	47	0	0	207	35	0	62	0	97	0	41	3	0	44	348
07:30 AM	0	0	0	0	0	152	61	0	0	213	29	0	51	0	80	0	60	3	0	63	356
07:45 AM	0	0	0	0	0	143	54	0	0	197	46	0	49	0	95	0	51	6	0	57	349
Total	0	0	0	0	0	621	199	0	0	820	132	0	217	0	349	0	198	12	0	210	1379
08:00 AM	0	0	0	0	0	116	41	0	0	157	31	0	34	0	65	0	64	2	0	66	288
08:15 AM	0	0	0	0	0	134	32	0	0	166	25	0	33	0	58	0	49	2	0	51	275
08:30 AM	0	0	0	0	0	120	31	0	0	151	24	0	27	0	51	0	51	1	0	52	254
08:45 AM	0	0	0	0	0	91	21	0	0	112	22	0	23	0	45	0	46	8	0	54	211
Total	0	0	0	0	0	461	125	0	0	586	102	0	117	0	219	0	210	13	0	223	1028
09:00 AM	0	0	0	0	0	94	29	0	0	123	27	0	23	0	50	0	43	3	0	46	219
09:15 AM	0	0	0	0	0	100	43	0	0	143	18	0	21	0	39	0	42	2	0	44	226
09:30 AM	0	0	0	0	0	83	24	0	0	107	16	0	17	0	33	0	57	2	0	59	199
09:45 AM	0	0	0	0	0	70	32	0	0	102	15	0	24	0	39	0	46	1	0	47	188
Total	0	0	0	0	0	347	128	0	0	475	76	0	85	0	161	0	188	8	0	196	832
10:00 AM	0	0	0	0	0	68	22	0	0	90	18	1	18	0	37	0	34	4	0	38	165
10:15 AM	0	0	0	0	0	75	16	0	0	91	19	0	22	0	41	0	41	0	0	41	173
10:30 AM	0	0	0	0	0	84	32	0	0	116	20	1	16	0	37	0	46	4	0	50	203
10:45 AM	0	0	0	0	0	71	19	0	0	90	15	1	13	0	29	0	51	1	0	52	171
Total	0	0	0	0	0	298	89	0	0	387	72	3	69	0	144	0	172	9	0	181	712
11:00 AM	0	0	0	0	0	60	24	0	0	84	13	0	15	0	28	0	49	5	0	54	166
11:15 AM	0	0	0	0	0	49	18	0	0	67	9	0	17	0	26	0	56	3	0	59	152
11:30 AM	0	0	0	0	0	55	28	0	0	83	9	0	18	0	27	0	51	4	0	55	165
11:45 AM	0	0	0	0	0	57	24	0	0	81	11	0	22	0	33	0	42	1	0	43	157
Total	0	0	0	0	0	221	94	0	0	315	42	0	72	0	114	0	198	13	0	211	640
12:00 PM	0	0	0	0	0	46	25	0	0	71	7	0	19	0	26	0	51	4	0	55	152
12:15 PM	0	0	0	0	0	60	31	0	0	91	15	0	27	0	42	0	66	2	0	68	201
12:30 PM	0	0	0	0	0	58	28	0	0	86	15	0	29	0	44	0	63	1	0	64	194
12:45 PM	0	0	0	0	0	57	23	0	0	80	19	1	19	0	39	0	64	3	0	67	186
Total	0	0	0	0	0	221	107	0	0	328	56	1	94	0	151	0	244	10	0	254	733
01:00 PM	0	0	0	0	0	59	35	0	0	94	14	1	16	0	31	0	60	3	0	63	188
01:15 PM	0	0	0	0	0	48	35	0	0	83	13	0	28	0	41	0	65	1	0	66	190
01:30 PM	0	0	0	0	0	61	34	0	0	95	15	1	25	0	41	0	69	2	0	71	207
01:45 PM	0	0	0	0	0	61	26	0	0	87	22	1	27	0	50	0	70	2	0	72	209
Total	0	0	0	0	0	229	130	0	0	359	64	3	96	0	163	0	264	8	0	272	794
02:00 PM	0	0	0	0	0	50	28	0	0	78	17	0	27	0	44	0	89	2	0	91	213
02:15 PM	0	0	0	0	0	63	33	0	0	96	20	0	20	0	40	0	82	2	0	84	220
02:30 PM	0	0	0	0	0	60	28	0	0	88	14	0	26	0	40	0	79	1	0	80	208
02:45 PM	0	0	0	0	0	48	31	0	0	79	17	1	21	0	39	0	66	2	0	68	186
Total	0	0	0	0	0	221	120	0	0	341	68	1	94	0	163	0	316	7	0	323	827
03:00 PM	0	0	0	0	0	60	44	0	0	104	19	1	26	0	46	0	76	2	0	78	228
03:15 PM	0	0	0	0	0	58	57	0	0	115	18	3	31	0	52	0	77	8	0	85	252
03:30 PM	0	0	0	0	0	75	39	0	0	114	19	1	29	0	49	0	73	2	0	75	238
03:45 PM	0	0	0	0	0	78	54	0	0	132	14	0	26	0	40	0	99	5	0	104	276
Total	0	0	0	0	0	271	194	0	0	465	70	5	112	0	187	0	325	17	0	342	994
04:00 PM	0	0	0	0	0	83	71	0	0	154	21	0	27	0	48	0	78	3	0	81	283
04:15 PM	0	0	0	0	0	85	52	0	0	137	20	0	27	0	47	0	107	4	0	111	295
04:30 PM	0	0	0	0	0	80	66	0	0	146	26	0	28	0	54	0	83	4	0	87	287
04:45 PM	0	0	0	0	0	92	59	0	0	151	16	0	23	0	39	0	112	2	0	114	304
Total	0	0	0	0	0	340	248	0	0	588	83	0	105	0	188	0	380	13	0	393	1169
05:00 PM	0	0	0	0	0	85	98	0	0	183	15	1	33	0	49	0	91	3	0	94	326
05:15 PM	0	0	0	0	0	119	61	0	0	180	29	0	48	0	77	0	87	6	0	93	350
05:30 PM	0	0	0	0	0	101	98	0	0	199	24	0	46	0	70	0	80	3	0	83	352
05:45 PM	0	0	0	0	0	87	128	0	0	215	19	0	31	0	50	0	82	4	0	86	351
Total	0	0	0	0	0	392	385	0	0	777	87	1	158	0	246	0	340	16	0	356	1379

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Groups Printed- Cars

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	4164	1936	0	0	6100	943	16	1378	0	2337	0	2932	137	0	3069	11506
Apprch %	0	0	0	0		68.3	31.7	0	0		40.4	0.7	59	0		0	95.5	4.5	0		
Total %	0	0	0	0	0	36.2	16.8	0	0	53	8.2	0.1	12	0	20.3	0	25.5	1.2	0	26.7	

	I-95 NB On Ramp Southbound				Centreport Pkwy Westbound				I-95 NB Off Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	**166**	37	0	203	22	0	55	77	0	46	0	46	326
07:15 AM	0	0	0	0	160	47	0	207	35	0	**62**	**97**	0	41	3	44	348
07:30 AM	0	0	0	0	152	**61**	0	**213**	29	0	51	80	0	**60**	3	**63**	**356**
07:45 AM	0	0	0	0	143	54	0	197	**46**	0	49	95	0	51	**6**	57	349
Total Volume	0	0	0	0	621	199	0	820	132	0	217	349	0	198	12	210	1379
% App. Total	0	0	0		75.7	24.3	0		37.8	0	62.2		0	94.3	5.7		
PHF	.000	.000	.000	.000	.935	.816	.000	.962	.717	.000	.875	.899	.000	.825	.500	.833	.968
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	85	98	0	183	15	**1**	33	49	0	**91**	3	**94**	326
05:15 PM	0	0	0	0	**119**	61	0	180	**29**	0	**48**	**77**	0	87	**6**	93	350
05:30 PM	0	0	0	0	101	98	0	199	24	0	46	70	0	80	3	83	**352**
05:45 PM	0	0	0	0	87	**128**	0	**215**	19	0	31	50	0	82	4	86	351
Total Volume	0	0	0	0	392	385	0	777	87	1	158	246	0	340	16	356	1379
% App. Total	0	0	0		50.5	49.5	0		35.4	0.4	64.2		0	95.5	4.5		
PHF	.000	.000	.000	.000	.824	.752	.000	.903	.750	.250	.823	.799	.000	.934	.667	.947	.979

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Groups Printed- Trucks

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	4	4	0	0	8	3	0	2	0	5	0	0	0	0	0	13
06:15 AM	0	0	0	0	0	1	3	0	0	4	2	1	2	0	5	0	0	0	0	0	9
06:30 AM	0	0	0	0	0	2	3	0	0	5	3	0	2	0	5	0	2	0	0	2	12
06:45 AM	0	0	0	0	0	4	7	0	0	11	1	0	3	0	4	0	3	2	0	5	20
Total	0	0	0	0	0	11	17	0	0	28	9	1	9	0	19	0	5	2	0	7	54
07:00 AM	0	0	0	0	0	2	6	0	0	8	1	0	4	0	5	0	2	0	0	2	15
07:15 AM	0	0	0	0	0	0	2	0	0	2	1	0	2	0	3	0	0	0	0	0	5
07:30 AM	0	0	0	0	0	1	3	0	0	4	1	0	7	0	8	0	0	0	0	0	12
07:45 AM	0	0	0	0	0	2	7	0	0	9	0	0	5	0	5	0	3	1	0	4	18
Total	0	0	0	0	0	5	18	0	0	23	3	0	18	0	21	0	5	1	0	6	50
08:00 AM	0	0	0	0	0	2	5	0	0	7	0	0	3	0	3	0	7	1	0	8	18
08:15 AM	0	0	0	0	0	6	4	0	0	10	0	0	5	0	5	0	7	1	0	8	23
08:30 AM	0	0	0	0	0	0	3	0	0	3	2	0	3	0	5	0	4	1	0	5	13
08:45 AM	0	0	0	0	0	3	9	0	0	12	3	0	3	0	6	0	5	0	0	5	23
Total	0	0	0	0	0	11	21	0	0	32	5	0	14	0	19	0	23	3	0	26	77
09:00 AM	0	0	0	0	0	1	5	0	0	6	2	0	4	0	6	0	5	0	0	5	17
09:15 AM	0	0	0	0	0	5	4	0	0	9	2	0	5	0	7	0	7	0	0	7	23
09:30 AM	0	0	0	0	0	3	6	0	0	9	2	0	3	0	5	0	8	0	0	8	22
09:45 AM	0	0	0	0	0	2	3	0	0	5	1	0	5	0	6	0	12	0	0	12	23
Total	0	0	0	0	0	11	18	0	0	29	7	0	17	0	24	0	32	0	0	32	85
10:00 AM	0	0	0	0	0	3	5	0	0	8	0	1	3	0	4	0	6	0	0	6	18
10:15 AM	0	0	0	0	0	2	1	0	0	3	5	0	9	0	14	0	3	0	0	3	20
10:30 AM	0	0	0	0	0	4	1	0	0	5	5	0	8	0	13	0	8	0	0	8	26
10:45 AM	0	0	0	0	0	5	3	0	0	8	3	1	5	0	9	0	3	1	0	4	21
Total	0	0	0	0	0	14	10	0	0	24	13	2	25	0	40	0	20	1	0	21	85
11:00 AM	0	0	0	0	0	4	5	0	0	9	2	0	6	0	8	0	5	1	0	6	23
11:15 AM	0	0	0	0	0	1	4	0	0	5	2	0	5	0	7	0	1	0	0	1	13
11:30 AM	0	0	0	0	0	5	3	0	0	8	1	0	5	0	6	0	4	1	0	5	19
11:45 AM	0	0	0	0	0	2	2	0	0	4	1	0	10	0	11	0	2	1	0	3	18
Total	0	0	0	0	0	12	14	0	0	26	6	0	26	0	32	0	12	3	0	15	73
12:00 PM	0	0	0	0	0	0	6	0	0	6	1	0	4	0	5	0	3	0	0	3	14
12:15 PM	0	0	0	0	0	4	2	0	0	6	2	0	8	0	10	0	1	0	0	1	17
12:30 PM	0	0	0	0	0	1	2	0	0	3	1	1	15	0	17	0	8	0	0	8	28
12:45 PM	0	0	0	0	0	2	6	0	0	8	3	0	12	0	15	0	2	2	0	4	27
Total	0	0	0	0	0	7	16	0	0	23	7	1	39	0	47	0	14	2	0	16	86
01:00 PM	0	0	0	0	0	2	4	0	0	6	1	0	4	0	5	0	2	1	0	3	14
01:15 PM	0	0	0	0	0	1	3	0	0	4	2	0	2	0	4	0	1	0	0	1	9
01:30 PM	0	0	0	0	0	3	5	0	0	8	5	0	9	0	14	0	1	2	0	3	25
01:45 PM	0	0	0	0	0	4	4	0	0	8	1	0	6	0	7	0	2	1	0	3	18
Total	0	0	0	0	0	10	16	0	0	26	9	0	21	0	30	0	6	4	0	10	66
02:00 PM	0	0	0	0	0	1	3	0	0	4	1	0	5	0	6	0	2	1	0	3	13
02:15 PM	0	0	0	0	0	5	1	0	0	6	3	0	5	0	8	0	1	0	0	1	15
02:30 PM	0	0	0	0	0	0	2	0	0	2	1	0	2	0	3	0	6	0	0	6	11
02:45 PM	0	0	0	0	0	2	5	0	0	7	1	0	6	0	7	0	2	1	0	3	17
Total	0	0	0	0	0	8	11	0	0	19	6	0	18	0	24	0	11	2	0	13	56
03:00 PM	0	0	0	0	0	5	1	0	0	6	0	0	3	0	3	0	3	0	0	3	12
03:15 PM	0	0	0	0	0	1	1	0	0	2	2	0	9	0	11	0	0	1	0	1	14
03:30 PM	0	0	0	0	0	2	3	0	0	5	3	0	1	0	4	0	6	2	0	8	17
03:45 PM	0	0	0	0	0	2	3	0	0	5	6	0	3	0	9	0	4	1	0	5	19
Total	0	0	0	0	0	10	8	0	0	18	11	0	16	0	27	0	13	4	0	17	62
04:00 PM	0	0	0	0	0	2	7	0	0	9	1	0	4	0	5	0	2	0	0	2	16
04:15 PM	1	0	0	0	1	0	3	0	0	3	6	0	8	0	14	0	2	1	0	3	21
04:30 PM	0	0	0	0	0	0	3	0	0	3	1	0	3	0	4	0	2	1	0	3	10
04:45 PM	0	0	0	0	0	0	3	0	0	3	2	0	7	0	9	0	4	0	0	4	16
Total	1	0	0	0	1	2	16	0	0	18	10	0	22	0	32	0	10	2	0	12	63
05:00 PM	0	0	0	0	0	1	4	0	0	5	0	0	3	0	3	0	8	0	0	8	16
05:15 PM	0	0	0	0	0	2	1	0	0	3	2	0	2	0	4	0	2	0	0	2	9
05:30 PM	0	0	0	0	0	1	4	0	0	5	1	0	0	0	1	0	2	0	0	2	8
05:45 PM	0	0	0	0	0	0	4	0	0	4	1	0	3	0	4	0	1	0	0	1	9
Total	0	0	0	0	0	4	13	0	0	17	4	0	8	0	12	0	13	0	0	13	42

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Groups Printed- Trucks

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	1	0	0	0	1	105	178	0	0	283	90	4	233	0	327	0	164	24	0	188	799
Apprch %	100	0	0	0		37.1	62.9	0	0		27.5	1.2	71.3	0		0	87.2	12.8	0		
Total %	0.1	0	0	0	0.1	13.1	22.3	0	0	35.4	11.3	0.5	29.2	0	40.9	0	20.5	3	0	23.5	

	I-95 NB On Ramp Southbound				Centreport Pkwy Westbound				I-95 NB Off Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 10:15 AM																	
10:15 AM	0	0	0	0	2	1	0	3	**5**	0	**9**	**14**	0	3	0	3	20
10:30 AM	0	0	0	0	4	1	0	5	5	0	8	13	0	**8**	0	**8**	**26**
10:45 AM	0	0	0	0	**5**	3	0	8	3	**1**	5	9	0	3	**1**	4	21
11:00 AM	0	0	0	0	4	**5**	0	**9**	2	0	6	8	0	5	1	6	23
Total Volume	0	0	0	0	15	10	0	25	15	1	28	44	0	19	2	21	90
% App. Total	0	0	0		60	40	0		34.1	2.3	63.6		0	90.5	9.5		
PHF	.000	.000	.000	.000	.750	.500	.000	.694	.750	.250	.778	.786	.000	.594	.500	.656	.865
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	0	0	0	**6**	0	6	1	0	4	5	0	3	0	3	14
12:15 PM	0	0	0	0	**4**	2	0	6	2	0	8	10	0	1	0	1	17
12:30 PM	0	0	0	0	1	2	0	3	1	**1**	**15**	**17**	0	**8**	0	**8**	**28**
12:45 PM	0	0	0	0	2	6	0	**8**	**3**	0	12	15	0	2	**2**	4	27
Total Volume	0	0	0	0	7	16	0	23	7	1	39	47	0	14	2	16	86
% App. Total	0	0	0		30.4	69.6	0		14.9	2.1	83		0	87.5	12.5		
PHF	.000	.000	.000	.000	.438	.667	.000	.719	.583	.250	.650	.691	.000	.438	.250	.500	.768

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Groups Printed- Combined

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	139	22	0	0	161	28	1	18	0	47	0	12	4	0	16	224
06:15 AM	0	0	0	0	0	124	33	0	0	157	15	1	23	0	39	0	19	4	0	23	219
06:30 AM	0	0	0	0	0	131	30	0	0	161	23	0	64	0	87	0	33	2	0	35	283
06:45 AM	0	0	0	0	0	159	49	0	0	208	34	1	63	0	98	0	38	3	0	41	347
Total	0	0	0	0	0	553	134	0	0	687	100	3	168	0	271	0	102	13	0	115	1073
07:00 AM	0	0	0	0	0	168	43	0	0	211	23	0	59	0	82	0	48	0	0	48	341
07:15 AM	0	0	0	0	0	160	49	0	0	209	36	0	64	0	100	0	41	3	0	44	353
07:30 AM	0	0	0	0	0	153	64	0	0	217	30	0	58	0	88	0	60	3	0	63	368
07:45 AM	0	0	0	0	0	145	61	0	0	206	46	0	54	0	100	0	54	7	0	61	367
Total	0	0	0	0	0	626	217	0	0	843	135	0	235	0	370	0	203	13	0	216	1429
08:00 AM	0	0	0	0	0	118	46	0	0	164	31	0	37	0	68	0	71	3	0	74	306
08:15 AM	0	0	0	0	0	140	36	0	0	176	25	0	38	0	63	0	56	3	0	59	298
08:30 AM	0	0	0	0	0	120	34	0	0	154	26	0	30	0	56	0	55	2	0	57	267
08:45 AM	0	0	0	0	0	94	30	0	0	124	25	0	26	0	51	0	51	8	0	59	234
Total	0	0	0	0	0	472	146	0	0	618	107	0	131	0	238	0	233	16	0	249	1105
09:00 AM	0	0	0	0	0	95	34	0	0	129	29	0	27	0	56	0	48	3	0	51	236
09:15 AM	0	0	0	0	0	105	47	0	0	152	20	0	26	0	46	0	49	2	0	51	249
09:30 AM	0	0	0	0	0	86	30	0	0	116	18	0	20	0	38	0	65	2	0	67	221
09:45 AM	0	0	0	0	0	72	35	0	0	107	16	0	29	0	45	0	58	1	0	59	211
Total	0	0	0	0	0	358	146	0	0	504	83	0	102	0	185	0	220	8	0	228	917
10:00 AM	0	0	0	0	0	71	27	0	0	98	18	2	21	0	41	0	40	4	0	44	183
10:15 AM	0	0	0	0	0	77	17	0	0	94	24	0	31	0	55	0	44	0	0	44	193
10:30 AM	0	0	0	0	0	88	33	0	0	121	25	1	24	0	50	0	54	4	0	58	229
10:45 AM	0	0	0	0	0	76	22	0	0	98	18	2	18	0	38	0	54	2	0	56	192
Total	0	0	0	0	0	312	99	0	0	411	85	5	94	0	184	0	192	10	0	202	797
11:00 AM	0	0	0	0	0	64	29	0	0	93	15	0	21	0	36	0	54	6	0	60	189
11:15 AM	0	0	0	0	0	50	22	0	0	72	11	0	22	0	33	0	57	3	0	60	165
11:30 AM	0	0	0	0	0	60	31	0	0	91	10	0	23	0	33	0	55	5	0	60	184
11:45 AM	0	0	0	0	0	59	26	0	0	85	12	0	32	0	44	0	44	2	0	46	175
Total	0	0	0	0	0	233	108	0	0	341	48	0	98	0	146	0	210	16	0	226	713
12:00 PM	0	0	0	0	0	46	31	0	0	77	8	0	23	0	31	0	54	4	0	58	166
12:15 PM	0	0	0	0	0	64	33	0	0	97	17	0	35	0	52	0	67	2	0	69	218
12:30 PM	0	0	0	0	0	59	30	0	0	89	16	1	44	0	61	0	71	1	0	72	222
12:45 PM	0	0	0	0	0	59	29	0	0	88	22	1	31	0	54	0	66	5	0	71	213
Total	0	0	0	0	0	228	123	0	0	351	63	2	133	0	198	0	258	12	0	270	819
01:00 PM	0	0	0	0	0	61	39	0	0	100	15	1	20	0	36	0	62	4	0	66	202
01:15 PM	0	0	0	0	0	49	38	0	0	87	15	0	30	0	45	0	66	1	0	67	199
01:30 PM	0	0	0	0	0	64	39	0	0	103	20	1	34	0	55	0	70	4	0	74	232
01:45 PM	0	0	0	0	0	65	30	0	0	95	23	1	33	0	57	0	72	3	0	75	227
Total	0	0	0	0	0	239	146	0	0	385	73	3	117	0	193	0	270	12	0	282	860
02:00 PM	0	0	0	0	0	51	31	0	0	82	18	0	32	0	50	0	91	3	0	94	226
02:15 PM	0	0	0	0	0	68	34	0	0	102	23	0	25	0	48	0	83	2	0	85	235
02:30 PM	0	0	0	0	0	60	30	0	0	90	15	0	28	0	43	0	85	1	0	86	219
02:45 PM	0	0	0	0	0	50	36	0	0	86	18	1	27	0	46	0	68	3	0	71	203
Total	0	0	0	0	0	229	131	0	0	360	74	1	112	0	187	0	327	9	0	336	883
03:00 PM	0	0	0	0	0	65	45	0	0	110	19	1	29	0	49	0	79	2	0	81	240
03:15 PM	0	0	0	0	0	59	58	0	0	117	20	3	40	0	63	0	77	9	0	86	266
03:30 PM	0	0	0	0	0	77	42	0	0	119	22	1	30	0	53	0	79	4	0	83	255
03:45 PM	0	0	0	0	0	80	57	0	0	137	20	0	29	0	49	0	103	6	0	109	295
Total	0	0	0	0	0	281	202	0	0	483	81	5	128	0	214	0	338	21	0	359	1056
04:00 PM	0	0	0	0	0	85	78	0	0	163	22	0	31	0	53	0	80	3	0	83	299
04:15 PM	1	0	0	0	1	85	55	0	0	140	26	0	35	0	61	0	109	5	0	114	316
04:30 PM	0	0	0	0	0	80	69	0	0	149	27	0	31	0	58	0	85	5	0	90	297
04:45 PM	0	0	0	0	0	92	62	0	0	154	18	0	30	0	48	0	116	2	0	118	320
Total	1	0	0	0	1	342	264	0	0	606	93	0	127	0	220	0	390	15	0	405	1232
05:00 PM	0	0	0	0	0	86	102	0	0	188	15	1	36	0	52	0	99	3	0	102	342
05:15 PM	0	0	0	0	0	121	62	0	0	183	31	0	50	0	81	0	89	6	0	95	359
05:30 PM	0	0	0	0	0	102	102	0	0	204	25	0	46	0	71	0	82	3	0	85	360
05:45 PM	0	0	0	0	0	87	132	0	0	219	20	0	34	0	54	0	83	4	0	87	360
Total	0	0	0	0	0	396	398	0	0	794	91	1	166	0	258	0	353	16	0	369	1421

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Groups Printed- Combined

	I-95 NB On Ramp Southbound					Centreport Pkwy Westbound					I-95 NB Off Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	1	0	0	0	1	4269	2114	0	0	6383	1033	20	1611	0	2664	0	3096	161	0	3257	12305
Apprch %	100	0	0	0		66.9	33.1	0	0		38.8	0.8	60.5	0		0	95.1	4.9	0		
Total %	0	0	0	0	0	34.7	17.2	0	0	51.9	8.4	0.2	13.1	0	21.6	0	25.2	1.3	0	26.5	

	I-95 NB On Ramp Southbound				Centreport Pkwy Westbound				I-95 NB Off Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	**168**	43	0	211	23	0	59	82	0	48	0	48	341
07:15 AM	0	0	0	0	160	49	0	209	36	0	**64**	**100**	0	41	3	44	353
07:30 AM	0	0	0	0	153	**64**	0	**217**	30	0	58	88	0	**60**	3	**63**	**368**
07:45 AM	0	0	0	0	145	61	0	206	**46**	0	54	100	0	54	**7**	61	367
Total Volume	0	0	0	0	626	217	0	843	135	0	235	370	0	203	13	216	1429
% App. Total	0	0	0		74.3	25.7	0		36.5	0	63.5		0	94	6		
PHF	.000	.000	.000	.000	.932	.848	.000	.971	.734	.000	.918	.925	.000	.846	.464	.857	.971
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	86	102	0	188	15	**1**	36	52	0	**99**	3	**102**	342
05:15 PM	0	0	0	0	**121**	62	0	183	**31**	0	**50**	**81**	0	89	**6**	95	359
05:30 PM	0	0	0	0	102	102	0	204	25	0	46	71	0	82	3	85	**360**
05:45 PM	0	0	0	0	87	**132**	0	**219**	20	0	34	54	0	83	4	87	360
Total Volume	0	0	0	0	396	398	0	794	91	1	166	258	0	353	16	369	1421
% App. Total	0	0	0		49.9	50.1	0		35.3	0.4	64.3		0	95.7	4.3		
PHF	.000	.000	.000	.000	.818	.754	.000	.906	.734	.250	.830	.796	.000	.891	.667	.904	.987

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Groups Printed- Cars

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	3	0	12	0	15	0	24	8	0	32	0	0	0	0	0	9	4	0	0	13	60
06:15 AM	7	0	11	0	18	0	30	17	0	47	0	0	0	0	0	17	12	0	0	29	94
06:30 AM	6	0	26	0	32	0	80	12	0	92	0	0	0	0	0	20	7	0	0	27	151
06:45 AM	11	0	34	0	45	0	92	11	0	103	0	0	0	0	0	32	6	0	0	38	186
Total	27	0	83	0	110	0	226	48	0	274	0	0	0	0	0	78	29	0	0	107	491
07:00 AM	5	0	22	0	27	0	69	15	0	84	0	0	0	0	0	24	20	0	0	44	155
07:15 AM	3	0	32	0	35	0	98	18	0	116	0	0	0	0	0	35	11	0	0	46	197
07:30 AM	9	1	46	0	56	0	88	20	0	108	0	0	0	0	0	53	19	0	0	72	236
07:45 AM	8	0	39	0	47	0	90	15	0	105	0	0	0	0	0	53	22	0	0	75	227
Total	25	1	139	0	165	0	345	68	0	413	0	0	0	0	0	165	72	0	0	237	815
08:00 AM	3	0	31	0	34	0	66	15	0	81	0	0	0	0	0	47	28	0	0	75	190
08:15 AM	1	0	39	0	40	0	52	12	0	64	0	0	0	0	0	30	14	0	0	44	148
08:30 AM	3	1	35	0	39	0	47	11	0	58	0	0	0	0	0	45	16	0	0	61	158
08:45 AM	1	0	36	0	37	0	36	10	0	46	0	0	0	0	0	27	20	0	0	47	130
Total	8	1	141	0	150	0	201	48	0	249	0	0	0	0	0	149	78	0	0	227	626
09:00 AM	2	2	29	0	33	0	40	16	0	56	0	0	0	0	0	41	16	0	0	57	146
09:15 AM	2	1	29	0	32	0	32	27	0	59	0	0	0	0	0	27	17	0	0	44	135
09:30 AM	0	0	34	0	34	0	29	12	0	41	0	0	0	0	0	37	24	0	0	61	136
09:45 AM	1	0	34	0	35	0	40	14	0	54	0	0	0	0	0	33	12	0	0	45	134
Total	5	3	126	0	134	0	141	69	0	210	0	0	0	0	0	138	69	0	0	207	551
10:00 AM	1	1	26	0	28	0	29	17	0	46	0	0	0	0	0	35	9	0	0	44	118
10:15 AM	5	0	32	0	37	0	26	10	0	36	0	0	0	0	0	26	14	0	0	40	113
10:30 AM	0	1	25	0	26	0	28	21	0	49	0	0	0	0	0	39	20	0	0	59	134
10:45 AM	2	1	39	0	42	0	21	10	0	31	0	0	0	0	0	30	12	0	0	42	115
Total	8	3	122	0	133	0	104	58	0	162	0	0	0	0	0	130	55	0	0	185	480
11:00 AM	2	0	41	0	43	0	24	13	0	37	0	0	0	0	0	21	13	0	0	34	114
11:15 AM	1	0	36	0	37	0	28	11	0	39	0	0	0	0	0	18	22	0	0	40	116
11:30 AM	1	1	41	0	43	0	26	17	0	43	0	0	0	0	0	27	14	0	0	41	127
11:45 AM	1	0	28	0	29	0	36	15	0	51	0	0	0	0	0	29	17	0	0	46	126
Total	5	1	146	0	152	0	114	56	0	170	0	0	0	0	0	95	66	0	0	161	483
12:00 PM	0	2	34	0	36	0	31	14	0	45	0	0	0	0	0	21	23	0	0	44	125
12:15 PM	1	0	46	0	47	0	33	21	0	54	0	0	0	0	0	42	14	0	0	56	157
12:30 PM	1	0	54	0	55	0	36	25	0	61	0	0	0	0	0	19	19	0	0	38	154
12:45 PM	2	0	41	0	43	0	29	13	0	42	0	0	0	0	0	25	17	0	0	42	127
Total	4	2	175	0	181	0	129	73	0	202	0	0	0	0	0	107	73	0	0	180	563
01:00 PM	0	1	52	0	53	0	33	19	0	52	0	0	0	0	0	28	13	0	0	41	146
01:15 PM	0	0	50	0	50	0	39	23	0	62	0	0	0	0	0	22	16	0	0	38	150
01:30 PM	4	0	49	0	53	0	31	26	0	57	0	0	0	0	0	25	21	0	0	46	156
01:45 PM	0	0	52	0	52	0	36	15	0	51	0	0	0	0	0	30	20	0	0	50	153
Total	4	1	203	0	208	0	139	83	0	222	0	0	0	0	0	105	70	0	0	175	605
02:00 PM	0	0	73	0	73	0	40	18	0	58	0	0	0	0	0	27	17	0	0	44	175
02:15 PM	1	1	59	0	61	0	34	18	0	52	0	0	0	0	0	36	27	0	0	63	176
02:30 PM	1	0	57	0	58	0	32	22	0	54	0	0	0	0	0	28	17	0	0	45	157
02:45 PM	5	0	60	0	65	0	31	23	0	54	0	0	0	0	0	31	16	0	0	47	166
Total	7	1	249	0	257	0	137	81	0	218	0	0	0	0	0	122	77	0	0	199	674
03:00 PM	3	1	52	0	56	0	33	32	0	65	0	0	0	0	0	57	22	0	0	79	200
03:15 PM	3	0	61	0	64	0	64	30	0	94	0	0	0	0	0	64	25	0	0	89	247
03:30 PM	1	1	62	0	64	0	47	26	0	73	0	0	0	0	0	58	21	0	0	79	216
03:45 PM	1	1	59	0	61	0	48	33	0	81	0	0	0	0	0	81	44	0	0	125	267
Total	8	3	234	0	245	0	192	121	0	313	0	0	0	0	0	260	112	0	0	372	930
04:00 PM	4	1	57	0	62	0	43	56	0	99	0	0	0	0	0	74	29	0	0	103	264
04:15 PM	1	1	57	0	59	0	44	30	0	74	0	0	0	0	0	73	55	0	0	128	261
04:30 PM	1	1	37	0	39	0	49	41	0	90	0	0	0	0	0	82	44	0	0	126	255
04:45 PM	2	3	75	0	80	0	48	23	0	71	0	0	0	0	0	91	42	0	0	133	284
Total	8	6	226	0	240	0	184	150	0	334	0	0	0	0	0	320	170	0	0	490	1064
05:00 PM	1	1	56	0	58	0	72	63	0	135	0	0	0	0	0	99	36	0	0	135	328
05:15 PM	0	4	54	0	58	0	70	46	0	116	0	0	0	0	0	104	43	0	0	147	321
05:30 PM	2	5	46	0	53	0	74	63	0	137	0	0	0	0	0	88	33	0	0	121	311
05:45 PM	2	0	51	0	53	0	62	99	0	161	0	0	0	0	0	69	35	0	0	104	318
Total	5	10	207	0	222	0	278	271	0	549	0	0	0	0	0	360	147	0	0	507	1278

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Groups Printed- Cars

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	114	32	2051	0	2197	0	2190	1126	0	3316	0	0	0	0	0	2029	1018	0	0	3047	8560
Apprch %	5.2	1.5	93.4	0		0	66	34	0		0	0	0	0		66.6	33.4	0	0		
Total %	1.3	0.4	24	0	25.7	0	25.6	13.2	0	38.7	0	0	0	0	0	23.7	11.9	0	0	35.6	

	I-95 SB Off Ramp Southbound				Centreport Pkwy Westbound				I-95 SB On Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	0	32	35	0	**98**	18	**116**	0	0	0	0	35	11	0	46	197
07:30 AM	**9**	**1**	**46**	**56**	0	88	**20**	108	0	0	0	0	**53**	19	0	72	**236**
07:45 AM	8	0	39	47	0	90	15	105	0	0	0	0	53	22	0	**75**	227
08:00 AM	3	0	31	34	0	66	15	81	0	0	0	0	47	**28**	0	75	190
Total Volume	23	1	148	172	0	342	68	410	0	0	0	0	188	80	0	268	850
% App. Total	13.4	0.6	86		0	83.4	16.6		0	0	0		70.1	29.9	0		
PHF	.639	.250	.804	.768	.000	.872	.850	.884	.000	.000	.000	.000	.887	.714	.000	.893	.900
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	1	1	**56**	**58**	0	72	63	135	0	0	0	0	99	36	0	135	**328**
05:15 PM	0	4	54	58	0	70	46	116	0	0	0	0	**104**	**43**	0	**147**	321
05:30 PM	**2**	**5**	46	53	0	**74**	63	137	0	0	0	0	88	33	0	121	311
05:45 PM	2	0	51	53	0	62	**99**	**161**	0	0	0	0	69	35	0	104	318
Total Volume	5	10	207	222	0	278	271	549	0	0	0	0	360	147	0	507	1278
% App. Total	2.3	4.5	93.2		0	50.6	49.4		0	0	0		71	29	0		
PHF	.625	.500	.924	.957	.000	.939	.684	.852	.000	.000	.000	.000	.865	.855	.000	.862	.974

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Groups Printed- Trucks

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	2	0	0	2	0	4	2	0	6	0	0	0	0	0	0	0	0	0	0	8
06:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	2	0	0	0	2	6
06:30 AM	2	0	1	0	3	0	4	1	0	5	0	0	0	0	0	1	1	0	0	2	10
06:45 AM	1	0	2	0	3	0	6	1	0	7	0	0	0	0	0	2	3	0	0	5	15
Total	3	2	3	0	8	0	18	4	0	22	0	0	0	0	0	5	4	0	0	9	39
07:00 AM	0	0	2	0	2	0	9	3	0	12	0	0	0	0	0	5	0	0	0	5	19
07:15 AM	0	0	0	0	0	0	2	2	0	4	0	0	0	0	0	3	0	0	0	3	7
07:30 AM	1	0	0	0	1	0	7	3	0	10	0	0	0	0	0	4	0	0	0	4	15
07:45 AM	1	0	2	0	3	0	4	6	0	10	0	0	0	0	0	6	3	0	0	9	22
Total	2	0	4	0	6	0	22	14	0	36	0	0	0	0	0	18	3	0	0	21	63
08:00 AM	0	0	1	0	1	0	6	3	0	9	0	0	0	0	0	10	8	0	0	18	28
08:15 AM	1	0	3	0	4	0	4	5	0	9	0	0	0	0	0	8	4	0	0	12	25
08:30 AM	0	0	1	0	1	0	3	2	0	5	0	0	0	0	0	11	4	0	0	15	21
08:45 AM	0	0	3	0	3	0	7	4	0	11	0	0	0	0	0	9	1	0	0	10	24
Total	1	0	8	0	9	0	20	14	0	34	0	0	0	0	0	38	17	0	0	55	98
09:00 AM	0	0	1	0	1	0	8	4	0	12	0	0	0	0	0	4	5	0	0	9	22
09:15 AM	2	0	1	0	3	0	3	7	0	10	0	0	0	0	0	7	6	0	0	13	26
09:30 AM	2	0	2	0	4	0	7	2	0	9	0	0	0	0	0	7	7	0	0	14	27
09:45 AM	0	0	1	0	1	0	4	5	0	9	0	0	0	0	0	5	11	0	0	16	26
Total	4	0	5	0	9	0	22	18	0	40	0	0	0	0	0	23	29	0	0	52	101
10:00 AM	0	0	2	0	2	0	3	5	0	8	0	0	0	0	0	5	6	0	0	11	21
10:15 AM	0	0	2	0	2	0	7	2	0	9	0	0	0	0	0	1	1	0	0	2	13
10:30 AM	1	1	2	0	4	0	5	5	0	10	0	0	0	0	0	7	6	0	0	13	27
10:45 AM	0	0	3	0	3	0	2	5	0	7	0	0	0	0	0	8	1	0	0	9	19
Total	1	1	9	0	11	0	17	17	0	34	0	0	0	0	0	21	14	0	0	35	80
11:00 AM	3	0	3	0	6	0	6	7	0	13	0	0	0	0	0	4	3	0	0	7	26
11:15 AM	1	0	1	0	2	0	3	4	0	7	0	0	0	0	0	5	3	0	0	8	17
11:30 AM	0	0	2	0	2	0	5	4	0	9	0	0	0	0	0	2	2	0	0	4	15
11:45 AM	0	0	1	0	1	0	6	5	0	11	0	0	0	0	0	7	3	0	0	10	22
Total	4	0	7	0	11	0	20	20	0	40	0	0	0	0	0	18	11	0	0	29	80
12:00 PM	0	0	2	0	2	0	6	4	0	10	0	0	0	0	0	1	1	0	0	2	14
12:15 PM	0	0	2	0	2	0	4	4	0	8	0	0	0	0	0	7	2	0	0	9	19
12:30 PM	0	0	4	0	4	0	10	6	0	16	0	0	0	0	0	5	3	0	0	8	28
12:45 PM	0	0	3	0	3	0	13	6	0	19	0	0	0	0	0	9	3	0	0	12	34
Total	0	0	11	0	11	0	33	20	0	53	0	0	0	0	0	22	9	0	0	31	95
01:00 PM	0	0	2	0	2	0	5	3	0	8	0	0	0	0	0	2	1	0	0	3	13
01:15 PM	0	0	1	0	1	0	4	1	0	5	0	0	0	0	0	3	1	0	0	4	10
01:30 PM	1	1	2	0	4	0	8	5	0	13	0	0	0	0	0	6	0	0	0	6	23
01:45 PM	0	1	0	0	1	0	6	4	0	10	0	0	0	0	0	5	3	0	0	8	19
Total	1	2	5	0	8	0	23	13	0	36	0	0	0	0	0	16	5	0	0	21	65
02:00 PM	0	0	2	0	2	0	6	1	0	7	0	0	0	0	0	2	4	0	0	6	15
02:15 PM	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	4	1	0	0	5	12
02:30 PM	3	0	2	0	5	0	2	3	0	5	0	0	0	0	0	1	4	0	0	5	15
02:45 PM	1	0	3	0	4	0	9	1	0	10	0	0	0	0	0	5	1	0	0	6	20
Total	4	0	7	0	11	0	22	7	0	29	0	0	0	0	0	12	10	0	0	22	62
03:00 PM	1	1	4	0	6	0	2	2	0	4	0	0	0	0	0	2	0	0	0	2	12
03:15 PM	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	2	1	0	0	3	10
03:30 PM	0	0	2	0	2	0	3	0	0	3	0	0	0	0	0	4	6	0	0	10	15
03:45 PM	0	0	1	0	1	0	5	1	0	6	0	0	0	0	0	3	4	0	0	7	14
Total	1	1	7	0	9	0	15	5	0	20	0	0	0	0	0	11	11	0	0	22	51
04:00 PM	0	0	1	0	1	0	7	4	0	11	0	0	0	0	0	1	1	0	0	2	14
04:15 PM	0	0	1	0	1	0	8	4	0	12	0	0	0	0	0	1	2	0	0	3	16
04:30 PM	1	1	0	0	2	0	7	0	0	7	0	0	0	0	0	1	3	0	0	4	13
04:45 PM	0	1	3	0	4	0	7	2	0	9	0	0	0	0	0	1	2	0	0	3	16
Total	1	2	5	0	8	0	29	10	0	39	0	0	0	0	0	4	8	0	0	12	59
05:00 PM	1	0	3	0	4	0	7	2	0	9	0	0	0	0	0	4	4	0	0	8	21
05:15 PM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	5	2	0	0	7	11
05:30 PM	0	0	2	0	2	0	2	2	0	4	0	0	0	0	0	3	0	0	0	3	9
05:45 PM	0	0	0	0	0	0	3	4	0	7	0	0	0	0	0	2	0	0	0	2	9
Total	1	0	6	0	7	0	15	8	0	23	0	0	0	0	0	14	6	0	0	20	50

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Groups Printed- Trucks

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	23	8	77	0	108	0	256	150	0	406	0	0	0	0	0	202	127	0	0	329	843
Apprch %	21.3	7.4	71.3	0		0	63.1	36.9	0		0	0	0	0		61.4	38.6	0	0		
Total %	2.7	0.9	9.1	0	12.8	0	30.4	17.8	0	48.2	0	0	0	0	0	24	15.1	0	0	39	

	I-95 SB Off Ramp Southbound				Centreport Pkwy Westbound				I-95 SB On Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 09:00 AM																	
09:00 AM	0	0	1	1	0	**8**	4	**12**	0	0	0	0	4	5	0	9	22
09:15 AM	**2**	0	1	3	0	3	**7**	10	0	0	0	0	**7**	6	0	13	26
09:30 AM	2	0	**2**	**4**	0	7	2	9	0	0	0	0	7	7	0	14	**27**
09:45 AM	0	0	1	1	0	4	5	9	0	0	0	0	5	**11**	0	**16**	26
Total Volume	4	0	5	9	0	22	18	40	0	0	0	0	23	29	0	52	101
% App. Total	44.4	0	55.6		0	55	45		0	0	0		44.2	55.8	0		
PHF	.500	.000	.625	.563	.000	.688	.643	.833	.000	.000	.000	.000	.821	.659	.000	.813	.935
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	0	2	2	0	6	4	10	0	0	0	0	1	1	0	2	14
12:15 PM	0	0	2	2	0	4	4	8	0	0	0	0	7	2	0	9	19
12:30 PM	0	0	**4**	**4**	0	10	**6**	16	0	0	0	0	5	**3**	0	8	28
12:45 PM	0	0	3	3	0	**13**	6	**19**	0	0	0	0	**9**	3	0	**12**	**34**
Total Volume	0	0	11	11	0	33	20	53	0	0	0	0	22	9	0	31	95
% App. Total	0	0	100		0	62.3	37.7		0	0	0		71	29	0		
PHF	.000	.000	.688	.688	.000	.635	.833	.697	.000	.000	.000	.000	.611	.750	.000	.646	.699

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Groups Printed- Combined

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	3	2	12	0	17	0	28	10	0	38	0	0	0	0	0	9	4	0	0	13	68
06:15 AM	7	0	11	0	18	0	34	17	0	51	0	0	0	0	0	19	12	0	0	31	100
06:30 AM	8	0	27	0	35	0	84	13	0	97	0	0	0	0	0	21	8	0	0	29	161
06:45 AM	12	0	36	0	48	0	98	12	0	110	0	0	0	0	0	34	9	0	0	43	201
Total	30	2	86	0	118	0	244	52	0	296	0	0	0	0	0	83	33	0	0	116	530
07:00 AM	5	0	24	0	29	0	78	18	0	96	0	0	0	0	0	29	20	0	0	49	174
07:15 AM	3	0	32	0	35	0	100	20	0	120	0	0	0	0	0	38	11	0	0	49	204
07:30 AM	10	1	46	0	57	0	95	23	0	118	0	0	0	0	0	57	19	0	0	76	251
07:45 AM	9	0	41	0	50	0	94	21	0	115	0	0	0	0	0	59	25	0	0	84	249
Total	27	1	143	0	171	0	367	82	0	449	0	0	0	0	0	183	75	0	0	258	878
08:00 AM	3	0	32	0	35	0	72	18	0	90	0	0	0	0	0	57	36	0	0	93	218
08:15 AM	2	0	42	0	44	0	56	17	0	73	0	0	0	0	0	38	18	0	0	56	173
08:30 AM	3	1	36	0	40	0	50	13	0	63	0	0	0	0	0	56	20	0	0	76	179
08:45 AM	1	0	39	0	40	0	43	14	0	57	0	0	0	0	0	36	21	0	0	57	154
Total	9	1	149	0	159	0	221	62	0	283	0	0	0	0	0	187	95	0	0	282	724
09:00 AM	2	2	30	0	34	0	48	20	0	68	0	0	0	0	0	45	21	0	0	66	168
09:15 AM	4	1	30	0	35	0	35	34	0	69	0	0	0	0	0	34	23	0	0	57	161
09:30 AM	2	0	36	0	38	0	36	14	0	50	0	0	0	0	0	44	31	0	0	75	163
09:45 AM	1	0	35	0	36	0	44	19	0	63	0	0	0	0	0	38	23	0	0	61	160
Total	9	3	131	0	143	0	163	87	0	250	0	0	0	0	0	161	98	0	0	259	652
10:00 AM	1	1	28	0	30	0	32	22	0	54	0	0	0	0	0	40	15	0	0	55	139
10:15 AM	5	0	34	0	39	0	33	12	0	45	0	0	0	0	0	27	15	0	0	42	126
10:30 AM	1	2	27	0	30	0	33	26	0	59	0	0	0	0	0	46	26	0	0	72	161
10:45 AM	2	1	42	0	45	0	23	15	0	38	0	0	0	0	0	38	13	0	0	51	134
Total	9	4	131	0	144	0	121	75	0	196	0	0	0	0	0	151	69	0	0	220	560
11:00 AM	5	0	44	0	49	0	30	20	0	50	0	0	0	0	0	25	16	0	0	41	140
11:15 AM	2	0	37	0	39	0	31	15	0	46	0	0	0	0	0	23	25	0	0	48	133
11:30 AM	1	1	43	0	45	0	31	21	0	52	0	0	0	0	0	29	16	0	0	45	142
11:45 AM	1	0	29	0	30	0	42	20	0	62	0	0	0	0	0	36	20	0	0	56	148
Total	9	1	153	0	163	0	134	76	0	210	0	0	0	0	0	113	77	0	0	190	563
12:00 PM	0	2	36	0	38	0	37	18	0	55	0	0	0	0	0	22	24	0	0	46	139
12:15 PM	1	0	48	0	49	0	37	25	0	62	0	0	0	0	0	49	16	0	0	65	176
12:30 PM	1	0	58	0	59	0	46	31	0	77	0	0	0	0	0	24	22	0	0	46	182
12:45 PM	2	0	44	0	46	0	42	19	0	61	0	0	0	0	0	34	20	0	0	54	161
Total	4	2	186	0	192	0	162	93	0	255	0	0	0	0	0	129	82	0	0	211	658
01:00 PM	0	1	54	0	55	0	38	22	0	60	0	0	0	0	0	30	14	0	0	44	159
01:15 PM	0	0	51	0	51	0	43	24	0	67	0	0	0	0	0	25	17	0	0	42	160
01:30 PM	5	1	51	0	57	0	39	31	0	70	0	0	0	0	0	31	21	0	0	52	179
01:45 PM	0	1	52	0	53	0	42	19	0	61	0	0	0	0	0	35	23	0	0	58	172
Total	5	3	208	0	216	0	162	96	0	258	0	0	0	0	0	121	75	0	0	196	670
02:00 PM	0	0	75	0	75	0	46	19	0	65	0	0	0	0	0	29	21	0	0	50	190
02:15 PM	1	1	59	0	61	0	39	20	0	59	0	0	0	0	0	40	28	0	0	68	188
02:30 PM	4	0	59	0	63	0	34	25	0	59	0	0	0	0	0	29	21	0	0	50	172
02:45 PM	6	0	63	0	69	0	40	24	0	64	0	0	0	0	0	36	17	0	0	53	186
Total	11	1	256	0	268	0	159	88	0	247	0	0	0	0	0	134	87	0	0	221	736
03:00 PM	4	2	56	0	62	0	35	34	0	69	0	0	0	0	0	59	22	0	0	81	212
03:15 PM	3	0	61	0	64	0	69	32	0	101	0	0	0	0	0	66	26	0	0	92	257
03:30 PM	1	1	64	0	66	0	50	26	0	76	0	0	0	0	0	62	27	0	0	89	231
03:45 PM	1	1	60	0	62	0	53	34	0	87	0	0	0	0	0	84	48	0	0	132	281
Total	9	4	241	0	254	0	207	126	0	333	0	0	0	0	0	271	123	0	0	394	981
04:00 PM	4	1	58	0	63	0	50	60	0	110	0	0	0	0	0	75	30	0	0	105	278
04:15 PM	1	1	58	0	60	0	52	34	0	86	0	0	0	0	0	74	57	0	0	131	277
04:30 PM	2	2	37	0	41	0	56	41	0	97	0	0	0	0	0	83	47	0	0	130	268
04:45 PM	2	4	78	0	84	0	55	25	0	80	0	0	0	0	0	92	44	0	0	136	300
Total	9	8	231	0	248	0	213	160	0	373	0	0	0	0	0	324	178	0	0	502	1123
05:00 PM	2	1	59	0	62	0	79	65	0	144	0	0	0	0	0	103	40	0	0	143	349
05:15 PM	0	4	55	0	59	0	73	46	0	119	0	0	0	0	0	109	45	0	0	154	332
05:30 PM	2	5	48	0	55	0	76	65	0	141	0	0	0	0	0	91	33	0	0	124	320
05:45 PM	2	0	51	0	53	0	65	103	0	168	0	0	0	0	0	71	35	0	0	106	327
Total	6	10	213	0	229	0	293	279	0	572	0	0	0	0	0	374	153	0	0	527	1328

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Groups Printed- Combined

	I-95 SB Off Ramp Southbound					Centreport Pkwy Westbound					I-95 SB On Ramp Northbound					Centreport Pkwy Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	137	40	2128	0	2305	0	2446	1276	0	3722	0	0	0	0	0	2231	1145	0	0	3376	9403
Apprch %	5.9	1.7	92.3	0		0	65.7	34.3	0		0	0	0	0		66.1	33.9	0	0		
Total %	1.5	0.4	22.6	0	24.5	0	26	13.6	0	39.6	0	0	0	0	0	23.7	12.2	0	0	35.9	

	I-95 SB Off Ramp Southbound				Centreport Pkwy Westbound				I-95 SB On Ramp Northbound				Centreport Pkwy Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	0	32	35	0	**100**	20	**120**	0	0	0	0	38	11	0	49	204
07:30 AM	**10**	**1**	**46**	**57**	0	95	**23**	118	0	0	0	0	57	19	0	76	**251**
07:45 AM	9	0	41	50	0	94	21	115	0	0	0	0	**59**	25	0	84	249
08:00 AM	3	0	32	35	0	72	18	90	0	0	0	0	57	**36**	0	**93**	218
Total Volume	25	1	151	177	0	361	82	443	0	0	0	0	211	91	0	302	922
% App. Total	14.1	0.6	85.3		0	81.5	18.5		0	0	0		69.9	30.1	0		
PHF	.625	.250	.821	.776	.000	.903	.891	.923	.000	.000	.000	.000	.894	.632	.000	.812	.918
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**2**	1	**59**	**62**	0	**79**	65	144	0	0	0	0	103	40	0	143	**349**
05:15 PM	0	4	55	59	0	73	46	119	0	0	0	0	**109**	**45**	0	**154**	332
05:30 PM	2	**5**	48	55	0	76	65	141	0	0	0	0	91	33	0	124	320
05:45 PM	2	0	51	53	0	65	**103**	**168**	0	0	0	0	71	35	0	106	327
Total Volume	6	10	213	229	0	293	279	572	0	0	0	0	374	153	0	527	1328
% App. Total	2.6	4.4	93		0	51.2	48.8		0	0	0		71	29	0		
PHF	.750	.500	.903	.923	.000	.927	.677	.851	.000	.000	.000	.000	.858	.850	.000	.856	.951

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Control: 2-Way Stop(NB/SB)

Project ID: 23-260018-003
Date: 2/1/2023

Data - Total

NS/EW Streets:	Greenstead Rd				Greenstead Rd				Eskimo Hill Rd/Big Spring Ln				Eskimo Hill Rd/Big Spring Ln				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	19	0	2	0	0	0	0	0	0	4	4	0	1	5	0	0	35
6:15 AM	26	0	0	0	0	0	0	0	0	5	5	0	0	3	0	0	39
6:30 AM	21	1	0	0	0	0	1	0	0	2	6	0	0	4	0	0	35
6:45 AM	42	0	1	0	0	0	0	0	1	8	7	0	0	4	0	0	63
7:00 AM	61	1	1	0	0	0	0	0	0	4	8	0	0	2	0	0	77
7:15 AM	83	0	1	0	0	0	0	0	1	11	16	0	0	3	0	0	115
7:30 AM	83	1	1	0	0	1	2	0	4	13	7	0	0	4	0	0	116
7:45 AM	54	0	3	0	1	0	2	0	4	11	16	0	2	6	0	0	99
8:00 AM	37	0	1	0	0	0	1	1	1	12	16	0	0	8	0	0	77
8:15 AM	42	0	1	0	0	0	2	0	2	11	20	0	0	3	0	0	81
8:30 AM	34	0	2	0	2	0	1	0	6	18	14	0	0	10	0	0	87
8:45 AM	21	0	1	0	0	0	1	0	0	26	16	0	2	4	0	0	71
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	523	3	14	0	3	1	10	1	19	125	135	0	5	56	0	0	895
APPROACH %'s :	96.85%	0.56%	2.59%	0.00%	20.00%	6.67%	66.67%	6.67%	6.81%	44.80%	48.39%	0.00%	8.20%	91.80%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	257	1	6	0	1	1	5	1	10	47	55	0	2	21	0	0	407
PEAK HR FACTOR :	0.774	0.250	0.500	0.000	0.250	0.250	0.625	0.250	0.625	0.904	0.859	0.000	0.250	0.656	0.000	0.000	0.877
	0.776				0.667				0.903				0.719				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	22	0	0	0	0	1	3	0	1	5	52	0	3	11	0	0	98
4:15 PM	29	0	0	0	0	0	4	0	1	7	67	0	1	19	0	0	128
4:30 PM	18	0	0	0	1	0	0	0	0	4	63	0	0	10	0	0	96
4:45 PM	20	0	0	0	0	0	2	0	0	8	68	0	0	10	0	0	108
5:00 PM	18	0	0	1	0	0	0	0	0	7	56	0	0	7	0	0	89
5:15 PM	16	0	0	0	0	0	1	0	0	1	13	0	0	10	0	0	41
5:30 PM	25	0	0	0	0	0	0	0	0	5	6	0	0	11	0	0	47
5:45 PM	32	0	0	0	0	0	0	0	0	5	21	0	2	2	0	0	62
6:00 PM	25	0	1	0	0	0	0	0	0	3	20	0	0	2	0	0	51
6:15 PM	11	0	0	0	0	0	0	0	0	8	25	0	0	10	0	0	54
6:30 PM	7	0	0	0	0	1	1	0	1	6	24	0	0	3	0	0	43
6:45 PM	4	0	0	0	0	0	0	0	0	4	18	0	1	3	0	0	30
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	227	0	1	1	1	2	11	0	3	63	433	0	7	98	0	0	847
APPROACH %'s :	99.13%	0.00%	0.44%	0.44%	7.14%	14.29%	78.57%	0.00%	0.60%	12.63%	86.77%	0.00%	6.67%	93.33%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	89	0	0	0	1	1	9	0	2	24	250	0	4	50	0	0	430
PEAK HR FACTOR :	0.767	0.000	0.000	0.000	0.250	0.250	0.563	0.000	0.500	0.750	0.919	0.000	0.333	0.658	0.000	0.000	0.840
	0.767				0.688				0.908				0.675				

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Control: 2-Way Stop(NB/SB)

Project ID: 23-260018-003
Date: 2/1/2023

Data - Cars

AM

NS/EW Streets:	Greenstead Rd				Greenstead Rd				Eskimo Hill Rd/Big Spring Ln				Eskimo Hill Rd/Big Spring Ln				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	19	0	1	0	0	0	0	0	0	4	2	0	0	5	0	0	31
6:15 AM	22	0	0	0	0	0	0	0	0	5	5	0	0	3	0	0	35
6:30 AM	21	1	0	0	0	0	1	0	0	2	4	0	0	4	0	0	33
6:45 AM	40	0	1	0	0	0	0	0	0	6	7	0	0	4	0	0	58
7:00 AM	59	1	1	0	0	0	0	0	0	4	5	0	0	2	0	0	72
7:15 AM	80	0	1	0	0	0	0	0	1	10	13	0	0	3	0	0	108
7:30 AM	78	1	1	0	0	1	1	0	4	12	7	0	0	2	0	0	107
7:45 AM	50	0	2	0	1	0	0	0	3	11	15	0	1	6	0	0	89
8:00 AM	35	0	1	0	0	0	1	1	0	12	11	0	0	8	0	0	69
8:15 AM	40	0	1	0	0	0	1	0	2	8	16	0	0	3	0	0	71
8:30 AM	31	0	1	0	2	0	0	0	4	17	14	0	0	9	0	0	78
8:45 AM	18	0	1	0	0	0	1	0	0	24	14	0	1	4	0	0	63
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	493	3	11	0	3	1	5	1	14	115	113	0	2	53	0	0	814
APPROACH %'s :	97.24%	0.59%	2.17%	0.00%	30.00%	10.00%	50.00%	10.00%	5.79%	47.52%	46.69%	0.00%	3.64%	96.36%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	243	1	5	0	1	1	2	1	8	45	46	0	1	19	0	0	373
PEAK HR FACTOR :	0.759	0.250	0.625	0.000	0.250	0.250	0.500	0.250	0.500	0.938	0.767	0.000	0.250	0.594	0.000	0.000	0.863
	0.769				0.625				0.853				0.625				

PM

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	0	0	0	0	1	0	0	1	3	52	0	3	11	0	0	91
4:15 PM	28	0	0	0	0	0	1	0	0	4	65	0	0	19	0	0	117
4:30 PM	15	0	0	0	0	0	0	0	0	4	60	0	0	10	0	0	89
4:45 PM	20	0	0	0	0	0	1	0	0	8	68	0	0	10	0	0	107
5:00 PM	18	0	0	1	0	0	0	0	0	7	55	0	0	7	0	0	88
5:15 PM	16	0	0	0	0	0	1	0	0	0	12	0	0	9	0	0	38
5:30 PM	24	0	0	0	0	0	0	0	0	5	6	0	0	10	0	0	45
5:45 PM	30	0	0	0	0	0	0	0	0	5	20	0	2	1	0	0	58
6:00 PM	24	0	1	0	0	0	0	0	0	3	19	0	0	2	0	0	49
6:15 PM	11	0	0	0	0	0	0	0	0	8	25	0	0	7	0	0	51
6:30 PM	7	0	0	0	0	0	1	0	0	6	24	0	0	3	0	0	41
6:45 PM	4	0	0	0	0	0	0	0	0	4	17	0	1	3	0	0	29
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	217	0	1	1	0	1	4	0	1	57	423	0	6	92	0	0	803
APPROACH %'s :	99.09%	0.00%	0.46%	0.46%	0.00%	20.00%	80.00%	0.00%	0.21%	11.85%	87.94%	0.00%	6.12%	93.88%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	83	0	0	0	0	1	2	0	1	19	245	0	3	50	0	0	404
PEAK HR FACTOR :	0.741	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.250	0.594	0.901	0.000	0.250	0.658	0.000	0.000	0.863
	0.741				0.750				0.872				0.697				

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Control: 2-Way Stop(NB/SB)

Project ID: 23-260018-003
Date: 2/1/2023

Data - HT

NS/EW Streets:	Greenstead Rd				Greenstead Rd				Eskimo Hill Rd/Big Spring Ln				Eskimo Hill Rd/Big Spring Ln				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	1	0	0	0	0	0	0	0	2	0	1	0	0	0	4
6:15 AM	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
6:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
6:45 AM	2	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	5
7:00 AM	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5
7:15 AM	3	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	7
7:30 AM	5	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0	9
7:45 AM	4	0	1	0	0	0	2	0	1	0	1	0	1	0	0	0	10
8:00 AM	2	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	8
8:15 AM	2	0	0	0	0	0	1	0	0	3	4	0	0	0	0	0	10
8:30 AM	3	0	1	0	0	0	1	0	2	1	0	0	0	1	0	0	9
8:45 AM	3	0	0	0	0	0	0	0	0	2	2	0	1	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	30	0	3	0	0	0	5	0	5	10	22	0	3	3	0	0	81
APPROACH %'s :	90.91%	0.00%	9.09%	0.00%	0.00%	0.00%	100.00%	0.00%	13.51%	27.03%	59.46%	0.00%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	14	0	1	0	0	0	3	0	2	2	9	0	1	2	0	0	34
PEAK HR FACTOR :	0.700	0.000	0.250	0.000	0.000	0.000	0.375	0.000	0.500	0.500	0.450	0.000	0.250	0.250	0.000	0.000	0.850
	0.750				0.375				0.542				0.375				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	7
4:15 PM	1	0	0	0	0	0	3	0	1	3	2	0	1	0	0	0	11
4:30 PM	3	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	7
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	3
5:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5:45 PM	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4
6:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
6:30 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
6:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	0	0	0	1	1	7	0	2	6	10	0	1	6	0	0	44
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	11.11%	11.11%	77.78%	0.00%	11.11%	33.33%	55.56%	0.00%	14.29%	85.71%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	6	0	0	0	1	0	7	0	1	5	5	0	1	0	0	0	26
PEAK HR FACTOR :	0.500	0.000	0.000	0.000	0.250	0.000	0.583	0.000	0.250	0.417	0.417	0.000	0.250	0.000	0.000	0.000	0.591
	0.500				0.667				0.458				0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln
City: Stafford
Control: 2-Way Stop(NB/SB)

Project ID: 23-260018-003
Date: 2/1/2023

Data - Bikes

NS/EW Streets:	Greenstead Rd				Greenstead Rd				Eskimo Hill Rd/Big Spring Ln				Eskimo Hill Rd/Big Spring Ln				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Greenstead Rd & Eskimo Hill Rd/Big Spring Ln **Project ID:** 23-260018-003
City: Stafford **Date:** 2/1/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Greenstead Rd		Greenstead Rd		Eskimo Hill Rd/Big Spring Ln		Eskimo Hill Rd/Big Spring Ln		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:15 AM - 08:15 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**04:00 PM - 05:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Greenstead Rd & Eskimo Hill Rd/Big Spring Ln

Peak Hour Turning Movement Count

ID: 23-260018-003
City: Stafford

Day: Wednesday
Date: 2/1/2023

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	6:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	4:00 PM - 07:00 PM

SOUTHBOUND (Greenstead Rd)

AM	5	1	1	1	12	AM
NOON	0	0	0	0	0	NOON
PM	9	1	1	0	2	PM

EASTBOUND (Eskimo Hill Rd/Big Spring Ln)

AM	NOON	PM	
283	0	148	
0	0	0	0
10	0	2	0
47	0	24	1
55	0	250	0
AM	NOON	PM	

WESTBOUND (Eskimo Hill Rd/Big Spring Ln)

PM	NOON	AM	
0	0	0	0
50	0	21	1
4	0	2	0
0	0	0	0
25	0	54	
PM	NOON	AM	

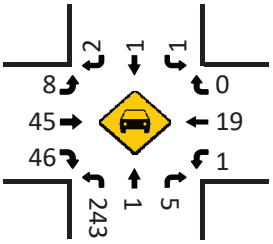
CONTROL: 2-Way Stop(NB/SB)

	AM	NOON	PM
TEV	407	0	430
PHF	0.88		0.84

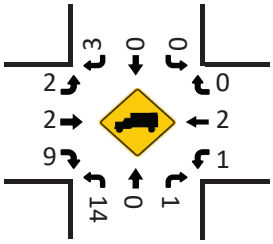
NORTHBOUND (Greenstead Rd)

PM	255	0	89	0	0	PM
NOON	0	0	0	0	0	NOON
AM	58	0	257	1	6	AM

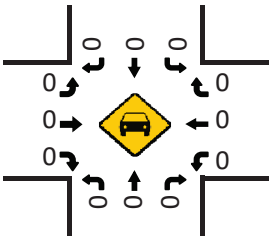
Cars (AM)



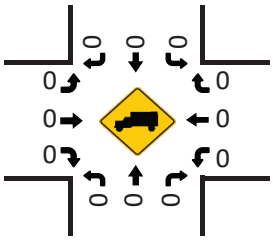
HT (AM)



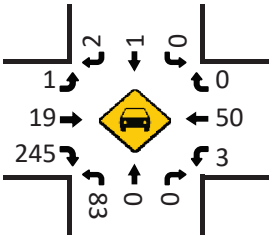
Cars (NOON)



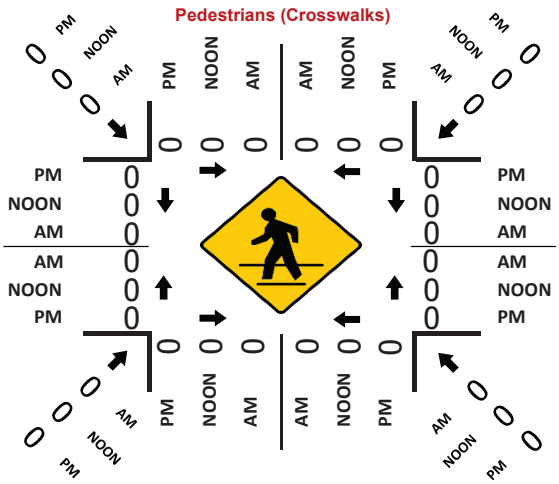
HT (NOON)



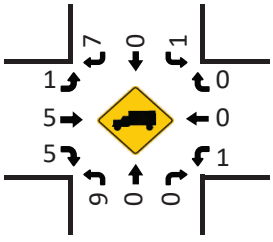
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Control: 1-Way Stop(WB)

Project ID: 23-260018-004
Date: 2/1/2023

Data - Total

NS/EW Streets:	State Shop Rd				State Shop Rd				Eskimo Hill Rd				Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	3	3	0	5	0	0	0	0	0	0	0	1	0	18	0	30
6:15 AM	0	3	2	0	5	0	0	0	0	0	0	0	1	0	25	0	36
6:30 AM	0	0	2	0	5	1	0	0	0	0	0	0	2	0	22	0	32
6:45 AM	0	1	1	0	7	0	0	0	0	0	0	0	1	0	48	0	58
7:00 AM	0	3	0	0	9	0	0	0	0	0	0	0	6	0	62	0	80
7:15 AM	0	2	4	0	14	2	0	0	0	0	0	0	2	0	81	0	105
7:30 AM	1	3	3	0	7	0	1	0	0	0	0	0	0	0	81	0	96
7:45 AM	0	3	6	0	17	1	0	0	0	0	0	0	4	0	55	0	86
8:00 AM	0	0	5	0	15	0	1	0	0	0	0	0	3	0	37	0	61
8:15 AM	0	3	4	0	20	0	0	0	0	0	0	0	0	0	40	0	67
8:30 AM	0	1	5	0	14	0	0	0	0	0	0	0	6	0	36	0	62
8:45 AM	0	1	11	0	15	3	0	0	0	0	0	0	1	0	20	0	51
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	23	46	0	133	7	2	0	0	0	0	0	27	0	525	0	764
APPROACH %'s :	1.43%	32.86%	65.71%	0.00%	93.66%	4.93%	1.41%	0.00%					4.89%	0.00%	95.11%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	1	11	13	0	47	3	1	0	0	0	0	0	12	0	279	0	367
PEAK HR FACTOR :	0.250	0.917	0.542	0.000	0.691	0.375	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.861	0.000	0.874
	0.694				0.708								0.877				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	9	0	56	2	0	0	0	0	0	0	1	0	21	0	90
4:15 PM	0	2	7	0	67	1	0	0	0	0	0	0	1	0	27	0	105
4:30 PM	0	0	5	0	62	1	0	0	0	0	0	0	2	0	18	0	88
4:45 PM	0	0	7	0	66	1	0	0	0	0	0	0	2	0	24	0	100
5:00 PM	0	1	5	0	58	0	0	0	0	0	0	0	4	0	14	0	82
5:15 PM	0	1	6	0	12	1	0	1	0	0	0	0	3	0	15	0	39
5:30 PM	0	0	12	0	6	0	0	0	0	0	0	0	2	0	25	0	45
5:45 PM	0	2	11	0	23	1	0	0	0	0	0	0	6	0	30	0	73
6:00 PM	0	2	9	0	19	1	0	0	0	0	0	0	0	0	26	0	57
6:15 PM	0	1	0	0	25	0	0	0	0	0	0	0	3	0	9	0	38
6:30 PM	0	0	4	0	25	0	0	0	0	0	0	0	2	0	6	0	37
6:45 PM	0	1	4	0	17	2	0	0	0	0	0	0	1	0	3	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	11	79	0	436	10	0	1	0	0	0	0	27	0	218	0	782
APPROACH %'s :	0.00%	12.22%	87.78%	0.00%	97.54%	2.24%	0.00%	0.22%					11.02%	0.00%	88.98%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	3	28	0	251	5	0	0	0	0	0	0	6	0	90	0	383
PEAK HR FACTOR :	0.000	0.375	0.778	0.000	0.937	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.833	0.000	0.912
	0.775				0.941								0.857				

National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Control: 1-Way Stop(WB)

Project ID: 23-260018-004
Date: 2/1/2023

Data - Cars

NS/EW Streets:	State Shop Rd				State Shop Rd				Eskimo Hill Rd				Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	2	3	0	2	0	0	0	0	0	0	0	1	0	18	0	26
6:15 AM	0	2	0	0	5	0	0	0	0	0	0	0	1	0	22	0	30
6:30 AM	0	0	2	0	3	1	0	0	0	0	0	0	2	0	22	0	30
6:45 AM	0	1	1	0	7	0	0	0	0	0	0	0	1	0	46	0	56
7:00 AM	0	3	0	0	6	0	0	0	0	0	0	0	6	0	60	0	75
7:15 AM	0	2	4	0	11	2	0	0	0	0	0	0	2	0	78	0	99
7:30 AM	1	3	3	0	7	0	1	0	0	0	0	0	0	0	76	0	91
7:45 AM	0	1	4	0	15	1	0	0	0	0	0	0	4	0	52	0	77
8:00 AM	0	0	4	0	10	0	1	0	0	0	0	0	3	0	35	0	53
8:15 AM	0	2	2	0	16	0	0	0	0	0	0	0	0	0	39	0	59
8:30 AM	0	0	2	0	14	0	0	0	0	0	0	0	5	0	33	0	54
8:45 AM	0	1	4	0	14	1	0	0	0	0	0	0	1	0	17	0	38
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	17	29	0	110	5	2	0	0	0	0	0	26	0	498	0	688
APPROACH %'s :	2.13%	36.17%	61.70%	0.00%	94.02%	4.27%	1.71%	0.00%					4.96%	0.00%	95.04%	0.00%	
PEAK HR :	**07:00 AM - 08:00 AM**																TOTAL
PEAK HR VOL :	1	9	11	0	39	3	1	0	0	0	0	0	12	0	266	0	342
PEAK HR FACTOR :	0.250	0.750	0.688	0.000	0.650	0.375	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.853	0.000	0.864
		0.750				0.672								0.869			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	6	0	56	2	0	0	0	0	0	0	1	0	19	0	85
4:15 PM	0	2	7	0	64	1	0	0	0	0	0	0	1	0	26	0	101
4:30 PM	0	0	5	0	60	0	0	0	0	0	0	0	2	0	15	0	82
4:45 PM	0	0	5	0	66	1	0	0	0	0	0	0	2	0	24	0	98
5:00 PM	0	1	5	0	57	0	0	0	0	0	0	0	4	0	14	0	81
5:15 PM	0	1	6	0	11	1	0	1	0	0	0	0	2	0	15	0	37
5:30 PM	0	0	12	0	6	0	0	0	0	0	0	0	2	0	24	0	44
5:45 PM	0	2	11	0	22	1	0	0	0	0	0	0	5	0	28	0	69
6:00 PM	0	2	8	0	18	1	0	0	0	0	0	0	0	0	25	0	54
6:15 PM	0	1	0	0	25	0	0	0	0	0	0	0	3	0	9	0	38
6:30 PM	0	0	3	0	24	0	0	0	0	0	0	0	2	0	6	0	35
6:45 PM	0	1	3	0	17	1	0	0	0	0	0	0	1	0	3	0	26
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	11	71	0	426	8	0	1	0	0	0	0	25	0	208	0	750
APPROACH %'s :	0.00%	13.41%	86.59%	0.00%	97.93%	1.84%	0.00%	0.23%					10.73%	0.00%	89.27%	0.00%	
PEAK HR :	**04:00 PM - 05:00 PM**																TOTAL
PEAK HR VOL :	0	3	23	0	246	4	0	0	0	0	0	0	6	0	84	0	366
PEAK HR FACTOR :	0.000	0.375	0.821	0.000	0.932	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.808	0.000	0.906
		0.722				0.933								0.833			

National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Control: 1-Way Stop(WB)

Project ID: 23-260018-004
Date: 2/1/2023

Data - HT

NS/EW Streets:	State Shop Rd				State Shop Rd				Eskimo Hill Rd				Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4
6:15 AM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	0	6
6:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
7:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	2	0	5
7:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	6
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5
7:45 AM	0	2	2	0	2	0	0	0	0	0	0	0	0	0	3	0	9
8:00 AM	0	0	1	0	5	0	0	0	0	0	0	0	0	0	2	0	8
8:15 AM	0	1	2	0	4	0	0	0	0	0	0	0	0	0	1	0	8
8:30 AM	0	1	3	0	0	0	0	0	0	0	0	0	1	0	3	0	8
8:45 AM	0	0	7	0	1	2	0	0	0	0	0	0	0	0	3	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	17	0	23	2	0	0	0	0	0	0	1	0	27	0	76
APPROACH %'s :	0.00%	26.09%	73.91%	0.00%	92.00%	8.00%	0.00%	0.00%					3.57%	0.00%	96.43%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	2	2	0	8	0	0	0	0	0	0	0	0	0	13	0	25
PEAK HR FACTOR :	0.000	0.250	0.250	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.650	0.000	0.694
		0.250				0.667								0.650			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	5
4:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	4
4:30 PM	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3	0	6
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0	4
6:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	3
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
6:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	8	0	10	2	0	0	0	0	0	0	2	0	10	0	32
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	83.33%	16.67%	0.00%	0.00%					16.67%	0.00%	83.33%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	5	0	5	1	0	0	0	0	0	0	0	0	6	0	17
PEAK HR FACTOR :	0.000	0.000	0.417	0.000	0.417	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.708
		0.417				0.500								0.500			

National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Control: 1-Way Stop(WB)

Project ID: 23-260018-004
Date: 2/1/2023

Data - Bikes

NS/EW Streets:	State Shop Rd				State Shop Rd				Eskimo Hill Rd				Eskimo Hill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: State Shop Rd & Eskimo Hill Rd
City: Stafford
Project ID: 23-260018-004
Date: 2/1/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	State Shop Rd		State Shop Rd		Eskimo HilI Rd		Eskimo HilI Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:00 AM - 08:00 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	1
APPROACH %'s :					0.00%	100.00%			
PEAK HR :	**04:00 PM - 05:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	1
PEAK HR FACTOR :						0.250			0.250
					0.250				

Prepared by National Data & Surveying Services

State Shop Rd & Eskimo Hill Rd

Peak Hour Turning Movement Count

ID: 23-260018-004
City: Stafford

Day: Wednesday
Date: 2/1/2023

PEAK HOURS

AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 6:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 07:00 PM

SOUTHBOUND (State Shop Rd)

AM	1	3	47	0	290	AM
NOON	0	0	0	0	0	NOON
PM	0	5	251	0	93	PM

EASTBOUND (Eskimo Hill Rd)

AM	NOON	PM		
2	0	0		
0	0	0	0	
0	0	0	0	
0	0	0	1	
0	0	0	0	
AM	NOON	PM		

WESTBOUND (Eskimo Hill Rd)

PM	NOON	AM	
90	0	279	0
0	0	0	1
6	0	12	0
0	0	0	0
279	0	60	
PM	NOON	AM	

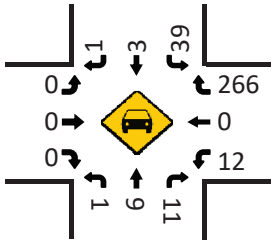
NORTHBOUND (State Shop Rd)

PM	11	0	0	3	28	PM
NOON	0	0	0	0	0	NOON
AM	15	0	1	11	13	AM

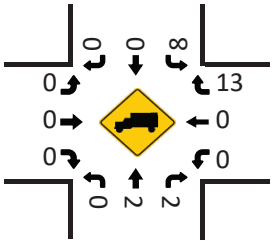
CONTROL: 1-Way Stop(WB)

TEV	367	0	383
	AM	NOON	PM
PHF	0.87		0.91

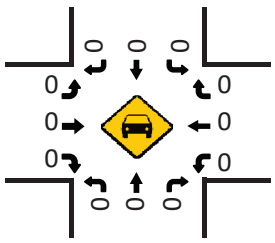
Cars (AM)



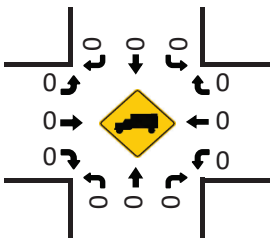
HT (AM)



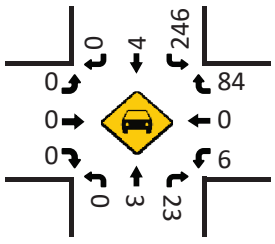
Cars (NOON)



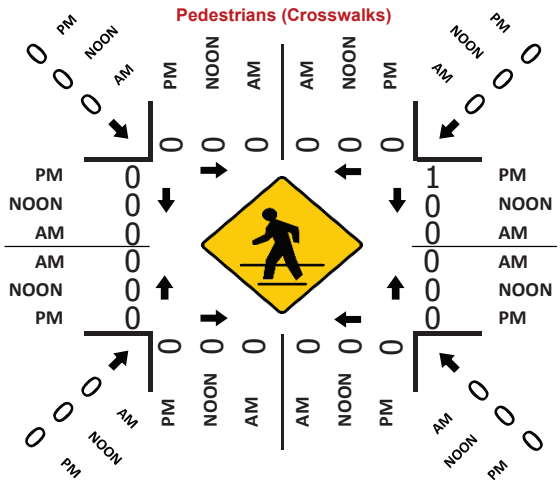
HT (NOON)



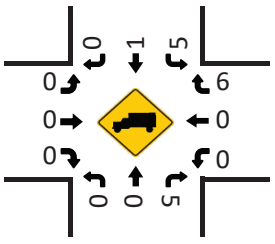
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



C. HCM Level of Service Definitions

GOROVE SLADE
Transportation Planners and Engineers

TECHNICAL MEMORANDUM

Subject: Level of Service Definitions

Introduction

The purpose of this memorandum is to define the level of service (LOS) metric that commonly used as a measure of effectiveness (MOE) for traffic operations.

All capacity analyses are based on the procedures specified by the Transportation Research Board's (TRB) Highway Capacity Manual (HCM), which is currently on its sixth edition. Level of service ranges from A to F. A brief description of each level of service for signalized and unsignalized intersections is provided below.

Signalized Intersections

Level of service is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay associated with each directional movement. The levels of service for signalized intersections are defined below:

- **Level of Service A** describes operations with very low average delay per vehicle, i.e., less than 10.0 seconds. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop. Short signal cycle lengths may also contribute to low delay.
- **Level of Service B** describes operations with average delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
- **Level of Service C** describes operations with delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level although many still pass through the intersection without stopping. This is generally considered the lower end of the range of the acceptable level of service in rural areas.
- **Level of Service D** describes operations with delay in the range of 35.1 to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and/or high traffic volumes as compared to the roadway capacity. Many vehicles are required to stop and the number of vehicles that do not have to stop declines. Individual signal cycle failures, where all waiting vehicles do not clear the intersection during a single green time, are noticeable. This is generally considered the lower end of the range of the acceptable level of service in urban areas.
- **Level of Service E** describes operations with delay in the range of 55.1 to 80.0 seconds per vehicle. These higher delay values generally indicate poor progression, long cycle lengths, and high traffic volumes. Individual cycle failures are frequent occurrences. LOS E has been set as the limit of acceptable conditions.
- **Level of Service F** describes operations with average delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when traffic arrives at a flow rate that exceeds the capacity of the intersection. It may also occur at high volumes with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such delays.

Unsignalized Intersections

At an unsignalized intersection, the major street through traffic and right-turns are assumed to operate unimpeded and therefore receive no level of service rating. The level of service for the minor street and the major street left-turn traffic is dependent on the volume and capacity of the available lanes, and, the number and frequency of acceptable gaps in the major street traffic to make a conflicting turn. The level of service grade is provided for each conflicting movement at an unsignalized intersection and is based on the total average delay experienced by each vehicle. The delay includes the time it takes a vehicle to move from the back of a queue through the intersection.

The unsignalized intersection level of service analysis does not account for variations in driver behavior or the effects of nearby traffic signals. Therefore, the results from this analysis usually indicate worse levels of service than may be experienced in the field. The unsignalized intersection level of service descriptions are provided below:

- **Level of Service A** describes operations where there is very little to no conflicting traffic for a minor side street movement, i.e., an average total delay of less than 10.0 seconds per vehicle.
- **Level of Service B** describes operations with average total delay in the range of 10.1 to 15.0 seconds per vehicle.
- **Level of Service C** describes operations with average total delay in the range of 15.1 to 25.0 second per vehicle.
- **Level of Service D** describes operations with average total delay in the range of 25.1 to 35.0 seconds per vehicle.
- **Level of Service E** describes operations with average total delay in the range of 35.1 to 50.0 seconds per vehicle.
- **Level of Service F** describes operations with average total delay of 50 seconds per vehicle. LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through or enter a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queuing on the minor approaches. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal driver behavior.

D. 2023 Existing Conditions – Capacity Analysis Worksheets

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Existing 2023 AM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	108	231	255	67	234	402	603	110	12	230	72
v/c Ratio	0.41	0.58	0.38	0.48	0.61	0.72	0.29	0.09	0.11	0.19	0.09
Control Delay	57.2	55.9	4.2	63.8	55.1	51.8	13.9	1.8	55.6	27.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	55.9	4.2	63.8	55.1	51.8	13.9	1.8	55.6	27.8	2.3
Queue Length 50th (ft)	41	91	0	50	88	149	95	0	9	63	0
Queue Length 95th (ft)	69	126	45	96	125	194	194	21	29	105	16
Internal Link Dist (ft)		1209			953		8667			1803	
Turn Bay Length (ft)	500			150		400		700	550		500
Base Capacity (vph)	396	823	679	166	712	558	2066	1189	267	1230	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.28	0.38	0.40	0.33	0.72	0.29	0.09	0.04	0.19	0.08

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Existing 2023 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	206	227	60	185	23	358	537	98	11	205	64
Future Volume (vph)	96	206	227	60	185	23	358	537	98	11	205	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3505	1404	1752	3410		2694	3438	1568	1805	3282	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3505	1404	1752	3410		2694	3438	1568	1805	3282	1495
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	108	231	255	67	208	26	402	603	110	12	230	72
RTOR Reduction (vph)	0	0	173	0	9	0	0	0	39	0	0	39
Lane Group Flow (vph)	108	231	82	67	225	0	402	603	71	12	230	33
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	9.2	13.7	38.6	9.6	13.3		24.9	67.8	77.4	3.0	45.0	54.2
Effective Green, g (s)	9.2	13.7	38.6	9.6	13.3		24.9	67.8	77.4	3.0	45.0	54.2
Actuated g/C Ratio	0.08	0.11	0.32	0.08	0.11		0.21	0.56	0.65	0.02	0.38	0.45
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	260	400	451	140	377		559	1942	1011	45	1230	675
v/s Ratio Prot	0.03	0.07	0.04	c0.04	c0.07		c0.15	c0.18	0.01	0.01	0.07	0.00
v/s Ratio Perm			0.02						0.04			0.02
v/c Ratio	0.42	0.58	0.18	0.48	0.60		0.72	0.31	0.07	0.27	0.19	0.05
Uniform Delay, d1	52.8	50.4	29.3	52.8	50.8		44.3	13.8	7.9	57.4	25.2	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	2.0	0.2	2.6	2.5		4.4	0.4	0.0	3.2	0.3	0.0
Delay (s)	53.9	52.4	29.5	55.4	53.3		48.7	14.2	7.9	60.6	25.5	18.5
Level of Service	D	D	C	E	D		D	B	A	E	C	B
Approach Delay (s)		42.9			53.8			26.0			25.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Existing 2023 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	206	227	60	185	23	358	537	98	11	205	64
Future Volume (veh/h)	96	206	227	60	185	23	358	537	98	11	205	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1678	1856	1841	1826	1455	1826	1856	1900	1752	1781
Adj Flow Rate, veh/h	108	231	255	67	208	26	402	603	110	12	230	72
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	15	3	4	5	30	5	3	0	10	8
Cap, veh/h	200	614	475	103	535	66	430	1827	920	35	1268	663
Arrive On Green	0.06	0.17	0.17	0.06	0.17	0.17	0.16	0.53	0.53	0.02	0.38	0.38
Sat Flow, veh/h	3428	3526	1422	1767	3133	387	2689	3469	1572	1810	3328	1510
Grp Volume(v), veh/h	108	231	255	67	115	119	402	603	110	12	230	72
Grp Sat Flow(s),veh/h/ln	1714	1763	1422	1767	1749	1771	1345	1735	1572	1810	1664	1510
Q Serve(g_s), s	3.7	6.9	17.5	4.5	7.0	7.2	17.7	11.9	3.7	0.8	5.5	3.4
Cycle Q Clear(g_c), s	3.7	6.9	17.5	4.5	7.0	7.2	17.7	11.9	3.7	0.8	5.5	3.4
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	614	475	103	299	302	430	1827	920	35	1268	663
V/C Ratio(X)	0.54	0.38	0.54	0.65	0.39	0.39	0.93	0.33	0.12	0.34	0.18	0.11
Avail Cap(c_a), veh/h	400	828	562	168	361	366	430	1827	920	268	1268	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	43.8	32.4	55.3	44.2	44.2	49.8	16.3	11.1	58.1	24.7	19.8
Incr Delay (d2), s/veh	2.3	0.4	0.9	6.7	0.8	0.8	21.4	0.3	0.2	5.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.0	6.0	2.2	3.1	3.2	7.2	4.7	1.3	0.4	2.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	44.2	33.4	62.0	45.0	45.1	71.2	16.6	11.3	63.9	25.0	20.1
LnGrp LOS	E	D	C	E	D	D	E	B	B	E	C	C
Approach Vol, veh/h		594			301			1115			314	
Approach Delay, s/veh		41.9			48.8			35.7			25.4	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	68.8	15.0	26.7	27.0	51.3	14.6	27.1
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	17.8	* 37	* 14	* 25	19.2	* 34	11.4	* 28
Max Q Clear Time (g_c+I1), s	2.8	13.9	5.7	9.2	19.7	7.5	6.5	19.5
Green Ext Time (p_c), s	0.0	15.9	0.2	0.7	0.0	7.5	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Existing 2023 AM

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	153	322	78	916	73	487
v/c Ratio	0.46	0.74	0.16	0.67	0.23	0.36
Control Delay	24.8	33.3	10.4	23.8	11.3	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	33.3	10.4	23.8	11.3	18.9
Queue Length 50th (ft)	50	124	16	194	15	86
Queue Length 95th (ft)	104	215	43	318	41	154
Internal Link Dist (ft)	1275	420		3738		8667
Turn Bay Length (ft)			300		200	
Base Capacity (vph)	644	812	759	1603	643	1555
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.40	0.10	0.57	0.11	0.31

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Existing 2023 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	28	60	70	47	166	69	780	26	64	395	33
Future Volume (vph)	47	28	60	70	47	166	69	780	26	64	395	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.4			7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.94			0.92		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1653			1664		1736	3450		1719	3320	
Flt Permitted		0.71			0.88		0.46	1.00		0.20	1.00	
Satd. Flow (perm)		1191			1485		849	3450		369	3320	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	53	32	68	80	53	189	78	886	30	73	449	38
RTOR Reduction (vph)	0	28	0	0	49	0	0	2	0	0	5	0
Lane Group Flow (vph)	0	125	0	0	273	0	78	914	0	73	482	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		19.8			19.8		36.3	30.5		36.9	30.8	
Effective Green, g (s)		19.8			19.8		36.3	30.5		36.9	30.8	
Actuated g/C Ratio		0.26			0.26		0.47	0.39		0.48	0.40	
Clearance Time (s)		7.4			7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)		3.0			3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)		304			379		464	1359		282	1321	
v/s Ratio Prot							0.01	c0.26		c0.02	0.15	
v/s Ratio Perm		0.11			c0.18		0.07			0.10		
v/c Ratio		0.41			0.72		0.17	0.67		0.26	0.37	
Uniform Delay, d1		24.0			26.3		11.4	19.3		11.9	16.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			6.6		0.2	1.7		0.5	0.4	
Delay (s)		24.9			32.9		11.6	21.1		12.4	16.8	
Level of Service		C			C		B	C		B	B	
Approach Delay (s)		24.9			32.9			20.3			16.2	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	21.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Existing 2023 AM



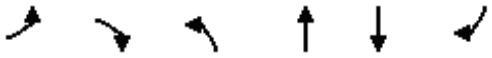
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	28	60	70	47	166	69	780	26	64	395	33
Future Volume (veh/h)	47	28	60	70	47	166	69	780	26	64	395	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	53	32	68	80	53	189	78	886	30	73	449	38
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	162	106	154	145	84	226	462	1314	44	310	1207	102
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.06	0.38	0.38	0.06	0.38	0.38
Sat Flow, veh/h	368	450	654	318	359	961	1753	3452	117	1739	3186	269
Grp Volume(v), veh/h	153	0	0	322	0	0	78	449	467	73	240	247
Grp Sat Flow(s),veh/h/ln	1473	0	0	1637	0	0	1753	1749	1820	1739	1706	1748
Q Serve(g_s), s	0.0	0.0	0.0	6.7	0.0	0.0	1.7	13.7	13.7	1.6	6.5	6.6
Cycle Q Clear(g_c), s	5.1	0.0	0.0	11.8	0.0	0.0	1.7	13.7	13.7	1.6	6.5	6.6
Prop In Lane	0.35		0.44	0.25		0.59	1.00		0.06	1.00		0.15
Lane Grp Cap(c), veh/h	422	0	0	455	0	0	462	666	693	310	646	662
V/C Ratio(X)	0.36	0.00	0.00	0.71	0.00	0.00	0.17	0.67	0.67	0.24	0.37	0.37
Avail Cap(c_a), veh/h	919	0	0	1005	0	0	995	906	943	841	884	906
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	0.0	0.0	23.1	0.0	0.0	11.0	16.5	16.5	12.3	14.4	14.4
Incr Delay (d2), s/veh	0.5	0.0	0.0	2.0	0.0	0.0	0.2	2.5	2.4	0.4	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	4.6	0.0	0.0	0.5	4.7	4.9	0.5	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	0.0	0.0	25.2	0.0	0.0	11.2	19.1	19.0	12.7	15.1	15.1
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		153			322			994			560	
Approach Delay, s/veh		21.2			25.2			18.4			14.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	31.1		22.4	10.4	31.2		22.4				
Change Period (Y+Rc), s	* 6.8	* 6.8		7.4	* 6.8	* 6.8		7.4				
Max Green Setting (Gmax), s	* 23	* 33		37.6	* 23	* 33		37.6				
Max Q Clear Time (g_c+I1), s	3.7	8.6		7.1	3.6	15.7		13.8				
Green Ext Time (p_c), s	0.2	5.2		0.5	0.2	8.7		1.3				

Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	17	24	860	501	24
Future Volume (Veh/h)	15	17	24	860	501	24
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	16	18	26	925	539	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1054	270	565			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1054	270	565			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	97			
cM capacity (veh/h)	216	728	1003			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	34	26	462	462	270	270	26
Volume Left	16	26	0	0	0	0	0
Volume Right	18	0	0	0	0	0	26
cSH	344	1003	1700	1700	1700	1700	1700
Volume to Capacity	0.10	0.03	0.27	0.27	0.16	0.16	0.02
Queue Length 95th (ft)	8	2	0	0	0	0	0
Control Delay (s)	16.6	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	A					
Approach Delay (s)	16.6	0.2			0.0		
Approach LOS	C						

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	17	24	860	501	24
Future Vol, veh/h	15	17	24	860	501	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	415	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	18	26	925	539	26

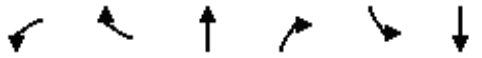
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1054	270	565	0	-	0
Stage 1	539	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	221	728	1003	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	215	728	1003	-	-	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	565	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1003	-	344	-	-
HCM Lane V/C Ratio	0.026	-	0.1	-	-
HCM Control Delay (s)	8.7	-	16.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Queues
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	315	134	837	870	48	521
v/c Ratio	0.87	0.31	0.29	0.59	0.13	0.16
Control Delay	82.4	11.5	21.6	10.6	9.5	9.2
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	82.4	11.5	21.6	10.9	9.5	9.2
Queue Length 50th (ft)	311	7	202	259	15	65
Queue Length 95th (ft)	#479	66	m310	m675	30	81
Internal Link Dist (ft)	436		1047			2892
Turn Bay Length (ft)		225		180	345	
Base Capacity (vph)	363	433	2894	1475	385	3308
Starvation Cap Reductn	0	0	0	161	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.31	0.29	0.66	0.12	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	287	122	762	792	44	474
Future Volume (vph)	287	122	762	792	44	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	1612	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.31	1.00
Satd. Flow (perm)	1719	1583	4940	1568	530	4893
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	315	134	837	870	48	521
RTOR Reduction (vph)	0	99	0	181	0	0
Lane Group Flow (vph)	315	35	837	689	48	521
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	32.8	32.8	88.8	121.6	94.6	104.8
Effective Green, g (s)	32.8	32.8	88.8	121.6	94.6	104.8
Actuated g/C Ratio	0.21	0.21	0.57	0.78	0.61	0.68
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	363	334	2830	1230	363	3308
v/s Ratio Prot	c0.18		0.17	c0.12	0.00	c0.11
v/s Ratio Perm		0.02		0.32	0.08	
v/c Ratio	0.87	0.11	0.30	0.56	0.13	0.16
Uniform Delay, d1	59.0	49.3	17.0	6.4	12.2	9.1
Progression Factor	1.00	1.00	1.28	43.31	1.00	1.00
Incremental Delay, d2	21.4	0.4	0.2	1.0	0.2	0.1
Delay (s)	80.4	49.7	22.0	279.0	12.3	9.2
Level of Service	F	D	C	F	B	A
Approach Delay (s)	71.2		153.0			9.5
Approach LOS	E		F			A

Intersection Summary			
HCM 2000 Control Delay	109.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	287	122	762	792	44	474
Future Volume (veh/h)	287	122	762	792	44	474
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	315	134	837	870	48	521
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	345	314	2969	1248	249	3409
Arrive On Green	0.20	0.20	0.99	0.99	0.03	0.69
Sat Flow, veh/h	1739	1585	5149	1572	1640	5107
Grp Volume(v), veh/h	315	134	837	870	48	521
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1640	1648
Q Serve(g_s), s	27.5	11.5	0.2	3.1	1.8	5.7
Cycle Q Clear(g_c), s	27.5	11.5	0.2	3.1	1.8	5.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	345	314	2969	1248	249	3409
V/C Ratio(X)	0.91	0.43	0.28	0.70	0.19	0.15
Avail Cap(c_a), veh/h	368	335	2969	1248	286	3409
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.85	0.85	1.00	1.00
Uniform Delay (d), s/veh	60.8	54.4	0.2	0.0	11.3	8.3
Incr Delay (d2), s/veh	29.5	3.3	0.2	2.8	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.6	4.8	0.1	1.0	0.6	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	90.4	57.7	0.4	2.8	11.7	8.4
LnGrp LOS	F	E	A	A	B	A
Approach Vol, veh/h	449		1707			569
Approach Delay, s/veh	80.7		1.6			8.7
Approach LOS	F		A			A

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		117.1			14.6	102.5	37.9
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		104.8			7.8	86.8	32.8
Max Q Clear Time (g_c+I1), s		7.7			3.8	5.1	29.5
Green Ext Time (p_c), s		5.6			0.0	26.9	1.2

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	18	273	243	404
v/c Ratio	0.05	0.43	0.44	0.65
Control Delay	12.2	15.5	19.9	17.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.2	15.5	19.9	17.2
Queue Length 50th (ft)	3	53	47	59
Queue Length 95th (ft)	16	138	173	219
Internal Link Dist (ft)		2439	275	181
Turn Bay Length (ft)	275			
Base Capacity (vph)	869	1812	1537	1260
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.15	0.16	0.32

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	259	0	0	231	0	234	0	150	0	0	0
Future Volume (vph)	17	259	0	0	231	0	234	0	150	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1759			1659				
Flt Permitted	0.41	1.00			1.00			0.97				
Satd. Flow (perm)	697	1827			1759			1659				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	18	273	0	0	243	0	246	0	158	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	71	0	0	0	0
Lane Group Flow (vph)	18	273	0	0	243	0	0	333	0	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	24.3	24.3			15.9			17.0				
Effective Green, g (s)	24.3	24.3			15.9			17.0				
Actuated g/C Ratio	0.43	0.43			0.28			0.30				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	316	788			496			500				
v/s Ratio Prot	0.00	c0.15			c0.14							
v/s Ratio Perm	0.02							0.20				
v/c Ratio	0.06	0.35			0.49			0.67				
Uniform Delay, d1	9.7	10.7			16.8			17.2				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.1	0.3			0.8			3.4				
Delay (s)	9.8	11.0			17.6			20.5				
Level of Service	A	B			B			C				
Approach Delay (s)		10.9			17.6			20.5			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	22.4
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	259	0	0	231	0	234	0	150	0	0	0
Future Volume (veh/h)	17	259	0	0	231	0	234	0	150	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	18	273	0	0	243	0	246	0	158			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	306	758	0	0	429	0	302	0	194			
Arrive On Green	0.02	0.41	0.00	0.00	0.24	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	1626	1841	0	0	1781	0	1051	0	675			
Grp Volume(v), veh/h	18	273	0	0	243	0	404	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1726	0	0			
Q Serve(g_s), s	0.4	5.1	0.0	0.0	6.0	0.0	10.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.4	5.1	0.0	0.0	6.0	0.0	10.8	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.61		0.39			
Lane Grp Cap(c), veh/h	306	758	0	0	429	0	495	0	0			
V/C Ratio(X)	0.06	0.36	0.00	0.00	0.57	0.00	0.82	0.00	0.00			
Avail Cap(c_a), veh/h	1087	2861	0	0	1610	0	1213	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	12.9	10.1	0.0	0.0	16.6	0.0	16.5	0.0	0.0			
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	1.2	0.0	3.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.1	1.5	0.0	0.0	2.1	0.0	4.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	10.4	0.0	0.0	17.8	0.0	19.9	0.0	0.0			
LnGrp LOS	B	B	A	A	B	A	B	A	A			
Approach Vol, veh/h		291			243			404				
Approach Delay, s/veh		10.6			17.8			19.9				
Approach LOS		B			B			B				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		27.9		21.9	8.5	19.4			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		7.1		12.8	2.4	8.0			
Green Ext Time (p_c), s		1.6		1.5	0.0	1.4			

Intersection Summary		
HCM 6th Ctrl Delay		16.4
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	113	241	93	412	188
v/c Ratio	0.27	0.44	0.20	0.47	0.45
Control Delay	21.9	6.6	8.8	11.4	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	6.6	8.8	11.4	23.4
Queue Length 50th (ft)	32	0	14	78	54
Queue Length 95th (ft)	79	51	39	160	116
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		200	250		
Base Capacity (vph)	1277	1155	683	1810	1582
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.21	0.14	0.23	0.12

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	104	222	86	379	0	0	0	0	172	1	0
Future Volume (vph)	0	104	222	86	379	0	0	0	0	172	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1775	
Flt Permitted		1.00	1.00	0.43	1.00						0.95	
Satd. Flow (perm)		1696	1455	699	1810						1775	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	113	241	93	412	0	0	0	0	187	1	0
RTOR Reduction (vph)	0	0	183	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	113	58	93	412	0	0	0	0	0	188	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		13.4	13.4	28.1	28.1						12.6	
Effective Green, g (s)		13.4	13.4	28.1	28.1						12.6	
Actuated g/C Ratio		0.24	0.24	0.51	0.51						0.23	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		409	351	457	916						402	
v/s Ratio Prot		0.07		0.02	c0.23							
v/s Ratio Perm			0.04	0.08							0.11	
v/c Ratio		0.28	0.17	0.20	0.45						0.47	
Uniform Delay, d1		17.1	16.6	7.8	8.8						18.5	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		0.5	0.3	0.2	0.5						1.2	
Delay (s)		17.6	16.9	8.0	9.2						19.7	
Level of Service		B	B	A	A						B	
Approach Delay (s)		17.2			9.0			0.0			19.7	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	22.7
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Existing 2023 AM



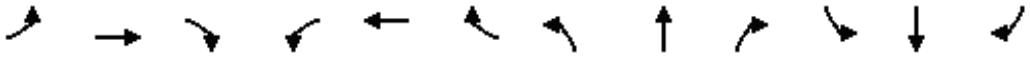
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	104	222	86	379	0	0	0	0	172	1	0
Future Volume (veh/h)	0	104	222	86	379	0	0	0	0	172	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	113	241	93	412	0				187	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	460	393	476	949	0				271	1	0
Arrive On Green	0.00	0.27	0.27	0.08	0.52	0.00				0.15	0.15	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1800	10	0
Grp Volume(v), veh/h	0	113	241	93	412	0				188	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	2.3	6.4	1.7	6.3	0.0				4.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.3	6.4	1.7	6.3	0.0				4.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.99		0.00
Lane Grp Cap(c), veh/h	0	460	393	476	949	0				273	0	0
V/C Ratio(X)	0.00	0.25	0.61	0.20	0.43	0.00				0.69	0.00	0.00
Avail Cap(c_a), veh/h	0	1534	1312	1055	2762	0				2016	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.9	14.4	9.2	6.7	0.0				18.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	2.2	0.2	0.4	0.0				4.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	1.8	0.4	1.4	0.0				1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.3	16.6	9.4	7.1	0.0				22.5	0.0	0.0
LnGrp LOS	A	B	B	A	A	A				C	A	A
Approach Vol, veh/h		354			505						188	
Approach Delay, s/veh		15.5			7.5						22.5	
Approach LOS		B			A						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		31.2		13.7	11.3	19.9						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		8.3		6.4	3.7	8.4						
Green Ext Time (p_c), s		4.0		1.1	0.2	2.2						

Intersection Summary												
HCM 6th Ctrl Delay			12.9									
HCM 6th LOS			B									

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Existing 2023 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	47	61	2	21	1	257	1	6	1	1	5
Future Volume (Veh/h)	10	47	61	2	21	1	257	1	6	1	1	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	11	53	69	2	24	1	292	1	7	1	1	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked												
vC, conflicting volume	25			122			144	138	88	146	172	24
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	25			122			144	138	88	146	172	24
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	99			100			64	100	99	100	100	99
cM capacity (veh/h)	1480			1215			806	749	931	815	718	907

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	133	27	300	8
Volume Left	11	2	292	1
Volume Right	69	1	7	6
cSH	1480	1215	808	866
Volume to Capacity	0.01	0.00	0.37	0.01
Queue Length 95th (ft)	1	0	43	1
Control Delay (s)	0.7	0.6	12.1	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	0.7	0.6	12.1	9.2
Approach LOS			B	A

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	47	61	2	21	1	257	1	6	1	1	5
Future Vol, veh/h	10	47	61	2	21	1	257	1	6	1	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	11	53	69	2	24	1	292	1	7	1	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	25	0	0	122	0	0	142	139	88	143	173	25
Stage 1	-	-	-	-	-	-	110	110	-	29	29	-
Stage 2	-	-	-	-	-	-	32	29	-	114	144	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1480	-	-	1215	-	-	821	756	930	831	724	906
Stage 1	-	-	-	-	-	-	888	808	-	993	875	-
Stage 2	-	-	-	-	-	-	977	875	-	896	782	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1480	-	-	1215	-	-	809	748	930	818	717	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	809	748	-	818	717	-
Stage 1	-	-	-	-	-	-	881	802	-	985	873	-
Stage 2	-	-	-	-	-	-	968	873	-	881	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.7	12	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	811	1480	-	-	1215	-	-	860
HCM Lane V/C Ratio	0.37	0.008	-	-	0.002	-	-	0.009
HCM Control Delay (s)	12	7.5	0	-	8	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	1.7	0	-	-	0	-	-	0

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Existing 2023 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	9	1	256	1	8	18	59	3	2
Future Volume (Veh/h)	1	1	1	9	1	256	1	8	18	59	3	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	1	1	11	1	301	1	9	21	69	4	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	466	175	5	166	166	20	6			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	466	175	5	166	166	20	6			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.4		
p0 queue free %	100	100	100	99	100	71	100			95		
cM capacity (veh/h)	350	688	1084	772	696	1050	1628			1480		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	313	31	75
Volume Left	1	11	1	69
Volume Right	1	301	21	2
cSH	574	1035	1628	1480
Volume to Capacity	0.01	0.30	0.00	0.05
Queue Length 95th (ft)	0	32	0	4
Control Delay (s)	11.3	10.0	0.2	7.0
Lane LOS	B	A	A	A
Approach Delay (s)	11.3	10.0	0.2	7.0
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	1	9	1	256	1	8	18	59	3	2
Future Vol, veh/h	1	1	1	9	1	256	1	8	18	59	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	5	0	25	17	19	0	0
Mvmt Flow	1	1	1	11	1	301	1	9	21	69	4	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	316	175	5	166	166	20	6	0	0	30	0	0
Stage 1	143	143	-	22	22	-	-	-	-	-	-	-
Stage 2	173	32	-	144	144	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.25	4.1	-	-	4.29	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.345	2.2	-	-	2.371	-	-
Pot Cap-1 Maneuver	641	722	1084	803	730	1049	1628	-	-	1480	-	-
Stage 1	865	782	-	1002	881	-	-	-	-	-	-	-
Stage 2	834	872	-	864	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	440	687	1084	772	695	1049	1628	-	-	1480	-	-
Mov Cap-2 Maneuver	440	687	-	772	695	-	-	-	-	-	-	-
Stage 1	864	745	-	1001	880	-	-	-	-	-	-	-
Stage 2	593	871	-	821	745	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	10	0.3	7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1628	-	-	645	1034	1480	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.303	0.047	-	-
HCM Control Delay (s)	7.2	0	-	10.6	10	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.3	0.1	-	-

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Existing 2023 PM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	113	305	654	130	230	290	351	69	27	1190	63
v/c Ratio	0.55	1.05	1.82	1.04	0.74	1.25	0.15	0.06	0.32	0.54	0.05
Control Delay	89.6	140.7	409.5	165.9	90.4	204.1	11.5	1.3	89.9	19.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.6	140.7	409.5	165.9	90.4	204.1	11.5	1.3	89.9	19.6	1.2
Queue Length 50th (ft)	65	~200	~1046	~160	135	~212	77	0	31	391	0
Queue Length 95th (ft)	102	#308	#1304	#312	#206	#317	106	14	67	448	12
Internal Link Dist (ft)		1209			953		8667			1803	
Turn Bay Length (ft)	500			150		400		700	550		500
Base Capacity (vph)	235	290	360	125	311	232	2386	1221	126	2212	1167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	1.05	1.82	1.04	0.74	1.25	0.15	0.06	0.21	0.54	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Existing 2023 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	293	628	125	198	23	278	337	66	26	1142	60
Future Volume (vph)	108	293	628	125	198	23	278	337	66	26	1142	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3574	1568	1770	3522		3335	3574	1568	1736	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3574	1568	1770	3522		3335	3574	1568	1736	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	112	305	654	130	206	24	290	351	69	27	1190	62
RTOR Reduction (vph)	0	0	75	0	5	0	0	0	19	0	0	20
Lane Group Flow (vph)	113	305	579	130	225	0	290	351	50	27	1190	43
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	10.6	14.2	26.4	12.4	15.2		12.2	115.4	127.8	7.1	109.4	120.0
Effective Green, g (s)	10.6	14.2	26.4	12.4	15.2		12.2	115.4	127.8	7.1	109.4	120.0
Actuated g/C Ratio	0.06	0.08	0.15	0.07	0.09		0.07	0.66	0.73	0.04	0.63	0.69
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	207	290	236	125	305		232	2356	1145	70	2212	1085
v/s Ratio Prot	0.03	0.09	c0.17	c0.07	0.06		0.09	c0.10	0.00	0.02	c0.34	0.00
v/s Ratio Perm			0.20						0.03			0.02
v/c Ratio	0.55	1.05	2.45	1.04	0.74		1.25	0.15	0.04	0.39	0.54	0.04
Uniform Delay, d1	79.9	80.4	74.3	81.3	77.9		81.4	11.3	6.6	81.8	18.5	8.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	67.1	667.2	91.6	8.9		143.0	0.1	0.0	3.5	0.9	0.0
Delay (s)	82.8	147.5	741.5	172.9	86.9		224.4	11.4	6.6	85.3	19.5	8.9
Level of Service	F	F	F	F	F		F	B	A	F	B	A
Approach Delay (s)		503.0			117.9			97.9			20.3	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	197.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Existing 2023 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	293	628	125	198	23	278	337	66	26	1142	60
Future Volume (veh/h)	108	293	628	125	198	23	278	337	66	26	1142	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1870	1885	1900	1826	1885	1856	1841	1870	1870
Adj Flow Rate, veh/h	112	305	654	130	206	24	290	351	69	27	1190	62
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	153	291	237	126	342	39	235	2388	1160	51	2213	1057
Arrive On Green	0.04	0.08	0.08	0.07	0.11	0.11	0.07	0.67	0.67	0.03	0.62	0.62
Sat Flow, veh/h	3456	3582	1572	1781	3236	373	3374	3582	1572	1753	3554	1585
Grp Volume(v), veh/h	112	305	654	130	113	117	290	351	69	27	1190	62
Grp Sat Flow(s),veh/h/ln	1728	1791	1572	1781	1791	1818	1687	1791	1572	1753	1777	1585
Q Serve(g_s), s	5.6	14.2	14.2	12.4	10.5	10.8	12.2	6.3	2.1	2.7	33.2	2.4
Cycle Q Clear(g_c), s	5.6	14.2	14.2	12.4	10.5	10.8	12.2	6.3	2.1	2.7	33.2	2.4
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	291	237	126	189	192	235	2388	1160	51	2213	1057
V/C Ratio(X)	0.73	1.05	2.76	1.03	0.60	0.61	1.23	0.15	0.06	0.53	0.54	0.06
Avail Cap(c_a), veh/h	237	291	237	126	189	192	235	2388	1160	128	2222	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.6	80.4	74.3	81.3	74.7	74.8	81.4	10.8	6.3	83.7	18.7	10.1
Incr Delay (d2), s/veh	6.7	66.3	802.3	88.3	5.1	5.5	135.1	0.1	0.1	8.1	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	9.2	63.5	8.8	5.1	5.3	9.7	2.6	0.7	1.3	13.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.3	146.7	876.6	169.6	79.8	80.4	216.5	10.9	6.4	91.9	19.7	10.2
LnGrp LOS	F	F	F	F	E	F	F	B	A	F	B	B
Approach Vol, veh/h		1071			360			710			1279	
Approach Delay, s/veh		586.4			112.4			94.4			20.7	
Approach LOS		F			F			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	122.3	15.7	24.7	20.0	114.6	20.0	20.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	12.8	* 1.1E2	* 12	* 14	12.2	* 1.1E2	12.4	* 14
Max Q Clear Time (g_c+I1), s	4.7	8.3	7.6	12.8	14.2	35.2	14.4	16.2
Green Ext Time (p_c), s	0.0	17.9	0.1	0.1	0.0	64.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	222.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Existing 2023 PM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	239	182	56	589	208	1786
v/c Ratio	0.80	0.71	0.33	0.31	0.37	0.85
Control Delay	59.4	49.4	15.4	16.2	8.9	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	49.4	15.4	16.2	8.9	26.4
Queue Length 50th (ft)	153	101	12	125	51	590
Queue Length 95th (ft)	253	187	35	188	91	#844
Internal Link Dist (ft)	1275	420		3738		8667
Turn Bay Length (ft)			300		200	
Base Capacity (vph)	378	323	416	2080	688	2100
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.56	0.13	0.28	0.30	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Existing 2023 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	75	114	38	37	98	53	545	14	198	1653	44
Future Volume (vph)	38	75	114	38	37	98	53	545	14	198	1653	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.4			7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.93			0.92		1.00	1.00		1.00	1.00	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1702			1629		1770	3487		1752	3521	
Flt Permitted		0.86			0.73		0.06	1.00		0.37	1.00	
Satd. Flow (perm)		1468			1208		117	3487		685	3521	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	79	120	40	39	103	56	574	15	208	1740	46
RTOR Reduction (vph)	0	26	0	0	34	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	213	0	0	148	0	56	588	0	208	1785	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		21.5			21.5		69.4	63.8		79.6	68.9	
Effective Green, g (s)		21.5			21.5		69.4	63.8		79.6	68.9	
Actuated g/C Ratio		0.18			0.18		0.59	0.55		0.68	0.59	
Clearance Time (s)		7.4			7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)		3.0			3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)		269			221		148	1901		563	2073	
v/s Ratio Prot							0.02	0.17		c0.03	c0.51	
v/s Ratio Perm		c0.14			0.12		0.21			0.22		
v/c Ratio		0.79			0.67		0.38	0.31		0.37	0.86	
Uniform Delay, d1		45.6			44.4		18.6	14.5		7.3	20.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		14.6			7.4		1.6	0.2		0.4	4.3	
Delay (s)		60.2			51.9		20.2	14.7		7.7	24.3	
Level of Service		E			D		C	B		A	C	
Approach Delay (s)		60.2			51.9			15.2			22.6	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	117.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Existing 2023 PM



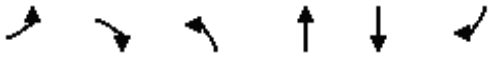
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	75	114	38	37	98	53	545	14	198	1653	44
Future Volume (veh/h)	38	75	114	38	37	98	53	545	14	198	1653	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	40	79	120	40	39	103	56	574	15	208	1740	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	72	103	136	79	69	139	192	1997	52	591	2131	56
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.57	0.57	0.07	0.60	0.60
Sat Flow, veh/h	200	626	833	230	421	848	1781	3510	92	1767	3537	93
Grp Volume(v), veh/h	239	0	0	182	0	0	56	288	301	208	871	915
Grp Sat Flow(s),veh/h/ln	1659	0	0	1499	0	0	1781	1763	1839	1767	1777	1854
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.0	1.4	9.0	9.0	5.1	41.0	41.5
Cycle Q Clear(g_c), s	15.0	0.0	0.0	12.2	0.0	0.0	1.4	9.0	9.0	5.1	41.0	41.5
Prop In Lane	0.17		0.50	0.22		0.57	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	311	0	0	287	0	0	192	1003	1046	591	1071	1117
V/C Ratio(X)	0.77	0.00	0.00	0.64	0.00	0.00	0.29	0.29	0.29	0.35	0.81	0.82
Avail Cap(c_a), veh/h	461	0	0	428	0	0	510	1121	1170	847	1130	1179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	0.0	42.3	0.0	0.0	17.1	11.9	11.9	8.4	16.6	16.7
Incr Delay (d2), s/veh	4.5	0.0	0.0	2.3	0.0	0.0	0.8	0.3	0.3	0.4	5.2	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	0.0	4.8	0.0	0.0	0.5	3.1	3.3	1.7	15.3	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	0.0	44.7	0.0	0.0	17.9	12.2	12.2	8.7	21.8	21.9
LnGrp LOS	D	A	A	D	A	A	B	B	B	A	C	C
Approach Vol, veh/h		239			182			645			1994	
Approach Delay, s/veh		48.1			44.7			12.7			20.5	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	71.4		25.0	14.5	67.8		25.0				
Change Period (Y+Rc), s	* 6.8	* 6.8		7.4	* 6.8	* 6.8		7.4				
Max Green Setting (Gmax), s	* 23	* 68		27.6	* 23	* 68		27.6				
Max Q Clear Time (g_c+I1), s	3.4	43.5		17.0	7.1	11.0		14.2				
Green Ext Time (p_c), s	0.1	21.1		0.6	0.5	7.5		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		22.5	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	36	23	597	1784	21
Future Volume (Veh/h)	15	36	23	597	1784	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	16	38	24	635	1898	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2264	949	1920			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2264	949	1920			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	50	85	92			
cM capacity (veh/h)	32	261	304			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	54	24	318	318	949	949	22
Volume Left	16	24	0	0	0	0	0
Volume Right	38	0	0	0	0	0	22
cSH	83	304	1700	1700	1700	1700	1700
Volume to Capacity	0.65	0.08	0.19	0.19	0.56	0.56	0.01
Queue Length 95th (ft)	76	6	0	0	0	0	0
Control Delay (s)	106.8	17.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	C					
Approach Delay (s)	106.8	0.7			0.0		
Approach LOS	F						

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	36	23	597	1784	21
Future Vol, veh/h	15	36	23	597	1784	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	415	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	38	24	635	1898	22

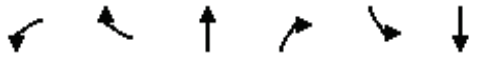
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2264	949	1920	0	-	0
Stage 1	1898	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	34	261	304	-	-	-
Stage 1	103	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	31	261	304	-	-	-
Mov Cap-2 Maneuver	31	-	-	-	-	-
Stage 1	95	-	-	-	-	-
Stage 2	672	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	110.1	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	304	-	82	-	-
HCM Lane V/C Ratio	0.08	-	0.662	-	-
HCM Control Delay (s)	17.9	-	110.1	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	3.1	-	-

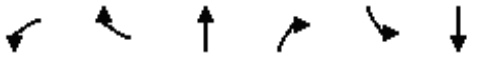
Queues
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Existing 2023 PM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	485	63	583	545	156	1740
v/c Ratio	0.79	0.12	0.29	0.39	0.35	0.65
Control Delay	55.6	11.0	49.7	4.0	23.2	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	11.0	49.7	4.0	23.2	28.9
Queue Length 50th (ft)	442	9	176	38	85	482
Queue Length 95th (ft)	565	42	282	217	136	564
Internal Link Dist (ft)	436		1047			2892
Turn Bay Length (ft)		225		180	345	
Base Capacity (vph)	685	604	1982	1439	557	2690
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	46
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.10	0.29	0.38	0.28	0.66

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	466	60	560	523	150	1670
Future Volume (vph)	466	60	560	523	150	1670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	1805	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.40	1.00
Satd. Flow (perm)	1719	1442	5085	1599	763	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	485	62	583	545	156	1740
RTOR Reduction (vph)	0	32	0	130	0	0
Lane Group Flow (vph)	485	31	583	415	156	1740
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	57.1	57.1	62.4	119.5	75.3	85.5
Effective Green, g (s)	57.1	57.1	62.4	119.5	75.3	85.5
Actuated g/C Ratio	0.36	0.36	0.39	0.75	0.47	0.53
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	613	514	1983	1194	443	2691
v/s Ratio Prot	c0.28		0.11	0.12	0.03	c0.35
v/s Ratio Perm		0.02		0.14	0.14	
v/c Ratio	0.79	0.06	0.29	0.35	0.35	0.65
Uniform Delay, d1	46.1	33.8	33.6	6.9	24.6	26.5
Progression Factor	1.00	1.00	1.39	7.46	1.00	1.00
Incremental Delay, d2	8.4	0.1	0.4	0.5	0.5	1.2
Delay (s)	54.5	34.0	47.1	52.1	25.1	27.7
Level of Service	D	C	D	D	C	C
Approach Delay (s)	52.1		49.5			27.5
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Existing 2023 PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	466	60	560	523	150	1670
Future Volume (veh/h)	466	60	560	523	150	1670
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	485	62	583	545	156	1740
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	545	457	2317	1225	333	2928
Arrive On Green	0.31	0.31	0.15	0.15	0.06	0.58
Sat Flow, veh/h	1739	1459	5274	1598	1810	5233
Grp Volume(v), veh/h	485	62	583	545	156	1740
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1810	1689
Q Serve(g_s), s	42.5	4.9	16.1	22.3	7.3	35.3
Cycle Q Clear(g_c), s	42.5	4.9	16.1	22.3	7.3	35.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	545	457	2317	1225	333	2928
V/C Ratio(X)	0.89	0.14	0.25	0.44	0.47	0.59
Avail Cap(c_a), veh/h	693	582	2317	1225	493	2928
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	52.3	39.4	44.0	10.8	21.8	21.7
Incr Delay (d2), s/veh	17.3	0.5	0.2	1.1	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.4	1.8	7.4	9.5	3.2	13.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.7	39.9	44.3	11.9	22.8	22.6
LnGrp LOS	E	D	D	B	C	C
Approach Vol, veh/h	547		1128			1896
Approach Delay, s/veh	66.3		28.6			22.6
Approach LOS	E		C			C

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		102.7			19.9	82.8	57.3
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		78.8			23.8	44.8	63.8
Max Q Clear Time (g_c+I1), s		37.3			9.3	24.3	44.5
Green Ext Time (p_c), s		25.1			0.4	8.8	5.6

Intersection Summary	
HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Existing 2023 PM



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	17	469	325	247
v/c Ratio	0.04	0.62	0.48	0.56
Control Delay	9.7	16.2	17.2	21.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.7	16.2	17.2	21.6
Queue Length 50th (ft)	3	95	60	51
Queue Length 95th (ft)	13	222	211	162
Internal Link Dist (ft)		2439	275	181
Turn Bay Length (ft)	275			
Base Capacity (vph)	853	1815	1558	1121
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.26	0.21	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Existing 2023 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	436	0	0	302	0	139	1	90	0	0	0
Future Volume (vph)	16	436	0	0	302	0	139	1	90	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1810			1538				
Flt Permitted	0.39	1.00			1.00			0.97				
Satd. Flow (perm)	657	1827			1810			1538				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	469	0	0	325	0	149	1	97	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	19	0	0	0	0
Lane Group Flow (vph)	17	469	0	0	325	0	0	228	0	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	28.1	28.1			19.7			14.4				
Effective Green, g (s)	28.1	28.1			19.7			14.4				
Actuated g/C Ratio	0.49	0.49			0.34			0.25				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	337	892			620			385				
v/s Ratio Prot	0.00	c0.26			0.18							
v/s Ratio Perm	0.02							0.15				
v/c Ratio	0.05	0.53			0.52			0.59				
Uniform Delay, d1	8.2	10.1			15.1			19.0				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.1	0.6			0.8			2.4				
Delay (s)	8.3	10.7			15.9			21.4				
Level of Service	A	B			B			C				
Approach Delay (s)		10.6			15.9			21.4			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	22.4
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Existing 2023 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	436	0	0	302	0	139	1	90	0	0	0
Future Volume (veh/h)	16	436	0	0	302	0	139	1	90	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	17	469	0	0	325	0	149	1	97			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	313	857	0	0	502	0	199	1	129			
Arrive On Green	0.02	0.47	0.00	0.00	0.27	0.00	0.19	0.19	0.19			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1041	7	678			
Grp Volume(v), veh/h	17	469	0	0	325	0	247	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1726	0	0			
Q Serve(g_s), s	0.3	8.0	0.0	0.0	6.9	0.0	5.9	0.0	0.0			
Cycle Q Clear(g_c), s	0.3	8.0	0.0	0.0	6.9	0.0	5.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.60		0.39			
Lane Grp Cap(c), veh/h	313	857	0	0	502	0	329	0	0			
V/C Ratio(X)	0.05	0.55	0.00	0.00	0.65	0.00	0.75	0.00	0.00			
Avail Cap(c_a), veh/h	1209	3263	0	0	1882	0	1384	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	10.5	8.4	0.0	0.0	14.0	0.0	16.7	0.0	0.0			
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.0	1.4	0.0	3.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.1	2.0	0.0	0.0	2.3	0.0	2.2	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.5	8.9	0.0	0.0	15.4	0.0	20.1	0.0	0.0			
LnGrp LOS	B	A	A	A	B	A	C	A	A			
Approach Vol, veh/h		486			325			247				
Approach Delay, s/veh		9.0			15.4			20.1				
Approach LOS		A			B			C				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		27.7		15.9	8.3	19.4			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		10.0		7.9	2.3	8.9			
Green Ext Time (p_c), s		3.1		0.9	0.0	1.9			

Intersection Summary		
HCM 6th Ctrl Delay	13.5	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Existing 2023 PM



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	229	430	201	312	306
v/c Ratio	0.53	0.61	0.34	0.34	0.67
Control Delay	32.0	7.1	11.7	11.9	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	7.1	11.7	11.9	34.4
Queue Length 50th (ft)	93	0	45	76	126
Queue Length 95th (ft)	186	58	97	152	241
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		200	250		
Base Capacity (vph)	974	1057	669	1480	1188
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.41	0.30	0.21	0.26

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Existing 2023 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	197	370	173	268	0	0	0	0	255	8	0
Future Volume (vph)	0	197	370	173	268	0	0	0	0	255	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.42	1.00						0.95	
Satd. Flow (perm)		1792	1583	766	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	229	430	201	312	0	0	0	0	297	9	0
RTOR Reduction (vph)	0	0	324	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	229	106	201	312	0	0	0	0	0	306	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		18.8	18.8	41.1	41.1						20.2	
Effective Green, g (s)		18.8	18.8	41.1	41.1						20.2	
Actuated g/C Ratio		0.25	0.25	0.54	0.54						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		442	391	594	915						463	
v/s Ratio Prot		c0.13		0.06	c0.18							
v/s Ratio Perm			0.07	0.12							0.18	
v/c Ratio		0.52	0.27	0.34	0.34						0.66	
Uniform Delay, d1		24.7	23.1	9.7	9.9						24.9	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		1.4	0.5	0.3	0.3						3.9	
Delay (s)		26.1	23.6	10.0	10.2						28.8	
Level of Service		C	C	B	B						C	
Approach Delay (s)		24.5			10.1			0.0			28.8	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	22.7
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Existing 2023 PM



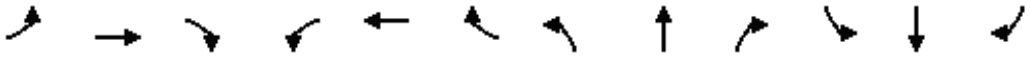
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	197	370	173	268	0	0	0	0	255	8	0
Future Volume (veh/h)	0	197	370	173	268	0	0	0	0	255	8	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	229	430	201	312	0				297	9	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	603	528	457	938	0				356	11	0
Arrive On Green	0.00	0.33	0.33	0.10	0.54	0.00				0.25	0.25	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1416	43	0
Grp Volume(v), veh/h	0	229	430	201	312	0				306	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	7.0	18.0	5.1	7.3	0.0				14.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.0	18.0	5.1	7.3	0.0				14.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	603	528	457	938	0				367	0	0
V/C Ratio(X)	0.00	0.38	0.81	0.44	0.33	0.00				0.83	0.00	0.00
Avail Cap(c_a), veh/h	0	999	874	758	1613	0				1006	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.5	22.1	12.6	9.2	0.0				25.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	4.4	0.7	0.3	0.0				7.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	6.5	1.7	2.2	0.0				5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.0	26.5	13.2	9.5	0.0				32.7	0.0	0.0
LnGrp LOS	A	B	C	B	A	A				C	A	A
Approach Vol, veh/h		659			513						306	
Approach Delay, s/veh		23.9			11.0						32.7	
Approach LOS		C			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		47.4		25.1	15.3	32.1						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		9.3		16.4	7.1	20.0						
Green Ext Time (p_c), s		2.9		1.9	0.5	4.1						

Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Existing 2023 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	26	260	1	58	1	109	1	1	1	1	6
Future Volume (Veh/h)	1	26	260	1	58	1	109	1	1	1	1	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	31	306	1	68	1	128	1	1	1	1	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.96			0.96	0.96	0.96	0.96	0.96	
vC, conflicting volume	69			337			264	257	184	258	410	68
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	69			292			216	208	133	209	367	68
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	100			100			82	100	100	100	100	99
cM capacity (veh/h)	1085			836			699	665	887	555	543	840

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	338	70	130	9
Volume Left	1	1	128	1
Volume Right	306	1	1	7
cSH	1085	836	700	751
Volume to Capacity	0.00	0.00	0.19	0.01
Queue Length 95th (ft)	0	0	17	1
Control Delay (s)	0.0	0.1	11.3	9.9
Lane LOS	A	A	B	A
Approach Delay (s)	0.0	0.1	11.3	9.9
Approach LOS			B	A

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	26	260	1	58	1	109	1	1	1	1	6
Future Vol, veh/h	1	26	260	1	58	1	109	1	1	1	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	1	31	306	1	68	1	128	1	1	1	1	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	69	0	0	337	0	0	261	257	184	258	410	69
Stage 1	-	-	-	-	-	-	186	186	-	71	71	-
Stage 2	-	-	-	-	-	-	75	71	-	187	339	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1085	-	-	830	-	-	686	651	864	534	534	839
Stage 1	-	-	-	-	-	-	809	750	-	743	840	-
Stage 2	-	-	-	-	-	-	927	840	-	633	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1085	-	-	830	-	-	678	650	864	532	533	839
Mov Cap-2 Maneuver	-	-	-	-	-	-	678	650	-	532	533	-
Stage 1	-	-	-	-	-	-	808	749	-	742	839	-
Stage 2	-	-	-	-	-	-	917	839	-	631	642	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	11.6	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	679	1085	-	-	830	-	-	733
HCM Lane V/C Ratio	0.192	0.001	-	-	0.001	-	-	0.013
HCM Control Delay (s)	11.6	8.3	0	-	9.3	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Existing 2023 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	9	1	106	1	3	24	258	3	1
Future Volume (Veh/h)	1	1	1	9	1	106	1	3	24	258	3	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	1	1	1	10	1	119	1	3	27	290	3	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	722	616	4	604	602	16	4			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	722	616	4	604	602	16	4			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	89	100			82		
cM capacity (veh/h)	262	334	1086	354	340	1054	1631			1583		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	130	31	294
Volume Left	1	10	1	290
Volume Right	1	119	27	1
cSH	388	902	1631	1583
Volume to Capacity	0.01	0.14	0.00	0.18
Queue Length 95th (ft)	1	13	0	17
Control Delay (s)	14.3	9.7	0.2	7.7
Lane LOS	B	A	A	A
Approach Delay (s)	14.3	9.7	0.2	7.7
Approach LOS	B	A		

Intersection Summary				
Average Delay	7.8			
Intersection Capacity Utilization	35.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	1	9	1	106	1	3	24	258	3	1
Future Vol, veh/h	1	1	1	9	1	106	1	3	24	258	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	5	0	0	8	2	33	0
Mvmt Flow	1	1	1	10	1	119	1	3	27	290	3	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	663	616	4	604	603	17	4	0	0	30	0	0
Stage 1	584	584	-	19	19	-	-	-	-	-	-	-
Stage 2	79	32	-	585	584	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.25	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.345	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	377	409	1085	413	416	1053	1631	-	-	1583	-	-
Stage 1	501	501	-	1005	884	-	-	-	-	-	-	-
Stage 2	935	872	-	501	501	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	286	333	1085	353	339	1053	1631	-	-	1583	-	-
Mov Cap-2 Maneuver	286	333	-	353	339	-	-	-	-	-	-	-
Stage 1	500	409	-	1004	883	-	-	-	-	-	-	-
Stage 2	827	871	-	407	409	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14	9.7	0.3	7.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1631	-	-	404	898	1583	-	-
HCM Lane V/C Ratio	0.001	-	-	0.008	0.145	0.183	-	-
HCM Control Delay (s)	7.2	0	-	14	9.7	7.8	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.7	-	-

E. 2023 Existing Conditions – Simulation Analysis Worksheets

1: U.S. 1 & Hospital Center Boulevard Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.5	2.5	0.3	1.0	2.4	0.1	5.5	3.7	0.4	0.2	1.5	0.1
Vehicles Entered	99	203	229	61	181	23	354	626	93	11	211	63
Vehicles Exited	99	202	228	62	180	23	339	599	89	11	208	63
Hourly Exit Rate	99	202	228	62	180	23	339	599	89	11	208	63
Input Volume	96	206	227	60	185	23	358	633	98	11	205	64
% of Volume	103	98	100	103	97	100	95	95	91	98	101	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

1: U.S. 1 & Hospital Center Boulevard Performance by movement

Movement	All
Denied Delay (hr)	0.2
Total Delay (hr)	19.2
Vehicles Entered	2154
Vehicles Exited	2103
Hourly Exit Rate	2103
Input Volume	2166
% of Volume	97
Denied Entry Before	0
Denied Entry After	0

2: US-1 & American Legion Rd/Eskimo Hill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.2	0.2	0.4	0.3	0.7	0.3	4.8	0.1	0.4	2.0	0.1
Vehicles Entered	45	28	59	65	53	158	66	789	28	66	417	35
Vehicles Exited	46	28	59	65	53	159	66	791	28	67	417	36
Hourly Exit Rate	46	28	59	65	53	159	66	791	28	67	417	36
Input Volume	47	28	60	70	54	166	69	806	26	64	417	34
% of Volume	98	99	99	93	98	96	96	98	107	105	100	107
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

2: US-1 & American Legion Rd/Eskimo Hill Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	9.8
Vehicles Entered	1809
Vehicles Exited	1815
Hourly Exit Rate	1815
Input Volume	1842
% of Volume	99
Denied Entry Before	0
Denied Entry After	0

3: US-1 & Sage Ln Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.2	0.7	0.0	1.0
Vehicles Entered	17	19	20	863	520	25	1464
Vehicles Exited	17	19	20	862	522	25	1465
Hourly Exit Rate	17	19	20	862	522	25	1465
Input Volume	15	17	24	882	526	24	1488
% of Volume	111	110	84	98	99	105	98
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

4: US-1 & Centreport Pkwy Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.8	0.0	0.6	3.9	3.0	0.4	1.2	14.9
Vehicles Entered	296	4	123	750	789	44	490	2496
Vehicles Exited	292	4	122	743	785	44	486	2476
Hourly Exit Rate	292	4	122	743	785	44	486	2476
Input Volume	287	4	122	768	792	44	497	2515
% of Volume	102	89	100	97	99	99	98	98
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

5: 95 NB Off Ramp/95 NB & Centreport Pkwy Performance by movement

Movement	EBL	EBT	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	1.1	0.8	0.8	0.4	3.1
Vehicles Entered	16	272	234	231	150	903
Vehicles Exited	16	273	234	231	150	904
Hourly Exit Rate	16	273	234	231	150	904
Input Volume	17	263	231	234	150	895
% of Volume	93	104	101	99	100	101
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.2	0.3	1.2	0.8	0.0	2.9
Vehicles Entered	110	226	89	380	175	7	987
Vehicles Exited	110	227	88	381	175	7	988
Hourly Exit Rate	110	227	88	381	175	7	988
Input Volume	105	222	86	383	172	6	975
% of Volume	105	102	102	99	102	117	101
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Vehicles Entered	12	56	62	2	19	1	244	5	6	1	1	5
Vehicles Exited	12	56	62	2	19	2	244	5	6	1	1	5
Hourly Exit Rate	12	56	62	2	19	2	244	5	6	1	1	5
Input Volume	10	55	61	2	21	1	257	4	6	1	1	5
% of Volume	117	102	102	100	90	200	95	111	96	100	100	95
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	0.5
Vehicles Entered	414
Vehicles Exited	415
Hourly Exit Rate	415
Input Volume	424
% of Volume	98
Denied Entry Before	0
Denied Entry After	0

8: State Shop Rd & Driveway & Eskimo Hill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Vehicles Entered	0	1	2	8	1	245	0	7	18	59	5	2
Vehicles Exited	0	1	2	8	1	245	0	7	18	59	5	2
Hourly Exit Rate	0	1	2	8	1	245	0	7	18	59	5	2
Input Volume	1	1	1	9	1	256	1	8	18	59	4	2
% of Volume	0	100	200	91	100	96	0	85	100	100	125	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

8: State Shop Rd & Driveway & Eskimo Hill Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	0.6
Vehicles Entered	348
Vehicles Exited	348
Hourly Exit Rate	348
Input Volume	361
% of Volume	96
Denied Entry Before	0
Denied Entry After	0

Total Zone Performance

Denied Delay (hr)	0.3
Total Delay (hr)	52.0
Vehicles Entered	1954
Vehicles Exited	260
Hourly Exit Rate	260
Input Volume	10668
% of Volume	2
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	104	141	164	141	114	139	174	154	288	300	175	185
Average Queue (ft)	19	64	89	52	53	57	99	61	138	164	62	67
95th Queue (ft)	61	116	143	113	96	118	161	128	247	269	138	149
Link Distance (ft)			1229	1229	1229		971	971			8614	8614
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500				150			400	400		
Storage Blk Time (%)						0	1		0	0		
Queuing Penalty (veh)						0	1		0	0		

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	39	38	144	127	74
Average Queue (ft)	5	10	69	43	19
95th Queue (ft)	22	32	123	100	51
Link Distance (ft)			1821	1821	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			500
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	159	219	65	282	291	81	119	142
Average Queue (ft)	63	108	17	107	112	17	27	40
95th Queue (ft)	124	192	46	220	235	53	82	101
Link Distance (ft)	1287	392		3734	3734		8614	8614
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			300			200		
Storage Blk Time (%)				0		0	0	
Queuing Penalty (veh)				0		0	0	

Intersection: 3: US-1 & Sage Ln

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	51	38
Average Queue (ft)	23	6
95th Queue (ft)	48	26
Link Distance (ft)	590	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		415
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B15	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	451	225	163	236	256	321	180	88	115	113	112
Average Queue (ft)	281	112	19	129	136	126	98	34	41	51	33
95th Queue (ft)	458	273	129	214	226	265	205	76	95	98	83
Link Distance (ft)	381		1100	1008	1008	1008			2884	2884	2884
Upstream Blk Time (%)	7										
Queuing Penalty (veh)	30										
Storage Bay Dist (ft)		225					180	345			
Storage Blk Time (%)	22	1				1	1				
Queuing Penalty (veh)	27	2				8	3				

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	49	173	179	228
Average Queue (ft)	10	68	70	115
95th Queue (ft)	35	134	138	194
Link Distance (ft)		2476	258	219
Upstream Blk Time (%)				1
Queuing Penalty (veh)				0
Storage Bay Dist (ft)	275			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	128	103	120	186	149
Average Queue (ft)	43	46	39	73	76
95th Queue (ft)	93	80	85	144	125
Link Distance (ft)	441			2476	221
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		200	250		
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	10	13	106	56
Average Queue (ft)	0	0	52	8
95th Queue (ft)	7	9	86	34
Link Distance (ft)	392	610	218	443
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	29	118	2	41
Average Queue (ft)	3	69	0	2
95th Queue (ft)	16	103	2	19
Link Distance (ft)	150	2160	996	218
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 70

1: U.S. 1 & Hospital Center Boulevard Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	4.5	12.7	26.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	2.3	8.6	42.1	4.4	4.9	0.4	12.2	1.9	0.2	0.5	7.6	0.1
Vehicles Entered	93	265	557	123	204	27	268	337	65	22	1140	60
Vehicles Exited	96	260	520	124	202	27	243	325	63	22	1135	59
Hourly Exit Rate	96	260	520	124	202	27	243	325	63	22	1135	59
Input Volume	108	293	628	125	198	23	278	342	66	26	1142	60
% of Volume	89	89	83	99	102	116	87	95	95	84	99	98
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	12	34	70	0	0	0	0	0	0	0	0	0

1: U.S. 1 & Hospital Center Boulevard Performance by movement

Movement	All
Denied Delay (hr)	44.0
Total Delay (hr)	85.2
Vehicles Entered	3161
Vehicles Exited	3076
Hourly Exit Rate	3076
Input Volume	3289
% of Volume	94
Denied Entry Before	0
Denied Entry After	116

2: US-1 & American Legion Rd/Eskimo Hill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.5	1.0	1.2	0.4	0.5	0.7	0.4	3.1	0.1	1.7	15.5	0.4
Vehicles Entered	35	77	117	33	46	94	54	548	16	184	1555	45
Vehicles Exited	35	76	116	33	46	93	53	541	16	182	1551	44
Hourly Exit Rate	35	76	116	33	46	93	53	541	16	182	1551	44
Input Volume	38	75	114	38	42	98	53	551	14	198	1658	44
% of Volume	93	101	102	87	109	95	100	98	112	92	94	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

2: US-1 & American Legion Rd/Eskimo Hill Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	25.6
Vehicles Entered	2804
Vehicles Exited	2786
Hourly Exit Rate	2786
Input Volume	2923
% of Volume	95
Denied Entry Before	0
Denied Entry After	0

3: US-1 & Sage Ln Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.1	0.1	0.1	5.0	0.1	5.5
Vehicles Entered	15	38	20	606	1684	19	2382
Vehicles Exited	15	38	20	603	1679	19	2374
Hourly Exit Rate	15	38	20	603	1679	19	2374
Input Volume	15	36	23	603	1790	21	2489
% of Volume	98	106	86	100	94	89	95
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

4: US-1 & Centreport Pkwy Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	5.6	0.1	0.2	7.0	2.0	1.8	13.0	29.7
Vehicles Entered	462	24	58	571	524	142	1564	3345
Vehicles Exited	468	24	59	560	523	139	1529	3302
Hourly Exit Rate	468	24	59	560	523	139	1529	3302
Input Volume	466	22	60	570	523	150	1684	3475
% of Volume	100	108	98	98	100	93	91	95
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

5: 95 NB Off Ramp/95 NB & Centreport Pkwy Performance by movement

Movement	EBL	EBT	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	1.5	0.7	0.5	0.0	0.2	3.0
Vehicles Entered	15	436	300	132	1	92	976
Vehicles Exited	15	434	300	132	1	92	974
Hourly Exit Rate	15	434	300	132	1	92	974
Input Volume	16	446	307	139	1	90	1000
% of Volume	92	97	98	95	100	102	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy Performance by movement

Movement	EBT	EBR	WBL	WBT	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.0	0.7	0.8	0.9	1.5	0.1	5.0
Vehicles Entered	210	378	168	268	254	27	1305
Vehicles Exited	210	378	168	267	254	27	1304
Hourly Exit Rate	210	378	168	267	254	27	1304
Input Volume	223	370	173	278	255	28	1327
% of Volume	94	102	97	96	100	98	98
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Vehicles Entered	0	34	249	1	55	2	110	2	1	0	1	6
Vehicles Exited	0	34	249	1	55	2	110	2	1	0	1	6
Hourly Exit Rate	0	34	249	1	55	2	110	2	1	0	1	6
Input Volume	1	36	260	1	58	1	109	2	1	1	1	6
% of Volume	0	94	96	100	94	200	101	114	100	0	100	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	0.3
Vehicles Entered	461
Vehicles Exited	461
Hourly Exit Rate	461
Input Volume	478
% of Volume	96
Denied Entry Before	0
Denied Entry After	0

8: State Shop Rd & Driveway & Eskimo Hill Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0
Vehicles Entered	1	0	1	9	1	107	1	3	24	244	8	2
Vehicles Exited	1	0	1	9	1	108	1	3	24	245	8	2
Hourly Exit Rate	1	0	1	9	1	108	1	3	24	245	8	2
Input Volume	1	1	1	9	1	106	1	3	24	258	6	1
% of Volume	100	0	100	97	100	102	100	100	100	95	123	200
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

8: State Shop Rd & Driveway & Eskimo Hill Rd Performance by movement

Movement	All
Denied Delay (hr)	0.0
Total Delay (hr)	0.3
Vehicles Entered	401
Vehicles Exited	403
Hourly Exit Rate	403
Input Volume	413
% of Volume	98
Denied Entry Before	0
Denied Entry After	0

Total Zone Performance

Denied Delay (hr)	44.2
Total Delay (hr)	154.7
Vehicles Entered	3257
Vehicles Exited	166
Hourly Exit Rate	166
Input Volume	15393
% of Volume	1
Denied Entry Before	0
Denied Entry After	116

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	133	156	1242	1269	1273	150	356	306	329	340	300	136
Average Queue (ft)	34	76	496	886	1087	131	191	143	179	196	61	42
95th Queue (ft)	95	136	1264	1728	1537	180	337	281	344	357	262	110
Link Distance (ft)			1229	1229	1229		971	971			8614	8614
Upstream Blk Time (%)			2	46	64							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	500	500				150			400	400		
Storage Blk Time (%)						25	11		0	2	1	
Queuing Penalty (veh)						24	14		0	4	2	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	45	130	517	503	230
Average Queue (ft)	4	27	254	246	15
95th Queue (ft)	21	92	415	410	101
Link Distance (ft)			1821	1821	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			500
Storage Blk Time (%)		0	0	0	0
Queuing Penalty (veh)		0	0	0	0

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	296	230	89	244	258	200	444	453
Average Queue (ft)	136	99	24	72	79	75	201	213
95th Queue (ft)	239	190	64	185	201	191	373	381
Link Distance (ft)	1287	392		3734	3734		8614	8614
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			300			200		
Storage Blk Time (%)				0		0	7	
Queuing Penalty (veh)				0		1	13	

Intersection: 3: US-1 & Sage Ln

Movement	EB	NB	SB
Directions Served	LR	L	R
Maximum Queue (ft)	89	69	2
Average Queue (ft)	34	13	0
95th Queue (ft)	68	45	3
Link Distance (ft)	590		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		415	290
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B15	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	460	225	174	315	391	528	180	299	445	448	435
Average Queue (ft)	331	62	21	134	146	148	88	111	255	271	226
95th Queue (ft)	485	208	107	252	282	358	190	248	404	419	386
Link Distance (ft)	381		1100	1008	1008	1008			2884	2884	2884
Upstream Blk Time (%)	8										
Queuing Penalty (veh)	40										
Storage Bay Dist (ft)		225					180	345			
Storage Blk Time (%)	25	0				3	1	0	2		
Queuing Penalty (veh)	15	1				16	3	0	3		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	65	203	163	203
Average Queue (ft)	9	89	63	90
95th Queue (ft)	43	173	126	163
Link Distance (ft)		2476	258	219
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)	275			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	188	164	178	196	221
Average Queue (ft)	75	72	66	69	121
95th Queue (ft)	145	131	126	145	197
Link Distance (ft)	441			2476	221
Upstream Blk Time (%)					0
Queuing Penalty (veh)					1
Storage Bay Dist (ft)		200	250		
Storage Blk Time (%)	0	0	0	0	
Queuing Penalty (veh)	1	0	0	0	

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	24	74	60
Average Queue (ft)	1	38	10
95th Queue (ft)	14	62	40
Link Distance (ft)	610	218	443
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	25	98	2	55
Average Queue (ft)	2	48	0	9
95th Queue (ft)	14	79	2	36
Link Distance (ft)	150	2160	996	218
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

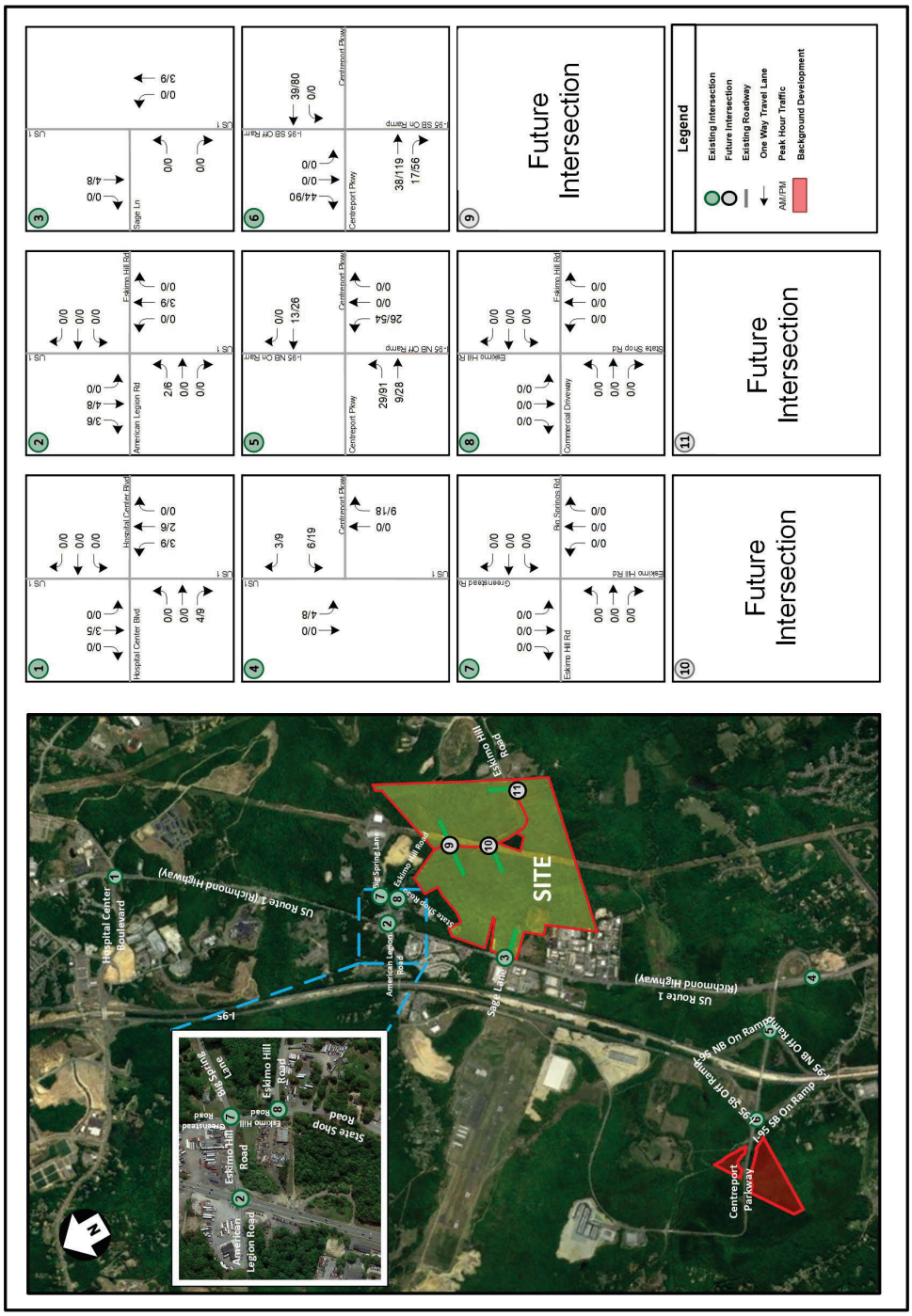
Zone Summary

Zone wide Queuing Penalty: 139

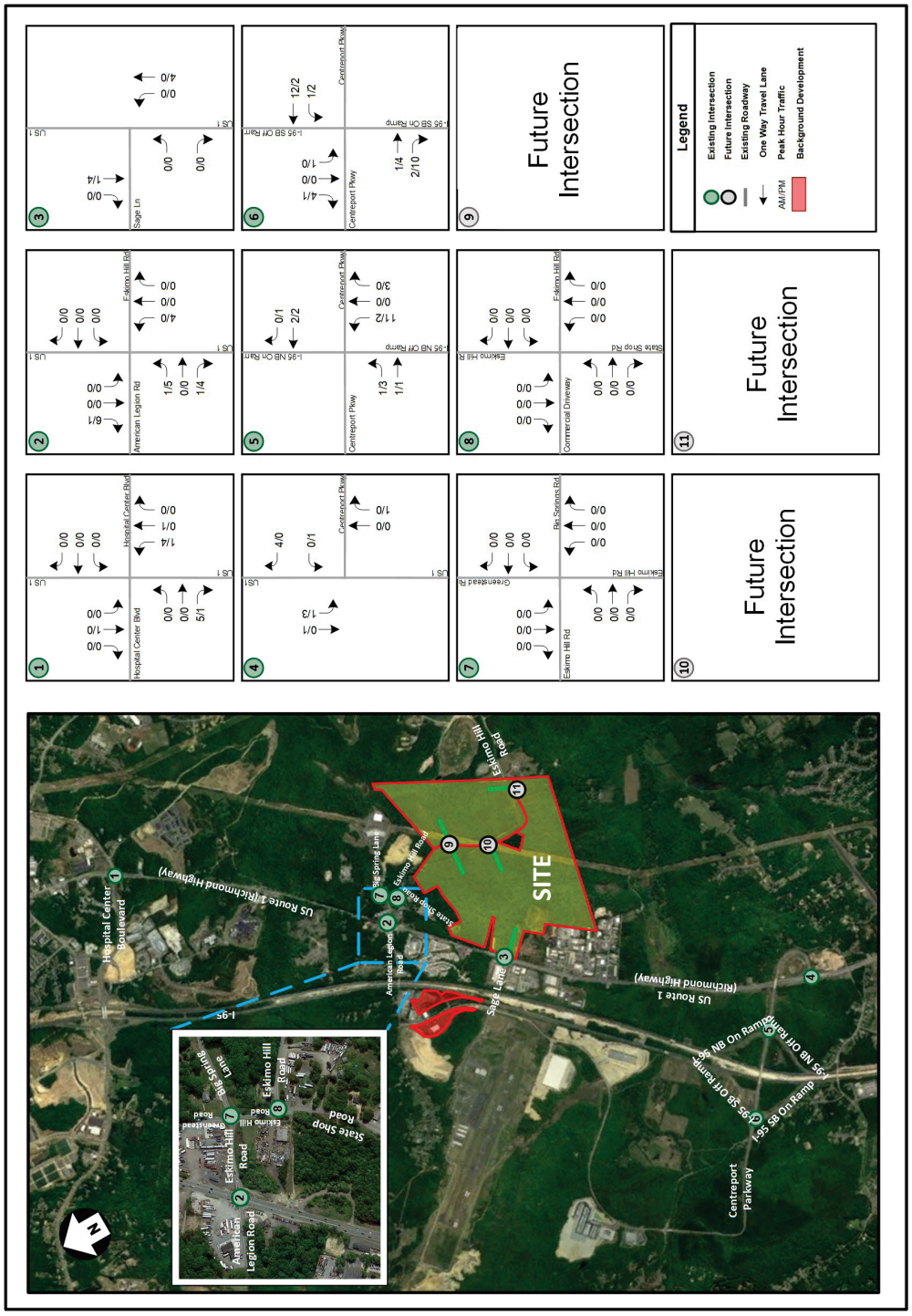
No.	Intersection (Movement)	AM Peak Hour						
		Input Traffic Volumes (vehicles/ hour)	Simulated Traffic Volumes (vehicles/ hour)	Percent of Demand Served [3]	Absolute Difference Traffic Volumes (vehicles/ hour)	Percentage Difference in Traffic Volumes Traffic Volumes (vehicles/ hour)	VDOT Calibration Threshold for Traffic Volumes	Met VDOT Threshold?
		SimTraffic [2]						
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**	**2166**	**2104.0**	**97%**	**62**	**2.9%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left	96	98.0	102%	-2	-2.1%	20%	Yes
	Eastbound Thru	206	192.0	93%	14	6.8%	15%	Yes
	Eastbound Right	227	230.0	101%	-3	-1.3%	15%	Yes
	Westbound Approach							
	Westbound Left	60	58.0	96%	2	3.3%	20%	Yes
	Westbound Thru / Right	208	211.0	101%	-3	-1.4%	15%	Yes
	Northbound Approach							
	Northbound Left	358	338.0	94%	20	5.6%	15%	Yes
	Northbound Thru	633	611.0	97%	22	3.5%	15%	Yes
	Northbound Right	98	90.0	92%	8	8.2%	20%	Yes
	Southbound Approach							
	Southbound Left	11	9.0	80%	2	18.2%	20%	Yes
	Southbound Thru	205	205.0	100%	0	0.0%	15%	Yes
	Southbound Right	64	62.0	97%	2	3.1%	20%	Yes
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)	**1842**	**1831.0**	**99%**	**11**	**0.6%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Thru / Right	135	128.0	95%	7	5.2%	15%	Yes
	Westbound Approach							
	Westbound Left / Thru / Right	290	289.0	100%	1	0.3%	15%	Yes
	Northbound Approach							
	Northbound Left	69	70.0	101%	-1	-1.4%	20%	Yes
	Northbound Thru / Right	832	827.0	99%	5	0.6%	15%	Yes
	Southbound Approach							
	Southbound Left	64	63.0	98%	1	1.6%	20%	Yes
	Southbound Thru / Right	451	454.0	101%	-3	-0.7%	15%	Yes
3	**US Route 1 (N/S) & Sage Lane / Future Access #1 (E/W)**							
	Overall Intersection: (TWSC)	**1488**	**1481.0**	**99%**	**7**	**0.5%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Right	32	36.0	113%	-4	-12.5%	20%	Yes
	Northbound Approach							
	Northbound Left	24	21.0	88%	3	12.5%	20%	Yes
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**2515**	**2482.0**	**99%**	**33**	**1.3%**	**10%**	**Yes**
	Westbound Approach							
	Westbound Left	287	285.0	99%	2	0.7%	15%	Yes
	Westbound Right	122	119.0	98%	3	2.5%	15%	Yes
	Northbound Approach							
	Northbound Thru	768	768.0	100%	0	0.0%	15%	Yes
	Northbound Right	792	776.0	98%	16	2.0%	15%	Yes
	Southbound Approach							
	Southbound Left	44	46.0	104%	-2	-4.5%	20%	Yes
	Southbound Thru	497	484.0	97%	13	2.6%	15%	Yes
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**895**	**893.0**	**100%**	**2**	**0.2%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left	17	15.0	87%	2	11.8%	20%	Yes
	Eastbound Thru	263	260.0	99%	3	1.1%	15%	Yes
	Westbound Approach							
	Westbound Thru	231	232	100%	-1	-0.4%	15%	Yes
	Westbound Right							
	Northbound Approach							
	Northbound Left / Thru / Right	384	386.0	101%	-2	-0.5%	15%	Yes
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**975**	**975.0**	**100%**	**0**	**0.0%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Thru	105	101.0	96%	4	3.8%	15%	Yes
	Eastbound Right	222	222.0	100%	0	0.0%	15%	Yes
	Westbound Approach							
	Westbound Left	86	84.0	97%	2	2.3%	20%	Yes
	Westbound Thru	383	390.0	102%	-7	-1.8%	15%	Yes
	Southbound Approach							
	Southbound Left / Thru Southbound Right	178	178	100%	0	0.0%	15%	Yes
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S)**							
	Overall Intersection: (TWSC)	**424**	**423.0**	**100%**	**1**	**0.2%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left	10	9.0	88%	1	10.0%	20%	Yes
	Westbound Approach							
	Westbound Left	2	1.0	50%	1	50.0%	20%	No
	Northbound Approach							
	Northbound Left / Thru / Right	267	269.0	101%	-2	-0.7%	15%	Yes
	Southbound Approach							
	Southbound Left / Thru / Right	7.0	7.0	100%	0	0.0%	20%	Yes
8	**Eskimo Hill Road (N/E) & State Shop Road (S)**							
	Overall Intersection: (TWSC)	**361**	**362.0**	**100%**	**-1**	**-0.3%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Thru / Right	3	3.0	100%	0	0.0%	20%	Yes
	Westbound Approach							
	Westbound Left / Thru / Right	266	268.0	101%	-2	-0.8%	15%	Yes
	Northbound Approach							
	Northbound Left	1	0.0	0%	1	100.0%	20%	No
	Southbound Approach							
	Southbound Left	59	58.0	98%	1	1.7%	20%	Yes

No.	Intersection (Movement)	PM Peak Hour						
		Input Traffic Volumes (vehicles/ hour)	Simulated Traffic Volumes (vehicles/ hour)	Percent of Demand Served [4]	Absolute Difference Traffic Volumes (vehicles/ hour)	Percentage Difference in Traffic Volumes Traffic Volumes (vehicles/ hour)	VDOT Calibration Threshold for Traffic Volumes	Met VDOT Threshold?
		SimTraffic [2]						
1	**US Route 1 (N/S) & Hospital Center Boulevard (E/W)**	**3289**	**3052.0**		**93**	**2.8%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left	108	102.0	95%	6	5.6%	15%	Yes
	Eastbound Thru	293	254.0	87%	39	13.3%	15%	Yes
	Eastbound Right	628	514.0	82%	114	18.2%	15%	No
	Westbound Approach							
	Westbound Left	125	126.0	101%	-1	-0.8%	15%	Yes
	Westbound Thru / Right	221	219.0	99%	2	0.9%	15%	Yes
	Northbound Approach							
	Northbound Left	278	241.0	87%	37	13.3%	15%	Yes
	Northbound Thru	342	320.0	93%	22	6.4%	15%	Yes
	Northbound Right	66	58.0	88%	8	12.1%	20%	Yes
	Southbound Approach							
	Southbound Left	26	25.0	95%	1	3.8%	20%	Yes
	Southbound Thru	1142	1129.0	99%	13	1.1%	10%	Yes
	Southbound Right	60	64.0	107%	-4	-6.7%	20%	Yes
2	**US Route 1 (N/S) & American Legion Road / Eskimo Hill Road (E/W)**							
	Overall Intersection: (Signalized)	**2923**	**2770.0**	**95%**	**153**	**5.2%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Thru / Right	227	233.0	103%	-6	-2.6%	15%	Yes
	Westbound Approach							
	Westbound Left / Thru / Right	178	177.0	99%	1	0.6%	15%	Yes
	Northbound Approach							
	Northbound Left	53	52.0	98%	1	1.9%	20%	Yes
	Northbound Thru / Right	565	542.0	96%	23	4.1%	15%	Yes
	Southbound Approach							
	Southbound Left	198	183.0	92%	15	7.6%	15%	Yes
	Southbound Thru / Right	1702	1583.0	93%	119	7.0%	10%	Yes
3	**US Route 1 (N/S) & Sage Lane / Future Access #1 (E/W)**							
	Overall Intersection: (TWSC)	**2489**	**2356.0**	**95%**	**133**	**5.3%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Right	51	49.0	96%	2	3.9%	20%	Yes
	Northbound Approach							
	Northbound Left	23	23.0	99%	0	0.0%	20%	Yes
4	**US Route 1 (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**3475**	**3277.0**	**94%**	**198**	**5.7%**	**10%**	**Yes**
	Westbound Approach							
	Westbound Left	466	464.0	100%	2	0.4%	15%	Yes
	Westbound Right	22	21.0	94%	1	4.5%	20%	Yes
	Northbound Approach							
	Northbound Thru	570	555.0	97%	15	2.6%	15%	Yes
	Northbound Right	523	511.0	98%	12	2.3%	15%	Yes
	Southbound Approach							
	Southbound Left	150	141.0	94%	9	6.0%	15%	Yes
	Southbound Thru	1684	1528.0	91%	156	9.3%	10%	Yes
5	**I-95 Northbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**1000**	**966.0**	**97%**	**34**	**3.4%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left	16	14.0	86%	2	12.5%	20%	Yes
	Eastbound Thru	446	433.0	97%	13	2.9%	15%	Yes
	Westbound Approach							
	Westbound Thru	307	297	97%	10	3.3%	15%	Yes
	Westbound Right							
	Northbound Approach							
	Northbound Left / Thru / Right	230	222.0	97%	8	3.5%	15%	Yes
6	**I-95 Southbound Ramps (N/S) & Centreport Parkway (E/W)**							
	Overall Intersection: (Signalized)	**1327**	**1301.0**	**98%**	**26**	**2.0%**	**10%**	**Yes**
	Eastbound Approach							
	Eastbound Thru	223	214.0	96%	9	4.0%	15%	Yes
	Eastbound Right	370	371.0	100%	-1	-0.3%	15%	Yes
	Westbound Approach							
	Westbound Left	173	168.0	97%	5	2.9%	15%	Yes
	Westbound Thru	278	268.0	96%	10	3.6%	15%	Yes
	Southbound Approach							
	Southbound Left / Thru	283	280	99%	3	1.1%	15%	Yes
	Southbound Right							
7	**Eskimo Hill Road / Big Spring Lane (E/W) & Eskimo Hill Road / Greenstead Road (N/S)**							
	Overall Intersection: (TWSC)	**478**	**462.0**	**97%**	**16**	**3.3%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left	1	0.0	0%	1	100.0%	20%	No
	Westbound Approach							
	Westbound Left	1	1.0	100%	0	0.0%	20%	Yes
	Northbound Approach							
	Northbound Left / Thru / Right	112	112.0	100%	0	0.0%	15%	Yes
	Southbound Approach							
	Southbound Left / Thru / Right	8.0	8.0	100%	0	0.0%	20%	Yes
8	**Eskimo Hill Road (N/E) & State Shop Road (S)**							
	Overall Intersection: (TWSC)	**413**	**399.0**	**97%**	**14**	**3.4%**	**15%**	**Yes**
	Eastbound Approach							
	Eastbound Left / Thru / Right	3	2.0	67%	1	33.3%	20%	No
	Westbound Approach							
	Westbound Left / Thru / Right	116	114.0	98%	2	1.7%	15%	Yes
	Northbound Approach							
	Northbound Left	1	1.0	100%	0	0.0%	20%	Yes
	Southbound Approach							
	Southbound Left	258	247.0	96%	11	4.3%	15%	Yes

F. Background Development Information and Assignments



Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Centreport Gateway (Phase I)									
Shopping Center (40 kSF<X<150 kSF) (without Superr	821	60.0 kSF of GFA	64	40	104	152	159	311	4,051
Hotel	310	90 Rooms	21	17	38	20	19	39	552
Subtotal			85	57	142	172	178	350	4,603



Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Centreport Industrial (Partially Constructed)									
General Light Industrial	110	40.0 kSF of GFA	27	4	31	3	18	21	195

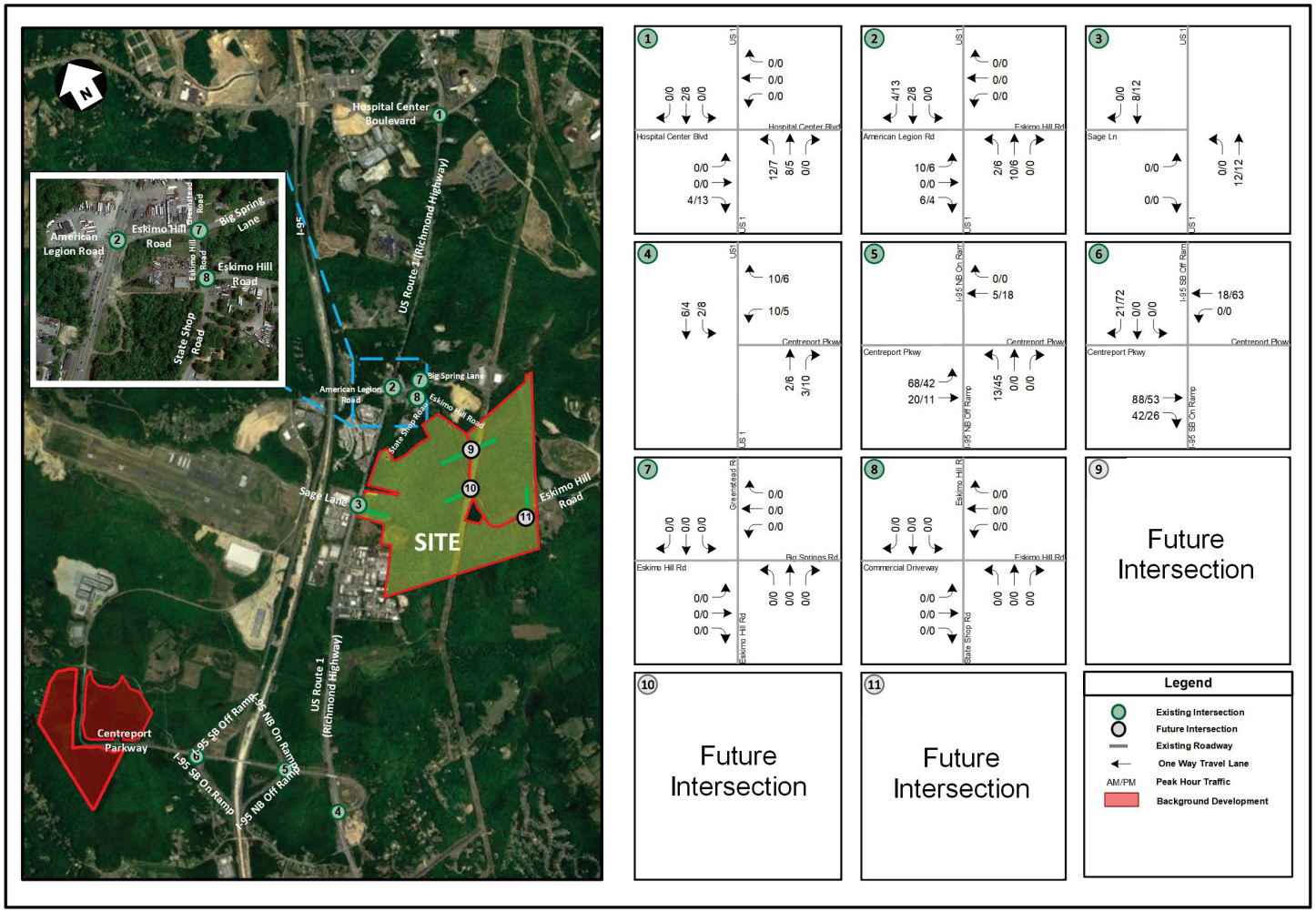


Planning and Zoning

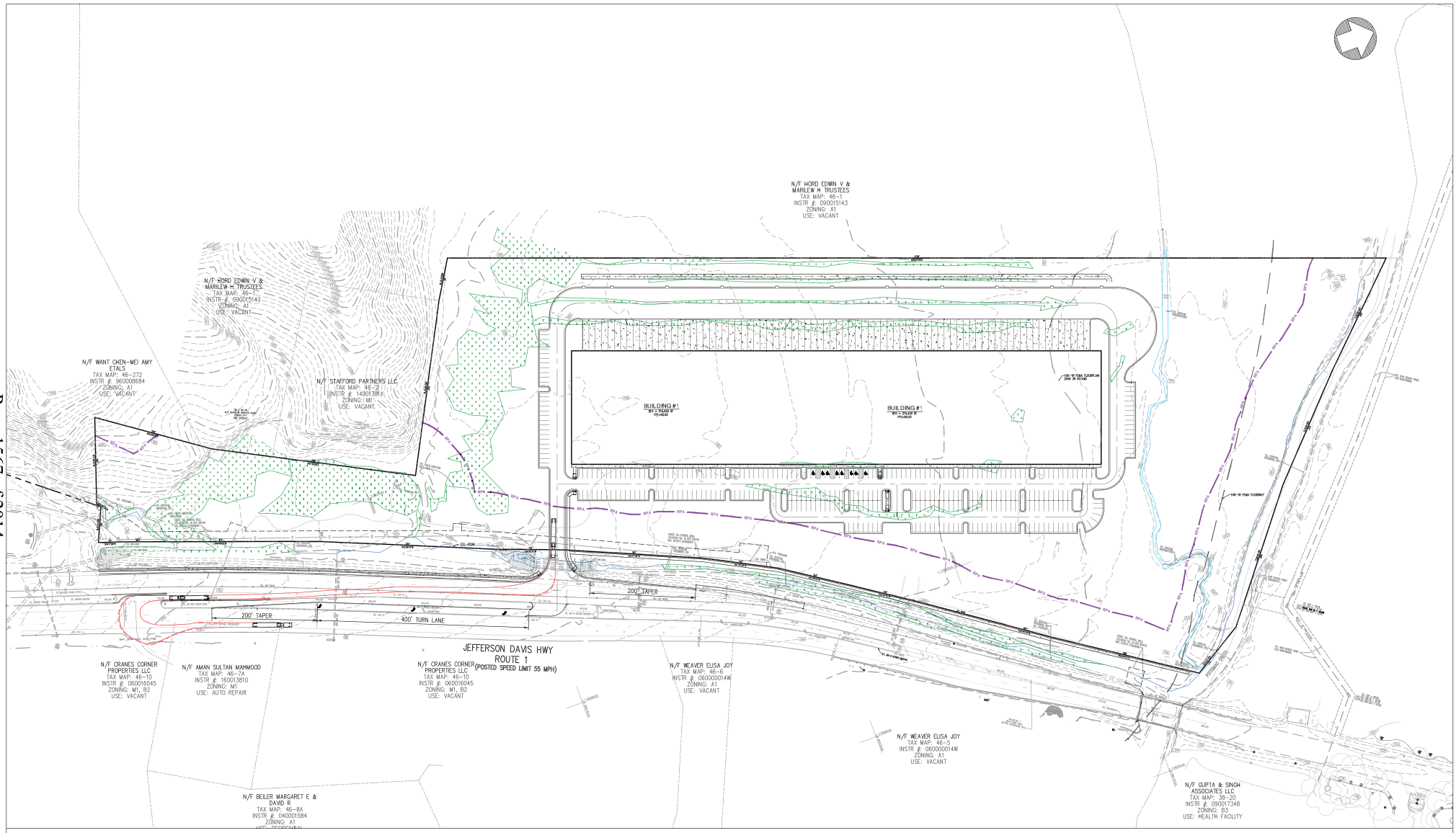
Summary For Application Number: 21154082
AP Type: SUBPRELIM
Project Name: CENTREPORT VILLAGE
Process Date: 8/30/2021 10:33:33 AM
Permit Status: Final

Details:

A PRELIMINARY SUBDIVISION PLAN FOR 494 TOWNHOME UNITS ALONG CENTREPORT PKWY AND MOUNTAINVIEW RD, THE UNITS MIX INCLUDES 20' AND 22' WIDE UNITS, LOCATED WEST OF I95, SOUTH OF MOUNTAIN VIEW AND TO THE NORTHWEST SIDE OF CENTREPORT PKWY ON TM 37-30A ZONED R2CONSISTING OF 108.72 ACRES WITHIN THE HARTWOOD ELECTION DISTRICT.



Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Centreport Village									
Multifamily Housing (Low-Rise)	220	494 DU	42	134	176	147	86	233	3,242



Bowman

ENTRANCE CONCEPT W/ VEHICLE TRACKING

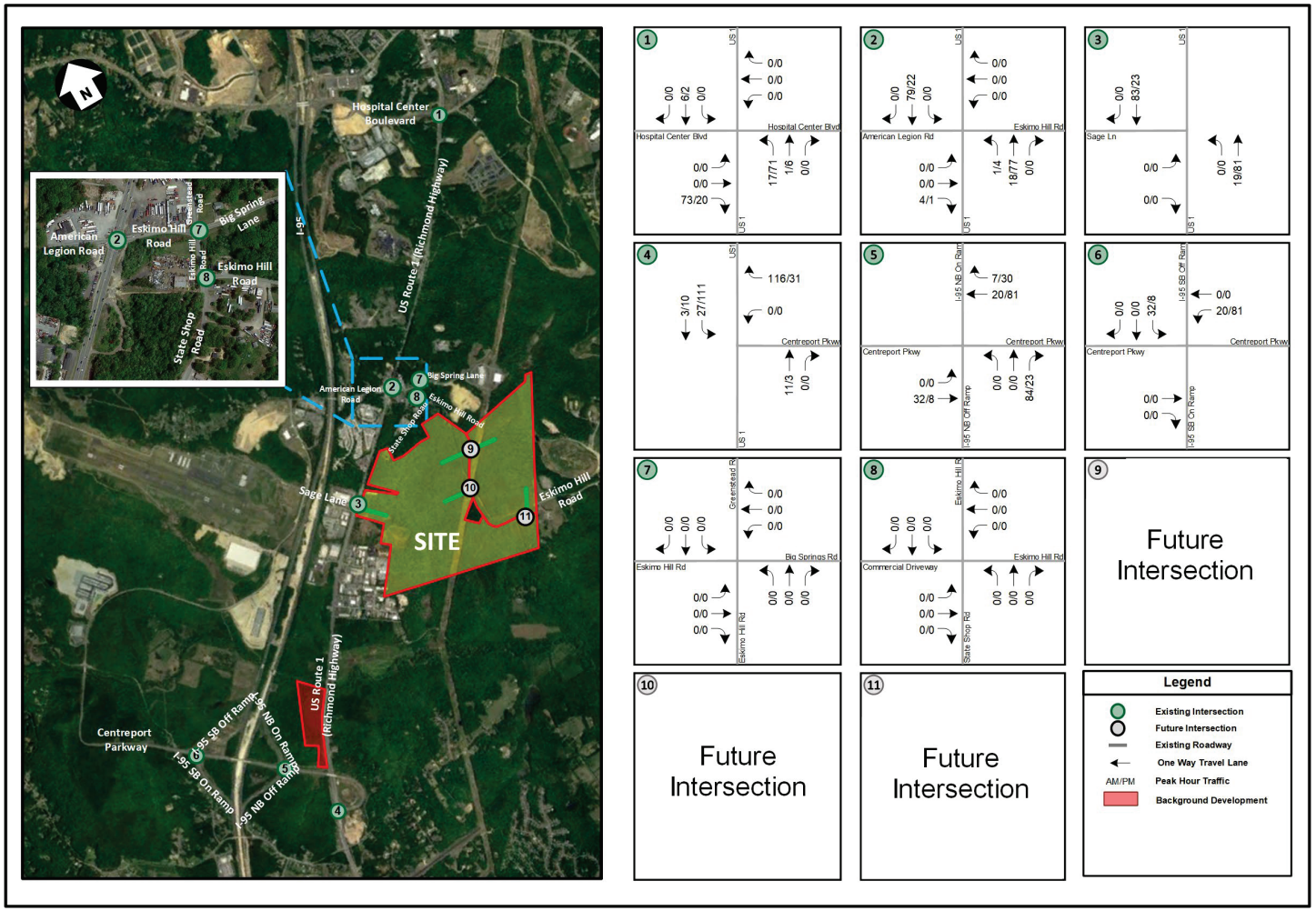
CROSSROADS INDUSTRIAL

STAFFORD COUNTY, VIRGINIA

80 40 0 80 160
GRAPHIC SCALE
1" = 80'

JUNE 17, 2021

P:\100329 – Crossroads Industrial Park\100329-01-001 (ENG)\Engineering\Engineering Plans\100329-D-MP-001 (Preliminary Engineering)\++100329-D-MP-001-PBASE (one entrance rev).dwg



Land Use	ITE Code	Size	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	Weekday PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Crossroads Industrial									
Industrial Park	130	762.0 kSF of GFA	210	49	259	57	202	259	2,699

VETTRA Co. *Transportation Planning & Engineering Services*

11535 Gunner Court
Woodbridge, Virginia 22192 Tel: 703-590-4932 Email: vettraco@gmail.com

September 13, 2021 ***via Email***

IVI Strategies, LLC *email BFlynn@enggroupe.com*
13580 Groupe Drive
Suite 200
Woodbridge, Virginia 22192

RE: **Project Ivy (previously Sycamore Grove/Oakenwold)**
Stafford County, Virginia

SUBJ: **Trip Generation Comparison**

Dear Sir/Madam:

I am pleased to provide this memo providing a *ITE Trip Generation (10th Edition)* comparison of the newly proposed use versus the previously approved TIA for the referenced property in central Stafford County, Virginia. Also included in the proposed project are trips to/from the proposed off-site 633-space storage lot located on Mountain View Road. These storage space trips are based on a traffic study by VETTRA Company for the Potomac Creek Storage Lot project located nearby along Centreport Parkway.

In place of the previously proposed mix-use (residential/office/retail) the current proposal consists of a 933,120 gsf (gross square feet) Non-Sort "High-Cube Fulfillment Center" (ITE # 155). Following is a brief comparison of these two (2) proposals:

	AM Pk.Hr.	PM Pk.Hr.	SAT Pk.Hr.	Daily (VPD)
Previously Approved:	**341**	**955**	**1,180**	**9,796**
Currently Proposed:				
Warehouse (trips/Kgsf)	140 (0.15)	149 (0.16)	187 (0.20)	1,693 (1.81)
Storage Lot (trips/space)	74 (0.12)	36 (0.06)	73 (0.12)	660 (1.04)
Total =	**214**	**185**	**260**	**2,353**

Results show significantly less trips with the currently proposed use.

I trust that this provides pertinent information as requested. Please feel free to call me if you have any questions.

Sincerely,
VETTRA Company
Vernon E. Torney
Vernon E. Torney, M.ASCE
President/Owner

cc:

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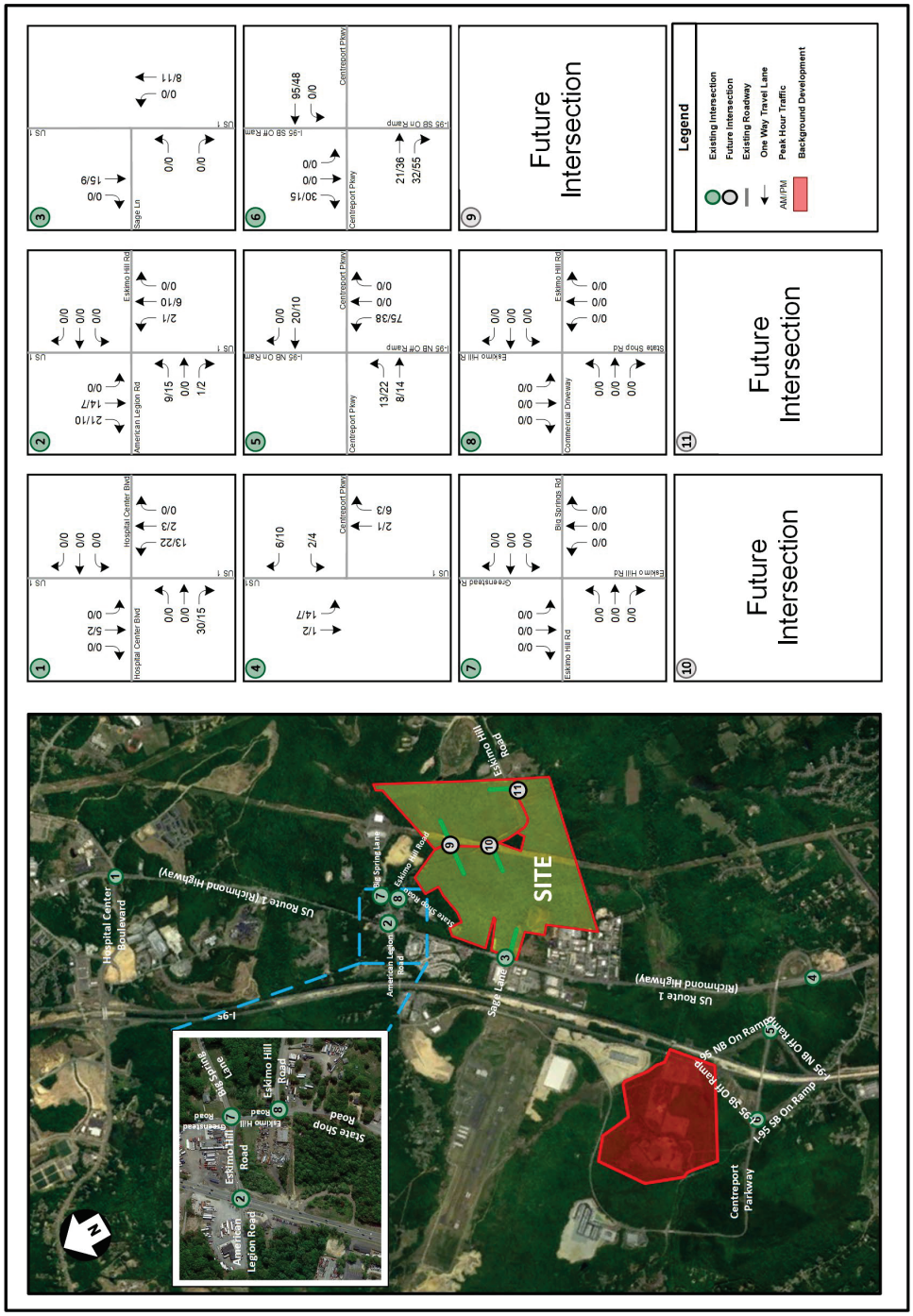
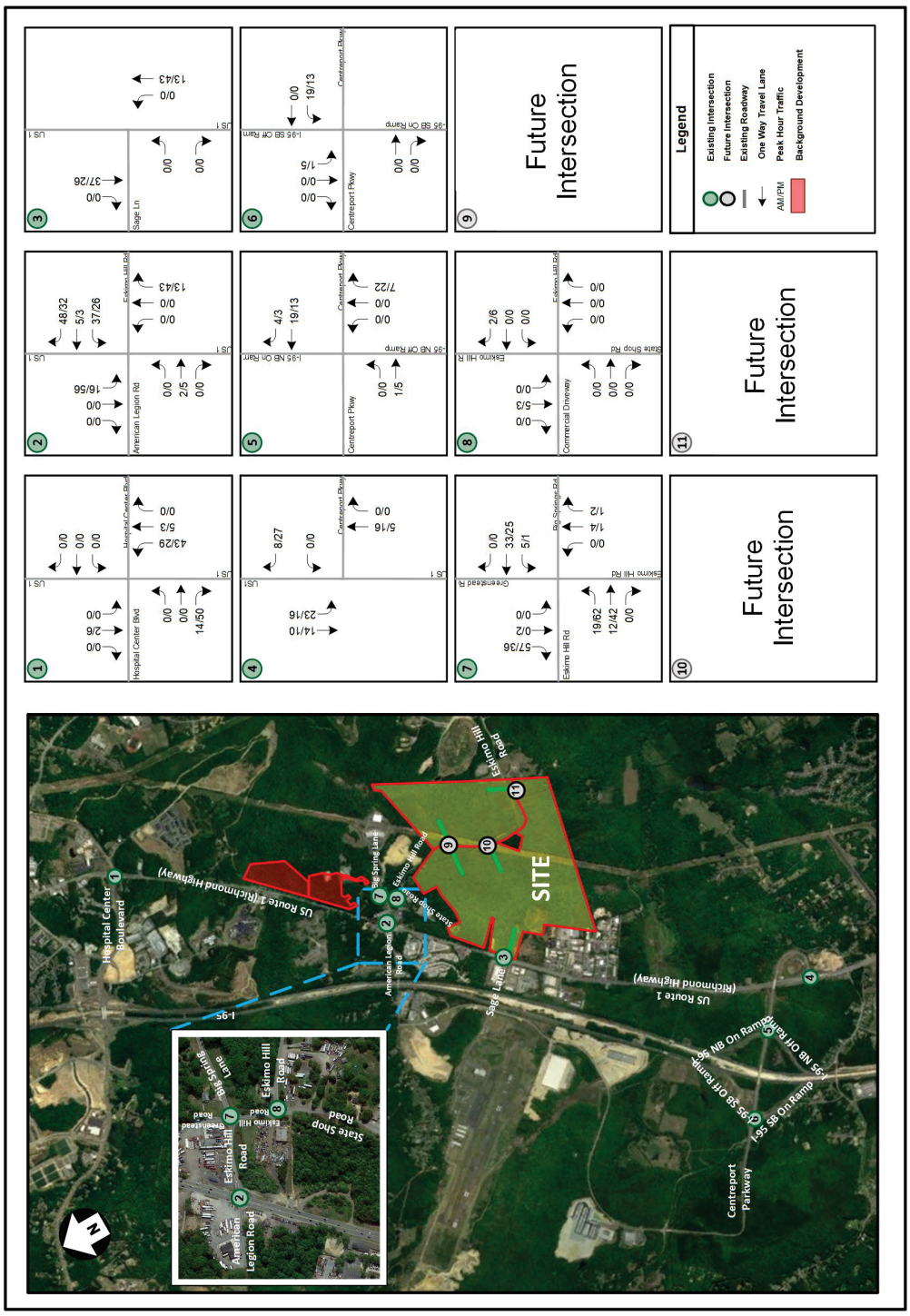


Land Use	ITE Code	Size	----- Weekday -----						Daily
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	Total
Project Ivy									
High-Cube Fulfillment Center Warehouse (Non-Sort)	155	934.0 kSF of GFA	113	27	140	58	91	149	1,694
Storage Lot		633.0 Spaces	37	37	74	18	18	36	660
Subtotal			150	64	214	76	109	185	2,354

RESIDENTIAL LISTING AS OF 2/1/2022

Name URL	Project Name	Map #	Approved Units	Recorded Units	Permits Issued	Built Units	Units To Be Built	Urban Service Area (USA)	Targeted Development Area (TDA)	Housing Type
Abigail Estates	Abigail Estates	1	6	6	5	0	6	N	N	SFD
Amber Oaks	Amber Oaks	2	50	50	48	44	6	N	N	SFD
Aquia Crest Estates	Aquia Crest Estates	3	8	0	0	0	8	N	N	SFD
Aquia Hollow	Aquia Hollow	4	106	0	0	0	106	Y	N	THA
Aquia Overlook	Aquia Overlook	5	86	86	71	68	18	N	N	SFD
Big Spring Estates	Big Spring Estates	6	67	47	0	0	67	Y	Y	SFD
Big Spring Estates, The Hills	Big Spring Estates, The Hills	7	56	0	0	0	56	Y	Y	SFD
Bridle Lake Estates	Bridle Lake Estates	8	85	40	30	30	55	N	N	SFD
Caisson Crossing	Caisson Crossing	9	21	21	12	12	9	N	N	SFD
Cardinal Meadows	Cardinal Meadows	10	15	0	0	0	15	Y	N	SFD
Carrington Heights	Carrington Heights	11	8	0	0	0	8	N	N	SFD
Cavin Property	Cavin Property	12	71	0	0	0	71	N	N	SFD
Celebrate NOW	Celebrate NOW	13	44	0	0	0	44	Y	Y	THA
Celebrate Virginia	Celebrate Virginia	14	1154	1154	1097	1086	68	Y	N	SFD/Duplex
Cherryview Landing	Cherryview Landing	15	71	71	4	0	71	Y	Y	THA
Chesapeake Ridge	Chesapeake Ridge	16	15	0	0	0	15	N	N	SFD
Colebrook Estates	Colebrook Estates	17	12	0	0	0	12	N	N	SFD
Courtyards at Colonial Forge	Courtyards at Colonial Forge	18	49	49	37	33	16	Y	N	CONDO
Dolittle Farm	Dolittle Farm	19	22	0	0	0	22	N	N	SFD
Eagle Terrace	Eagle Terrace	20	13	0	0	0	13	N	N	SFD
Ellison Estates	Ellison Estates	21	23	14	12	12	11	Y	Y	SFD
Embrey Mill	Embrey Mill	22	2079	1602	1473	1403	676	Y	N	SFD/THA/MF
Emmas Estates	Emmas Estates	23	26	0	0		26	N	N	SFD
Estates at Clearview	Estates at Clearview	24	36	36	0		36	Y	N	SFD
Estates at Monroe Place	Estates at Monroe Place	25	28	28	27	19	9	N	N	SFD
Estates of Potomac Run	Estates of Potomac Run	26	9	0	0	0	9	N	N	SFD
Estates At Rocky Pen Sec. 2	Estates At Rocky Pen Sec. 2	27	15	0	0	0	15	N	N	SFD
Fair Havens	Fair Havens	28	20	0	0	0	20	N	N	SFD
Forest Hill Estates	Forest Hill Estates	29	13	13	11	7	6	N	N	SFD
Foxchase Commons	Foxchase Commons	30	99	0	0	0	99	Y	N	THA
Garrison at Stafford	Garrison at Stafford	31	453	0	0	0	453	Y	N	MFU
Grand Garden Estates	Grand Garden Estates	32	7	7	1	1	6	N	N	SFD
Graystone at Abel Lake	Graystone at Abel Lake	33	45	45	0	0	45	N	Y	SFD
Greenbank Forest	Greenbank Forest	34	22	0	0	0	22	N	N	SFD
Hamlets at Widewater	Hamlets at Widewater	35	194	0	0	0	194	N	N	SFD
Hampton Run	Hampton Run	36	40	40	19	0	40	Y	N	SFD
Hills at Big Springs	Hills at Big Springs	37	58	0	0	0	58	Y	Y	SFD
Holly Refuge	Holly Refuge	38	7	7	0	0	7	N	N	SFD
Joshua Landing	Joshua Landing	39	10	0	0	0	10	N	N	SFD
Leeland Station	Leeland Station	40	740	733	707	686	54	Y	N	SFD
Leighs Hill	Leighs Hill	41	16	0	0	0	16	N	N	SFD



Land Use	ITE Code	Size	Weekday AM Peak Hour In	Out	Total	PM Peak Hour In	Out	Total	Daily Total
The Hills at Big Springs									
Single-Family Detached Housing	210	181 DU	33	95	128	110	64	174	1,742

G. Roadway Improvement Excerpts





PROJECT PIPELINE

FR05: STAFFORD COUNTY
ROUTE 1 (ROUTE 753/676 TO ROUTE 628) AND CENTREPORT PARKWAY (ROUTE 1 TO ROUTE 628)

DRPT Virginia Department of Rail and Public Transportation

Office of INTERMODAL Planning and Investment

VDOT Virginia Department of Transportation

FR05 | Centreport Parkway Phase II – Preferred Alternative

Route 1 at American Legion Road / Eskimo Hill Road

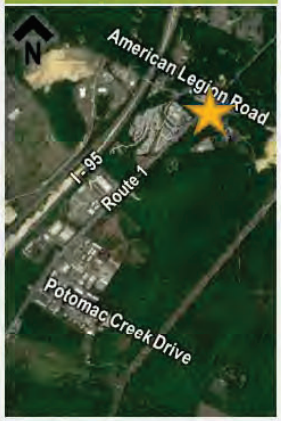
Project Description

- Install dedicated left-turn lanes on American Legion Road and Eskimo Hill Road at the intersection of Route 1. The existing approaches are single-lane approaches.
- This project aims to address the following VTRANS needs at this intersection:
  - Safety Improvement (Intersection)
  - Capacity Preservation
- Benefits
  - Provides additional side-street capacity and optimizes the signal timings, providing additional green time for Route 1 approaches.
  - Increases sight-distance for left-turning vehicles and reduces confusion of intended vehicle movements.

Conceptual Design Layout



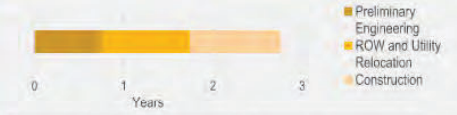
Project Location



Planning Level Cost Estimate

Phase	FY 2022 Estimate
Preliminary Engineering	$ 50,000 - $ 100,000
ROW and Utility Relocation	$ 200,000 - $ 300,000
Construction	$ 400,000 - $ 600,000
Total Cost	**$ 650,000 - $ 1.0 m**

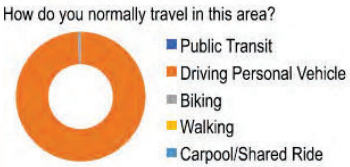
Project Schedule



Note: Project schedules and cost estimates were developed based on information available at the time of study and should be reassessed prior to submitting funding applications.

MetroQuest Summary

- MetroQuest survey live from February 28 – March 14
- 171 survey responses; 47 comments
- Survey Respondents rated this alternative an average of **4.1 out of 5**



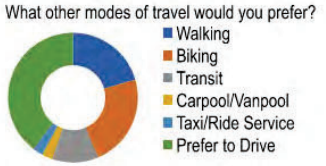


Figure 26: Centreport Preferred Alternative

SMART SCALE Application

1. Stafford - Route 1/Enon Road Intersection and Roadway IMP

Project Status: Scored

Organization: Stafford County
Project ID: 1180

General

Point of Contact Information

Project Point of Contact Name	Point of Contact Phone	Point of Contact Email
Alex Owsiak	(540) 658-4593	aowsiak@staffordcountyva.gov

Project Information

Short Project Description

The project will provide a two-way left turn lane, an additional left turn lane from northbound Jefferson Davis Hwy onto Enon Rd, dedicated turn lanes at the intersection of Stafford Indians Ln (SR-9399), and 5' sidewalks along both sides of Enon Rd.

Notice of Intent

Yes

Project Title

1. Stafford - Route 1/Enon Road Intersection and Roadway IMP

Principal Improvement

Highway

Does this project include any improvements to non-VDOT maintained roadways?

Yes

Detailed Project Description

Project will widen approximately 0.63 miles on Enon Road (SR-753) from 0.02 miles west of the intersection with Beauregard Drive (SR-747) to the intersection with Jefferson Davis Highway (US-1). Project will provide a continuous two-way left turn lane from the intersection with Beauregard Drive to Stafford Indians Lane (SR-9399). An additional left turn lane will be added to Jefferson Davis Highway and additional receiving and departure lanes will be added to Enon Road between Jefferson Davis Highway and Stafford Indians Lane. The intersection with Porter Lane (SR-640) will also be improved to provide sight distance to current standards. A 5' concrete sidewalk will also be provided on both sides of Enon Road. Roadway improvement will consist of horizontal and vertical curve re-alignment, transition from a shoulder & ditch typical section to one with curb & gutter and associated storm water system, and sight distance improvements. Retaining walls will be utilized in some areas to minimize right of way impacts.

SMART SCALE Need Categories

Corridor of Statewide Significance
Regional Network
Safety (non-CoSS)
Urban Development Area

Application Program

District Grant
Statewide High Priority

How does this project address VTrans 2040 need?

This project would address several needs identified in the VTRANs 2040 Draft Multimodal Needs Assessment. Pertaining to COSS segment K3, this project would support addressing needs E, N, R, X, AB and AD by improving the left turn storage capacity on Jefferson Davis Highway as well as widening Enon Road to provide additional refuge storage to help maintain a steady free flow of traffic preventing congestion and delays on US Route 1. These proposed improvements will enhance the performance of US Route 1 which is the only viable alternative to I-95 in Stafford County during periods of incidents and congestion on the Interstate. Pertaining to the Fredericksburg MPO Regional Networks Needs Assessment, this project would support addressing Need A by promoting U.S. Route 1 as a parallel alternative to I-95 to improve reliability along the corridor. This project would address internal and external Targeted Growth Areas (TGAs) needs of better intersection design, roadway capacity, and roadway operations to improve circulation and access to and from several TGAs in the county including Centreport and Courthouse TGAs. Pertaining to the Fredericksburg District Safety Needs Assessment, this project would address a segment of U.S. Route 1 by improving traffic flow and capacity on U.S. Route 1 as well as Enon Road particularly with a high school in the vicinity of this intersection. The features of this project should eliminate a current safety issue created by the concentrated arrival of students at Stafford High School in the morning, which frequently places queued traffic in the left NB thru lane of US Route 1 in a location with less-than-desirable vertical sight distance.

Location

PDCs Served	MPOs Served	Jurisdictions Served	Districts Served
George Washington Regional Commission	Fredericksburg Area Metropolitan Planning Organization	Stafford County	Fredericksburg

Features

Project Features

Highway

Improvement	Comments
Add New Through Lanes(s)	Project will provide additional through lanes between the intersections with Stafford Indians Lane and Jefferson Davis Highway.
Widen Existing Lane(s) (No New Lanes)	Project will widen the existing 10-11' travel lanes to 12'.
Intersection Improvement(s)	Project will improve the intersection with Stafford Indians Lane by providing dedicated left turn and right turn lanes. The project will also re-align the intersection of Porter Lane to provide a 90-degree connection and better sight distance. The intersection of Enon Road and Jefferson Davis Highway will also be improved by adding an additiona left turn lane from northbound Jefferson Davis Highway onto Enon Road. An additional receiving lane will be added to Enon Road to accommodate the dual left turns. In addition, dedicated left, thru, and right turn lanes will be provided for traffic exiting Enon Road onto Jefferson Davis Highway.
Turn Lane Improvement(s)	Project will provide a continuous two-way left turn lane from the intersection with Beauregard Drive to Stafford Indian's Lane. New, dedicated left and right turn lanes will be provided at the intersection of Stafford Indians Lane. Dedicated left and right turn lanes will be provided on Enon Road at the Jefferson Davis Highway intersection. A second left turn lane will be added to northbound Jefferson Davis Highway.
New Traffic Signal/Signal Optimization	Project will replace existing signals with new LED traffic signals at the Enon Road/Jefferson Davis Highway intersection with emergency pre-emption and will seek to coordinate timing with nearby signals to facilitate the movement of traffic.

Bike/Pedestrian

Improvement	Comments
Construct Sidewalk	Project will provide for an 5-foot wide concrete sidewalk on both sides of Enon Road (SR-753) to facilitate pedestrian movement to and from Stafford High School to nearby residences.

Bus Transit

Improvement	Comments

Rail Transit

Improvement	Comments

Freight Rail

Improvement	Comments

Travel Demand Management (TDM)

Improvement	Comments

Right of Way

Improvement	Comments
Right of Way/Easements acquisition required	Right of Way and Easements will need to be acquired to construct the project. Approximately 39 parcels will be impacted by the project, including one Total Take requiring a residential relocation. A variety of easements for drainage, utilities, entrances, sight distance, and construction will need to be acquired.

Factors

Accessibility

Accessibility	Response	Additional Notes
Project includes transit system improvements or reduces delay on a roadway with scheduled peak service of one transit vehicle per hour.	Yes	An improved signal and an additional turn lane will reduce the delay of regional FRED transit service.
Project includes improvements to an existing or proposed park and ride lot (e.g., new lot, more spaces, entrance/exit, technology (payment, traveler information)).	No	
Project includes construction or replacement of bike facilities. For bicycle projects, off-road or on-road buffered or clearly delineated facilities are required.	No	
Project includes construction or replacement of pedestrian facilities. For pedestrian projects, sidewalks, pedestrian signals, marked crosswalks, refuge islands, and other treatments are required (as appropriate).	Yes	Project will provide 5' wide concrete sidewalks with pedestrian signals and marked crosswalks at intersections.
Project includes improvements to existing or new HOV/HOT lanes or ramps to HOV/HOT.	No	
Project provides real-time traveler information or wayfinding specifically for intermodal connections (access to transit station or park and ride lot).	No	
Provides traveler information or is directly linked to an existing TMC network/ITS architecture.	No	

Land Use

Land Use	Response	Additional Notes
Is the project within 1/4 mile of parcels currently zoned for mixed use development or parcels identified in the future land use plan as mixed use development?	Yes	In the County's Comprehensive Plan, the Centreport TGA calls for the future development of mixed use.
Does the project support in-fill development adjacent to the project?	No	
Is there a locally/regionally adopted corridor/access management plan for the project area that addresses interparcel connectivity and exceeds VDOT’s minimum spacing standards?	No	

Environment

Environment	Response	Additional Notes
Project includes construction or replacement of bike facilities. For bicycle projects, off-road or on-road buffered or clearly delineated facilities are required (i.e. Bike Lane or Shared Use Path).	No	
Project includes construction or replacement of pedestrian facilities. For pedestrian projects, sidewalks, pedestrian signals, marked crosswalks, refuge islands, and other treatments are required (as appropriate).	Yes	Project will provide 5' wide concrete sidewalks with pedestrian signals and marked crosswalks at intersections.
Project includes improvements to rail transit or passenger rail facilities.	No	
Project includes improvements to an existing or proposed park-and-ride lot (e.g., new lot, more spaces, entrance/exit, technology (payment, traveler information)).	No	
Project includes bus facility improvements or reduces delay on a roadway with scheduled peak service of one transit vehicle per hour.*	Yes	An improved signal and an additional turn lane will reduce the delay of regional FRED transit service.
Project includes improvements to freight rail network or intermodal (truck to rail) facilities/ports/terminals.	No	
Project include special accommodations for hybrid or electric vehicles, or space or infrastructure for electric vehicle parking/charging).	No	
Project includes energy efficient infrastructure or fleets, including: hybrid or electric buses, electronic/open road tolling, alternative energy infrastructure (e.g., roadside solar panels).	Yes	Project will reconstruct an existing traffic signal, updating it to a LED signal.

Economic Development Factors

Transportation project (Consistency with Local Comprehensive Plan or Local Economic Development Strategy)

Transportation project (Consistency with Regional Economic Development Strategy)

Referenced in

Referenced in

Site Name	Development project (Consistent with locality Comprehensive Plan/Zoning)	Development project (Site planning status)
Potomac Creek Ind Park M&S Welding	Consistent with comp. plan future land use/zoning	Approved

Development project (Site Utilities status)	Development Project (Proposed / Projected Building Square Footage)	Driving Distance to Development Project From Transportation Project	Does Transportation Project Provide Direct or Indirect Access to the Development Site?
In place	7,500 sq ft	1 miles	Enhances Access Near the Site But is Not Adjacent to the Site

Delivery/Funding

Project Delivery Information

Project Planning Status

Transportation Element of Local Comprehensive Plan

Project Administered By

Locality

Existing Project VDOT UPC(s) or DRPT Project Number(s), if applicable

UPC/DRPT Project #	Description
	Reconstruction of approximately 0.63 miles of Enon Road from 0.02 miles west of the intersection with Beauregard Drive to the intersection with Jefferson Davis Highway.

Project Delivery Method

Design-bid-Build

Please indicate who will be/was responsible for the design of this project

Locality:

100%

Phase Estimate and Schedule

PE (Survey, Environmental, Design)

Phase Type	Status
PE (Survey, Environmental, Design)	Underway

Percent Complete	Cost Estimate	Start Date	End Date
10%	$1,200,000.00	7/1/2017	8/2/2022

RW (Right of Way and Easement Acquisition, Utility Relocation)

Phase Type	Status
RW (Right of Way and Easement Acquisition, Utility Relocation)	Not Started

Percent Complete	Cost Estimate	Start Date	End Date
NA%	$2,200,000.00	8/2/2022	8/2/2023

CN (Construction, Oversight, Contingencies)

Phase Type	Status
CN (Construction, Oversight, Contingencies)	Not Started

Percent Complete	Cost Estimate	Start Date	End Date
NA%	$6,700,000.00	8/2/2023	8/2/2024

Total Cost Estimate
$10,100,000.00

Project Funding Sources

SYIP Allocations	SMART SCALE Amount Requested	Other Committed Funding Amount	Total Proposed Project Funding
$401,468.00	$9,698,532.00	$0.00	$10,100,000.00

Scores

Project Located in Typology													
Category A	**Congestion Mitigation**		**Safety**		**Accessibility**			**Economic Development**			**Environment**		**Land Use**
Measure	Increase in Peak Period Person Throughput	Reduction in Peak Period Delay	Reduction in Fatal and Injury Crashes	Reduction in Fatal and Injury Crash Rate	Increase in Access to Jobs	Increase in Access to Jobs for Disadvantaged Populations	Increase in Access to Multimodal Travel Choices	Sq. Ft. of Commercial and Industrial Dev. Supported	Tons of Goods Impacted	Improvement to Travel Time Reliability	Potential to Improve Air Quality	Other Factor Values Scaled by Potential Acreage Impacted	Support of Transportation-Efficient Land Development
Measure Value	9.1 persons	66.3 person hrs.	2.7 EPDO	95.9 EPDO/ 100M VMT	19.8 jobs per resident	20.2 jobs per resident	45.4 adjusted users	16,875.0 thousand adj. sq. ft.	11,744.7 thousand adj. daily tons	3,128,530.0 adj. buffer time index	31.8 adjusted points	1.2 scaled points	3,825.2 adjusted jobs & pop.
Normalized Measure Value (0-100)	0.1	2.0	0.8	0.5	0.8	0.8	0.3	0.1	0.7	0.2	0.2	2.4	3.4
Measure Weight (% of Factor)	50%	50%	50%	50%	60%	20%	20%	60%	20%	20%	50%	50%	100%
Factor Value	1.1		0.7		0.7			0.2			1.3		3.4
Factor Weight (% of Project Score)	45%		5%		15%			5%			10%		20%
Weighted Factor Value	0.5		0.0		0.1			0.0			0.1		0.7
Project Benefit	1.4												
SMART SCALE Cost	$9,698,532												
SMART SCALE Score (Project Benefit per $10m SMART SCALE Cost)	1.5												

Supporting Documents

Current Attachments

Description
FAMPO Resolution 17-04
Attachment Type
Resolution of Support
File Name
FAMPO Resolution 17-04 Authorizing support for GWRC and FAMPO Smart Scale Candidate Projects.pdf

Description
Conceptual Layout - Overall
Attachment Type
Project Sketch
File Name
ENON ROAD Overall.PDF

Description
Conceptual Layout - Enon Road
Attachment Type
Project Sketch
File Name
ENON ROAD SHEET 1.pdf

Description
Conceptual Layout - Route 1 / Enon Road
Attachment Type
Project Sketch
File Name
ENON ROAD SHEET 2.pdf

Description
Board of Supervisors Support
Attachment Type
Resolution of Support
File Name
Stafford County Resolution R16-217(R2).pdf

Description
FRED Transit - D5 Line Schedule
Attachment Type
Other
File Name
FRED D5 Route.pdf

Description
Comp Plan Transportation Element
Attachment Type
Local Comprehensive Plan
File Name
Stafford County Comp Plan - Chapter 4 - Transportation Element.pdf

Description
Comp Plan Future Land Use
Attachment Type
Local Comprehensive Plan
File Name
Stafford County Comp Plan - Future Land Use Map.pdf

Description
Project Cost Summary
Attachment Type
Other Committed Funds
File Name
Enon Road - Project Expenditures.pdf

Description
Approval Letter
Attachment Type
Site Development Plan
File Name
Potomac Creek Ind Park M & S Welding.pdf

Description
Turning Movement Counts (1)
Attachment Type
Other
File Name
Route 1-Enon753 raw data2011-2012.pdf

Description
Turning Movement Counts (2)
Attachment Type
Other
File Name
Route 1-Enon753 2011AM 2012PM volumes.pdf

Description
REDS reference
Attachment Type
Local/Regional Economic Development Strategy
File Name
GWRC-FAMPO_Enon Rd.pdf

Description
Detailed Cost Estimate

Attachment Type
Detailed Cost Estimate

File Name
1180 Detail Estimate.pdf

Description
Detailed Project Sketches

Attachment Type
Project Sketch

File Name
ENON ROAD DISPLAYS- VDOT PROJECT 0753-089-R90.pdf

Virginia Department of Rail and Public Transportation
600 East Main Street, Suite 2102
Richmond, VA 23219
(804) 786-4440

VDOT Central Office
1401 East Broad Street
Richmond, VA 23219
(804) 367-7623 (toll-free)
711 (hearing impaired)

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FREDERICKSBURG TODAY

Five regional transportation projects recommended for funding by the Commonwealth Transportation Board/SMART SCALE

Published on: January 28, 2023 | Traffic

From the Fredericksburg Area Metropolitan Planning Organization:

During the January 12th, 2023 Commonwealth Transportation Board (CTB) meeting, the board reviewed and recommended funding for the Round 5 projects of SMART SCALE. SMART SCALE is Virginia's main competitive grant funding program. Using algorithms, it evaluates and scores potential transportation projects based on their improvement to safety, congestion, accessibility, land use, economic development, and the environment according to statewide need.

Through the Office of Intermodal Planning and Investment (OIPI), it allows state officials to recommend funding based on scores and available funds. The funding recommendations are then presented to the public and the CTB at the same time which signifies the start of the budget season. Virginia districts submitted the largest number of SMART SCALE applications in the current Round 5 of any SMART SCALE round to date. Last week, the CTB learned the amount of money available for transportation programming, which is just under $1.7B statewide. This is the most money ever to support SMART Scale and was above the projected amount.

The submitted projects were competing against each other within the Fredericksburg District for $142 million district-wide funding, as well as other projects in the state with high priority program funding totaling $52 million. Five of the projects that the board recommended to fund belong to the

Fredericksburg Area Metropolitan Planning Organization (FAMPO) and the George Washington Regional Commission (GWRC). The following FAMPO and GWRC projects were recommended for funding:

1. Roadway and Pedestrian Improvements — US 1 Layhill Road in Stafford County

2. Turn Lanes — American Legion Rd/Eskimo Hill Rd to US 1 in Stafford County

3. Road Widening to 4 lanes & Multimodal Improvements – Dixon St (US 17 Bus) near Dixon Park Roadway in Fredericksburg

4. Bicycle and Pedestrian Facilities — US 1 from Harrison Rd to Kings Mill Dr in Fredericksburg City and Spotsylvania County

5. Multimodal Improvements – Virginia Central Railway trail (VCR) Regional Project in Fredericksburg City and Spotsylvania County connecting the path from the i-95 to the new Chatham Bridge.

In addition to this, the City of Fredericksburg and Counties of Spotsylvania and Stafford received funding for a further approximately $100 million of new transportation projects in this round. "I am very pleased with the number of projects and amount of money projected to come to the district," CTB district representative Laura Sellers said.

Ian Ollis, FAMPO Administrator notes: "This is the largest number of projects from the FAMPO/GWRC region that have been recommended for funding in 5 rounds of the Smart Scale competition. We are excited to see improved future mobility for those driving cars, biking through the region or on foot."
George Washington Regional Commission Executive Director, Chip Boyles, relayed that "the GWRC is glad to be working so closely with FAMPO. The collaboration has produced such winning results in very needed transportation projects benefitting the entire Planning District 16 region (City of Fredericksburg and Counties of Caroline, King George, Spotsylvania and Stafford)."

CTB Representative Sellers is already looking to the future. She added, "I would like to see all our localities competitively participating in this program, which is something I will work on before the next round. Over the next few weeks and months, I will be meeting with localities to understand their needs. What worked? What doesn't? And how we can make things better."

For further information, please email FAMPO at fampo@gwregion.org.

Recent News Read More News

H. 2030 Future Conditions without Development – Capacity Analysis Worksheets

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Future Background 2030 AM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	266	435	77	268	560	714	127	14	286	83
v/c Ratio	0.45	0.60	0.51	0.54	0.64	0.67	0.35	0.11	0.13	0.34	0.13
Control Delay	57.5	55.2	8.5	66.4	55.3	42.7	15.5	1.9	56.0	36.7	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	55.2	8.5	66.4	55.3	42.7	15.5	1.9	56.0	36.7	3.6
Queue Length 50th (ft)	47	104	53	58	101	203	124	0	11	91	0
Queue Length 95th (ft)	77	142	148	108	142	#324	249	25	32	130	24
Internal Link Dist (ft)		2747			953		8667			1803	
Turn Bay Length (ft)	500			300		400		700	550		500
Base Capacity (vph)	396	823	846	166	713	840	2019	1173	267	940	683
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.32	0.51	0.46	0.38	0.67	0.35	0.11	0.05	0.30	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Future Background 2030 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	245	400	71	220	27	515	657	117	13	263	76
Future Volume (vph)	114	245	400	71	220	27	515	657	117	13	263	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3505	1404	1752	3411		2694	3438	1568	1805	3282	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3505	1404	1752	3411		2694	3438	1568	1805	3282	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	266	435	77	239	29	560	714	127	14	286	83
RTOR Reduction (vph)	0	0	179	0	9	0	0	0	47	0	0	55
Lane Group Flow (vph)	124	266	256	77	259	0	560	714	80	14	286	28
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	9.7	15.1	52.6	9.9	14.5		37.5	66.1	76.0	3.0	30.7	40.4
Effective Green, g (s)	9.7	15.1	52.6	9.9	14.5		37.5	66.1	76.0	3.0	30.7	40.4
Actuated g/C Ratio	0.08	0.13	0.44	0.08	0.12		0.31	0.55	0.63	0.02	0.26	0.34
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	274	441	615	144	412		841	1893	993	45	839	503
v/s Ratio Prot	0.04	0.08	0.13	c0.04	c0.08		c0.21	c0.21	0.01	0.01	0.09	0.00
v/s Ratio Perm			0.05						0.04			0.01
v/c Ratio	0.45	0.60	0.42	0.53	0.63		0.67	0.38	0.08	0.31	0.34	0.06
Uniform Delay, d1	52.6	49.6	23.1	52.8	50.2		35.8	15.3	8.5	57.5	36.4	26.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	2.3	0.5	3.8	3.0		2.0	0.6	0.0	3.9	1.1	0.0
Delay (s)	53.8	51.9	23.6	56.6	53.2		37.8	15.9	8.5	61.4	37.5	27.0
Level of Service	D	D	C	E	D		D	B	A	E	D	C
Approach Delay (s)		37.3			54.0			24.0			36.1	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Future Background 2030 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	245	400	71	220	27	515	657	117	13	263	76
Future Volume (veh/h)	114	245	400	71	220	27	515	657	117	13	263	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1678	1856	1841	1826	1455	1826	1856	1900	1752	1781
Adj Flow Rate, veh/h	124	266	435	77	239	29	560	714	127	14	286	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	15	3	4	5	30	5	3	0	10	8
Cap, veh/h	200	828	562	106	734	88	430	1601	820	39	1060	569
Arrive On Green	0.06	0.24	0.24	0.06	0.23	0.23	0.16	0.46	0.46	0.02	0.32	0.32
Sat Flow, veh/h	3428	3526	1422	1767	3144	377	2689	3469	1572	1810	3328	1510
Grp Volume(v), veh/h	124	266	435	77	132	136	560	714	127	14	286	83
Grp Sat Flow(s),veh/h/ln	1714	1763	1422	1767	1749	1773	1345	1735	1572	1810	1664	1510
Q Serve(g_s), s	4.2	7.5	28.2	5.1	7.5	7.7	19.2	16.7	5.0	0.9	7.7	4.4
Cycle Q Clear(g_c), s	4.2	7.5	28.2	5.1	7.5	7.7	19.2	16.7	5.0	0.9	7.7	4.4
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	828	562	106	408	414	430	1601	820	39	1060	569
V/C Ratio(X)	0.62	0.32	0.77	0.73	0.32	0.33	1.30	0.45	0.15	0.36	0.27	0.15
Avail Cap(c_a), veh/h	400	828	562	168	408	414	430	1601	820	268	1060	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.60	0.60	0.60	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	38.0	31.6	55.4	38.1	38.2	50.4	21.9	14.9	57.9	30.5	24.7
Incr Delay (d2), s/veh	3.1	0.2	6.7	9.1	0.5	0.5	145.8	0.5	0.2	5.4	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.2	11.6	2.5	3.2	3.4	15.1	6.8	1.8	0.5	3.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	38.2	38.3	64.5	38.6	38.7	196.2	22.4	15.2	63.2	31.1	25.2
LnGrp LOS	E	D	D	E	D	D	F	C	B	E	C	C
Approach Vol, veh/h		825			345			1401			383	
Approach Delay, s/veh		41.3			44.4			91.2			31.0	
Approach LOS		D			D			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	61.0	15.0	34.2	27.0	43.8	14.8	34.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	17.8	* 37	* 14	* 25	19.2	* 34	11.4	* 28
Max Q Clear Time (g_c+I1), s	2.9	18.7	6.2	9.7	21.2	9.7	7.1	30.2
Green Ext Time (p_c), s	0.0	14.4	0.2	0.8	0.0	8.9	0.1	0.0

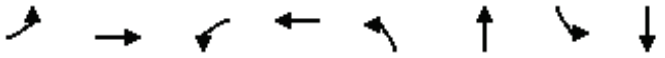
Intersection Summary	
HCM 6th Ctrl Delay	64.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Future Background 2030 AM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	128	130	333	99	1097	100	701
v/c Ratio	0.37	0.39	0.35	0.75	0.27	0.77	0.42	0.50
Control Delay	32.8	21.7	30.9	36.3	14.6	32.0	18.1	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	21.7	30.9	36.3	14.6	32.0	18.1	24.5
Queue Length 50th (ft)	41	30	65	133	30	340	30	180
Queue Length 95th (ft)	93	94	134	275	70	511	71	286
Internal Link Dist (ft)		2966		420		3738		8667
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	236	562	384	630	391	2025	263	1972
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.23	0.34	0.53	0.25	0.54	0.38	0.36

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Future Background 2030 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	35	83	120	61	246	91	965	44	92	569	73
Future Volume (vph)	78	35	83	120	61	246	91	965	44	92	569	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.88		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1623		1703	1620		1736	3443		1719	3292	
Flt Permitted	0.30	1.00		0.57	1.00		0.31	1.00		0.12	1.00	
Satd. Flow (perm)	528	1623		1027	1620		571	3443		224	3292	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.88
Adj. Flow (vph)	85	38	90	130	66	267	99	1049	48	100	618	83
RTOR Reduction (vph)	0	65	0	0	109	0	0	2	0	0	7	0
Lane Group Flow (vph)	85	63	0	130	224	0	99	1095	0	100	694	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	25.5	19.1		32.3	22.5		53.4	45.1		55.2	46.0	
Effective Green, g (s)	25.5	19.1		32.3	22.5		53.4	45.1		55.2	46.0	
Actuated g/C Ratio	0.23	0.18		0.30	0.21		0.49	0.41		0.51	0.42	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	190	285		366	335		369	1428		240	1393	
v/s Ratio Prot	0.03	0.04		c0.03	c0.14		0.02	c0.32		c0.04	0.21	
v/s Ratio Perm	0.08			0.07			0.11			0.18		
v/c Ratio	0.45	0.22		0.36	0.67		0.27	0.77		0.42	0.50	
Uniform Delay, d1	34.0	38.4		29.1	39.7		15.3	27.3		17.4	22.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.4		0.6	5.0		0.4	3.0		1.2	0.6	
Delay (s)	35.6	38.8		29.7	44.6		15.7	30.3		18.6	23.5	
Level of Service	D	D		C	D		B	C		B	C	
Approach Delay (s)		37.5			40.4			29.1			22.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Future Background 2030 AM



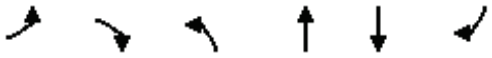
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	35	83	120	61	246	91	965	44	92	569	73
Future Volume (veh/h)	78	35	83	120	61	246	91	965	44	92	569	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	85	38	90	130	66	267	99	1049	48	100	618	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.88
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	191	98	232	366	74	299	358	1443	66	240	1284	172
Arrive On Green	0.05	0.20	0.20	0.08	0.22	0.22	0.05	0.42	0.42	0.05	0.42	0.42
Sat Flow, veh/h	1682	485	1149	1725	329	1331	1753	3406	156	1739	3024	405
Grp Volume(v), veh/h	85	0	128	130	0	333	99	539	558	100	348	353
Grp Sat Flow(s),veh/h/ln	1682	0	1634	1725	0	1660	1753	1749	1813	1739	1706	1723
Q Serve(g_s), s	4.1	0.0	7.0	6.0	0.0	20.0	3.2	26.4	26.4	3.3	15.2	15.2
Cycle Q Clear(g_c), s	4.1	0.0	7.0	6.0	0.0	20.0	3.2	26.4	26.4	3.3	15.2	15.2
Prop In Lane	1.00		0.70	1.00		0.80	1.00		0.09	1.00		0.24
Lane Grp Cap(c), veh/h	191	0	329	366	0	373	358	741	768	240	725	732
V/C Ratio(X)	0.45	0.00	0.39	0.35	0.00	0.89	0.28	0.73	0.73	0.42	0.48	0.48
Avail Cap(c_a), veh/h	239	0	518	410	0	559	430	1041	1079	327	1033	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	35.5	29.2	0.0	38.7	16.4	24.7	24.7	19.4	21.4	21.4
Incr Delay (d2), s/veh	1.6	0.0	0.7	0.6	0.0	11.9	0.4	3.0	2.9	1.2	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.8	2.6	0.0	9.4	1.2	10.3	10.7	1.3	5.7	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	36.3	29.8	0.0	50.5	16.9	27.7	27.6	20.5	22.4	22.4
LnGrp LOS	C	A	D	C	A	D	B	C	C	C	C	C
Approach Vol, veh/h		213			463			1196			801	
Approach Delay, s/veh		35.1			44.7			26.7			22.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	50.4	12.4	28.1	11.9	50.4	10.1	30.5
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 62	10.5	32.6	* 10	* 61	8.5	34.6
Max Q Clear Time (g_c+I1), s	5.2	17.2	8.0	9.0	5.3	28.4	6.1	22.0
Green Ext Time (p_c), s	0.1	9.6	0.1	0.4	0.1	15.2	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	20	29	1082	744	29
Future Volume (Veh/h)	18	20	29	1082	744	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	19	22	31	1163	800	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1444	400	831			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1444	400	831			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	96	96			
cM capacity (veh/h)	118	600	797			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	41	31	582	582	400	400	31
Volume Left	19	31	0	0	0	0	0
Volume Right	22	0	0	0	0	0	31
cSH	208	797	1700	1700	1700	1700	1700
Volume to Capacity	0.20	0.04	0.34	0.34	0.24	0.24	0.02
Queue Length 95th (ft)	18	3	0	0	0	0	0
Control Delay (s)	26.6	9.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	A					
Approach Delay (s)	26.6	0.3			0.0		
Approach LOS	D						

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	20	29	1082	744	29
Future Vol, veh/h	18	20	29	1082	744	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	415	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	22	31	1163	800	31

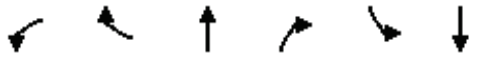
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1444	400	831	0	-	0
Stage 1	800	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	123	600	797	-	-	-
Stage 1	403	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	118	600	797	-	-	-
Mov Cap-2 Maneuver	118	-	-	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	485	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	797	-	204	-	-
HCM Lane V/C Ratio	0.039	-	0.2	-	-
HCM Control Delay (s)	9.7	-	27	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Queues
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 AM

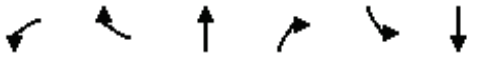


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	391	317	1008	1045	134	639
v/c Ratio	1.08	0.66	0.36	0.75	0.42	0.19
Control Delay	125.3	30.6	26.1	17.6	13.6	9.5
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	125.3	30.6	26.1	18.0	13.6	9.5
Queue Length 50th (ft)	~439	127	289	574	45	82
Queue Length 95th (ft)	#653	241	374	885	71	100
Internal Link Dist (ft)	1062		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	363	478	2767	1386	317	3308
Starvation Cap Reductn	0	0	0	76	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.66	0.36	0.80	0.42	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	292	927	961	123	588
Future Volume (vph)	360	292	927	961	123	588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	1612	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.25	1.00
Satd. Flow (perm)	1719	1583	4940	1568	422	4893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	317	1008	1045	134	639
RTOR Reduction (vph)	0	143	0	104	0	0
Lane Group Flow (vph)	391	174	1008	941	134	639
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	32.8	32.8	86.8	119.6	94.6	104.8
Effective Green, g (s)	32.8	32.8	86.8	119.6	94.6	104.8
Actuated g/C Ratio	0.21	0.21	0.56	0.77	0.61	0.68
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	363	334	2766	1209	317	3308
v/s Ratio Prot	c0.23		0.20	c0.16	c0.02	0.13
v/s Ratio Perm		0.11		0.44	0.24	
v/c Ratio	1.08	0.52	0.36	0.78	0.42	0.19
Uniform Delay, d1	61.1	54.1	18.9	10.1	13.1	9.4
Progression Factor	1.00	1.00	1.36	5.03	1.00	1.00
Incremental Delay, d2	69.4	3.6	0.3	3.6	0.9	0.1
Delay (s)	130.5	57.7	26.0	54.5	14.0	9.5
Level of Service	F	E	C	D	B	A
Approach Delay (s)	97.9		40.5			10.3
Approach LOS	F		D			B

Intersection Summary			
HCM 2000 Control Delay	45.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 AM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	360	292	927	961	123	588
Future Volume (veh/h)	360	292	927	961	123	588
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	391	317	1008	1045	134	639
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	368	335	2805	1218	227	3343
Arrive On Green	0.21	0.21	0.94	0.94	0.05	0.68
Sat Flow, veh/h	1739	1585	5149	1572	1640	5107
Grp Volume(v), veh/h	391	317	1008	1045	134	639
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1640	1648
Q Serve(g_s), s	32.8	30.5	2.8	87.2	5.4	7.5
Cycle Q Clear(g_c), s	32.8	30.5	2.8	87.2	5.4	7.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	368	335	2805	1218	227	3343
V/C Ratio(X)	1.06	0.95	0.36	0.86	0.59	0.19
Avail Cap(c_a), veh/h	368	335	2805	1218	231	3343
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	61.1	60.2	2.1	8.2	12.9	9.3
Incr Delay (d2), s/veh	64.4	36.4	0.3	6.8	3.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	15.3	0.8	3.2	2.2	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	125.5	96.7	2.4	15.0	16.7	9.5
LnGrp LOS	F	F	A	B	B	A
Approach Vol, veh/h	708		2053			773
Approach Delay, s/veh	112.6		8.8			10.7
Approach LOS	F		A			B

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		115.0			17.6	97.4	40.0
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		104.8			7.8	86.8	32.8
Max Q Clear Time (g_c+I1), s		9.5			7.4	89.2	34.8
Green Ext Time (p_c), s		7.1			0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 AM



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	138	399	373	711
v/c Ratio	0.40	0.46	0.82	1.05
Control Delay	17.5	18.5	49.4	75.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.5	18.5	49.4	75.9
Queue Length 50th (ft)	46	156	211	~427
Queue Length 95th (ft)	79	226	338	#801
Internal Link Dist (ft)		2439	275	2063
Turn Bay Length (ft)	275			
Base Capacity (vph)	502	1498	838	678
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.27	0.45	1.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	379	0	0	354	0	403	0	273	0	0	0
Future Volume (vph)	131	379	0	0	354	0	403	0	273	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1759			1659				
Flt Permitted	0.23	1.00			1.00			0.97				
Satd. Flow (perm)	386	1827			1759			1659				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	138	399	0	0	373	0	424	0	287	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	63	0	0	0	0
Lane Group Flow (vph)	138	399	0	0	373	0	0	648	0	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	44.9	44.9			24.7			35.4				
Effective Green, g (s)	44.9	44.9			24.7			35.4				
Actuated g/C Ratio	0.47	0.47			0.26			0.37				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	344	860			455			616				
v/s Ratio Prot	0.05	c0.22			c0.21							
v/s Ratio Perm	0.14							0.39				
v/c Ratio	0.40	0.46			0.82			1.05				
Uniform Delay, d1	16.7	17.1			33.2			29.9				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.8	0.4			11.0			50.4				
Delay (s)	17.5	17.5			44.2			80.4				
Level of Service	B	B			D			F				
Approach Delay (s)		17.5			44.2			80.4			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	51.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	95.3	Sum of lost time (s)	22.4
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	379	0	0	354	0	403	0	273	0	0	0
Future Volume (veh/h)	131	379	0	0	354	0	403	0	273	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	138	399	0	0	373	0	424	0	287			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	265	769	0	0	441	0	419	0	284			
Arrive On Green	0.08	0.42	0.00	0.00	0.25	0.00	0.41	0.00	0.41			
Sat Flow, veh/h	1626	1841	0	0	1781	0	1028	0	696			
Grp Volume(v), veh/h	138	399	0	0	373	0	711	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1723	0	0			
Q Serve(g_s), s	5.1	13.8	0.0	0.0	17.1	0.0	35.0	0.0	0.0			
Cycle Q Clear(g_c), s	5.1	13.8	0.0	0.0	17.1	0.0	35.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.60		0.40			
Lane Grp Cap(c), veh/h	265	769	0	0	441	0	702	0	0			
V/C Ratio(X)	0.52	0.52	0.00	0.00	0.85	0.00	1.01	0.00	0.00			
Avail Cap(c_a), veh/h	602	1659	0	0	934	0	702	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	22.0	18.6	0.0	0.0	30.7	0.0	25.4	0.0	0.0			
Incr Delay (d2), s/veh	1.6	0.5	0.0	0.0	4.5	0.0	37.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.9	5.4	0.0	0.0	7.3	0.0	20.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	19.1	0.0	0.0	35.3	0.0	62.4	0.0	0.0			
LnGrp LOS	C	B	A	A	D	A	F	A	A			
Approach Vol, veh/h		537			373			711				
Approach Delay, s/veh		20.3			35.3			62.4				
Approach LOS		C			D			E				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		43.3		42.6	14.6	28.7						
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4						
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45						
Max Q Clear Time (g_c+I1), s		15.8		37.0	7.1	19.1						
Green Ext Time (p_c), s		2.5		0.0	0.3	2.1						

Intersection Summary		
HCM 6th Ctrl Delay		42.2
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 AM



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	296	388	154	668	262
v/c Ratio	0.61	0.56	0.32	0.67	0.60
Control Delay	30.4	6.1	11.0	16.6	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	6.1	11.0	16.6	33.3
Queue Length 50th (ft)	116	0	32	198	105
Queue Length 95th (ft)	240	66	77	399	226
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	933	975	593	1590	1221
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.40	0.26	0.42	0.21

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	272	357	142	615	0	0	0	0	240	1	0
Future Volume (vph)	0	272	357	142	615	0	0	0	0	240	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1774	
Flt Permitted		1.00	1.00	0.38	1.00						0.95	
Satd. Flow (perm)		1696	1455	612	1810						1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	388	154	668	0	0	0	0	261	1	0
RTOR Reduction (vph)	0	0	274	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	114	154	668	0	0	0	0	0	262	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		22.1	22.1	41.8	41.8						18.7	
Effective Green, g (s)		22.1	22.1	41.8	41.8						18.7	
Actuated g/C Ratio		0.29	0.29	0.56	0.56						0.25	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		497	427	485	1004						440	
v/s Ratio Prot		0.17		0.05	c0.37							
v/s Ratio Perm			0.08	0.13							0.15	
v/c Ratio		0.60	0.27	0.32	0.67						0.60	
Uniform Delay, d1		22.8	20.4	9.1	11.8						25.0	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		2.2	0.5	0.4	1.8						2.5	
Delay (s)		25.0	20.8	9.5	13.7						27.5	
Level of Service		C	C	A	B						C	
Approach Delay (s)		22.7			12.9			0.0			27.5	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.3	Sum of lost time (s)	22.7
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	357	142	615	0	0	0	0	240	1	0
Future Volume (veh/h)	0	272	357	142	615	0	0	0	0	240	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	296	388	154	668	0				261	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	594	508	399	1031	0				347	1	0
Arrive On Green	0.00	0.35	0.35	0.09	0.56	0.00				0.19	0.19	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1803	7	0
Grp Volume(v), veh/h	0	296	388	154	668	0				262	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	8.3	14.3	3.5	15.3	0.0				8.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.3	14.3	3.5	15.3	0.0				8.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h	0	594	508	399	1031	0				348	0	0
V/C Ratio(X)	0.00	0.50	0.76	0.39	0.65	0.00				0.75	0.00	0.00
Avail Cap(c_a), veh/h	0	1132	968	774	2037	0				1487	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	15.8	17.7	10.7	9.1	0.0				23.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	3.4	0.6	1.0	0.0				4.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	4.4	1.0	4.3	0.0				3.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.7	21.1	11.3	10.1	0.0				27.9	0.0	0.0
LnGrp LOS	A	B	C	B	B	A				C	A	A
Approach Vol, veh/h		684			822						262	
Approach Delay, s/veh		19.2			10.3						27.9	
Approach LOS		B			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		42.3		18.6	13.4	28.9						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		17.3		10.3	5.5	16.3						
Green Ext Time (p_c), s		7.7		1.5	0.4	4.7						

Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Future Background 2030 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	68	73	7	58	1	306	2	8	1	1	63
Future Volume (Veh/h)	31	68	73	7	58	1	306	2	8	1	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	74	79	8	63	1	333	2	9	1	1	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.99			0.99	0.99	0.99	0.99	0.99	
vC, conflicting volume	64			153			330	262	114	271	300	64
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			140			318	249	100	259	289	64
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			40	100	99	100	100	92
cM capacity (veh/h)	1431			1184			560	631	907	667	600	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	187	72	344	70
Volume Left	34	8	333	1
Volume Right	79	1	9	68
cSH	1431	1184	566	851
Volume to Capacity	0.02	0.01	0.61	0.08
Queue Length 95th (ft)	2	1	102	7
Control Delay (s)	1.5	0.9	20.7	9.6
Lane LOS	A	A	C	A
Approach Delay (s)	1.5	0.9	20.7	9.6
Approach LOS			C	A

Intersection Summary				
Average Delay	12.1			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	31	68	73	7	58	1	306	2	8	1	1	63
Future Vol, veh/h	31	68	73	7	58	1	306	2	8	1	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	34	74	79	8	63	1	333	2	9	1	1	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	153	0	0	296	262	114	267	301	64
Stage 1	-	-	-	-	-	-	182	182	-	80	80	-
Stage 2	-	-	-	-	-	-	114	80	-	187	221	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1431	-	-	1181	-	-	650	646	900	690	615	859
Stage 1	-	-	-	-	-	-	813	753	-	934	832	-
Stage 2	-	-	-	-	-	-	884	832	-	819	724	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1181	-	-	582	625	900	664	595	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	582	625	-	664	595	-
Stage 1	-	-	-	-	-	-	792	733	-	910	826	-
Stage 2	-	-	-	-	-	-	807	826	-	788	705	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.9	19.4	9.6
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	588	1431	-	-	1181	-	-	849
HCM Lane V/C Ratio	0.584	0.024	-	-	0.006	-	-	0.083
HCM Control Delay (s)	19.4	7.6	0	-	8.1	0	-	9.6
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	3.8	0.1	-	-	0	-	-	0.3

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Future Background 2030 AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	11	1	307	1	10	21	70	9	2
Future Volume (Veh/h)	1	1	1	11	1	307	1	10	21	70	9	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.85
Hourly flow rate (vph)	1	1	1	12	1	334	1	11	23	76	10	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	522	199	11	189	188	22	12			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	522	199	11	189	188	22	12			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.4		
p0 queue free %	100	100	100	98	100	68	100			95		
cM capacity (veh/h)	306	664	1076	743	673	1046	1620			1474		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	347	35	88
Volume Left	1	12	1	76
Volume Right	1	334	23	2
cSH	526	1030	1620	1474
Volume to Capacity	0.01	0.34	0.00	0.05
Queue Length 95th (ft)	0	37	0	4
Control Delay (s)	11.9	10.3	0.2	6.6
Lane LOS	B	B	A	A
Approach Delay (s)	11.9	10.3	0.2	6.6
Approach LOS	B	B		

Intersection Summary				
Average Delay	8.8			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	8.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	11	1	307	1	10	21	70	9	2
Future Vol, veh/h	1	1	1	11	1	307	1	10	21	70	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	85
Heavy Vehicles, %	0	0	0	0	0	5	0	25	17	19	0	0
Mvmt Flow	1	1	1	12	1	334	1	11	23	76	10	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	355	199	11	189	189	23	12	0	0	34	0	0
Stage 1	163	163	-	25	25	-	-	-	-	-	-	-
Stage 2	192	36	-	164	164	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.25	4.1	-	-	4.29	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.345	2.2	-	-	2.371	-	-
Pot Cap-1 Maneuver	604	700	1076	776	709	1045	1620	-	-	1474	-	-
Stage 1	844	767	-	998	878	-	-	-	-	-	-	-
Stage 2	814	869	-	843	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	394	663	1076	743	671	1045	1620	-	-	1474	-	-
Mov Cap-2 Maneuver	394	663	-	743	671	-	-	-	-	-	-	-
Stage 1	843	727	-	997	877	-	-	-	-	-	-	-
Stage 2	553	868	-	797	726	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	10.3	0.2	6.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	603	1029	1474	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.337	0.052	-	-
HCM Control Delay (s)	7.2	0	-	11	10.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.5	0.2	-	-

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Future Background 2030 PM



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	134	364	891	155	274	493	443	82	32	1440	74
v/c Ratio	0.61	1.26	2.61	1.24	0.91	2.12	0.19	0.07	0.36	0.65	0.06
Control Delay	92.2	200.2	753.5	219.8	110.3	553.5	12.0	1.3	90.9	22.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.2	200.2	753.5	219.8	110.3	553.5	12.0	1.3	90.9	22.5	1.7
Queue Length 50th (ft)	78	~273	~1660	~219	165	~461	102	0	36	529	2
Queue Length 95th (ft)	118	#387	#1929	#381	#268	#584	135	16	76	601	17
Internal Link Dist (ft)		2747			953		8667			1803	
Turn Bay Length (ft)	500			300		400		700	550		500
Base Capacity (vph)	235	290	342	125	300	232	2377	1220	126	2212	1167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	1.26	2.61	1.24	0.91	2.13	0.19	0.07	0.25	0.65	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Future Background 2030 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	349	855	149	236	27	473	425	79	31	1382	71
Future Volume (vph)	129	349	855	149	236	27	473	425	79	31	1382	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3574	1568	1770	3523		3335	3574	1568	1736	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3574	1568	1770	3523		3335	3574	1568	1736	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	364	891	155	246	28	493	443	82	32	1440	74
RTOR Reduction (vph)	0	0	56	0	5	0	0	0	22	0	0	21
Lane Group Flow (vph)	134	364	835	155	269	0	493	443	60	32	1440	53
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	11.1	14.2	26.4	12.4	14.7		12.2	115.0	127.4	7.5	109.4	120.5
Effective Green, g (s)	11.1	14.2	26.4	12.4	14.7		12.2	115.0	127.4	7.5	109.4	120.5
Actuated g/C Ratio	0.06	0.08	0.15	0.07	0.08		0.07	0.66	0.73	0.04	0.63	0.69
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	217	290	236	125	295		232	2348	1141	74	2212	1090
v/s Ratio Prot	0.04	0.10	c0.25	c0.09	0.08		0.15	c0.12	0.00	0.02	c0.41	0.00
v/s Ratio Perm			0.29						0.03			0.03
v/c Ratio	0.62	1.26	3.54	1.24	0.91		2.12	0.19	0.05	0.43	0.65	0.05
Uniform Delay, d1	79.9	80.4	74.3	81.3	79.5		81.4	11.7	6.7	81.7	20.7	8.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	139.9	1152.6	158.6	30.8		520.5	0.2	0.0	4.0	1.5	0.0
Delay (s)	85.0	220.3	1226.9	239.9	110.3		601.9	11.9	6.7	85.7	22.2	8.8
Level of Service	F	F	F	F	F		F	B	A	F	C	A
Approach Delay (s)		853.0			157.1			297.2			22.9	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	362.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	115.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Future Background 2030 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	349	855	149	236	27	473	425	79	31	1382	71
Future Volume (veh/h)	129	349	855	149	236	27	473	425	79	31	1382	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1870	1885	1900	1826	1885	1856	1841	1870	1870
Adj Flow Rate, veh/h	134	364	891	155	246	28	493	443	82	32	1440	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	174	291	237	126	322	36	235	2380	1156	55	2213	1067
Arrive On Green	0.05	0.08	0.08	0.07	0.10	0.10	0.07	0.66	0.66	0.03	0.62	0.62
Sat Flow, veh/h	3456	3582	1572	1781	3245	366	3374	3582	1572	1753	3554	1585
Grp Volume(v), veh/h	134	364	891	155	135	139	493	443	82	32	1440	74
Grp Sat Flow(s),veh/h/ln	1728	1791	1572	1781	1791	1819	1687	1791	1572	1753	1777	1585
Q Serve(g_s), s	6.7	14.2	14.2	12.4	12.8	13.1	12.2	8.3	2.5	3.2	45.0	2.8
Cycle Q Clear(g_c), s	6.7	14.2	14.2	12.4	12.8	13.1	12.2	8.3	2.5	3.2	45.0	2.8
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	291	237	126	178	181	235	2380	1156	55	2213	1067
V/C Ratio(X)	0.77	1.25	3.76	1.23	0.76	0.77	2.10	0.19	0.07	0.58	0.65	0.07
Avail Cap(c_a), veh/h	237	291	237	126	178	181	235	2380	1156	128	2222	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.1	80.4	74.3	81.3	76.8	76.9	81.4	11.2	6.5	83.6	20.9	9.8
Incr Delay (d2), s/veh	10.0	138.7	1250.4	153.8	17.0	18.3	505.9	0.2	0.1	9.2	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	12.1	93.0	11.1	6.8	7.1	21.8	3.4	0.9	1.6	18.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	219.1	1324.7	235.1	93.8	95.2	587.3	11.4	6.6	92.8	22.4	9.9
LnGrp LOS	F	F	F	F	F	F	F	B	A	F	C	A
Approach Vol, veh/h		1389			429			1018			1546	
Approach Delay, s/veh		916.1			145.3			289.9			23.3	
Approach LOS		F			F			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	121.9	16.8	23.6	20.0	114.6	20.0	20.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	12.8	* 1.1E2	* 12	* 14	12.2	* 1.1E2	12.4	* 14
Max Q Clear Time (g_c+I1), s	5.2	10.3	8.7	15.1	14.2	47.0	14.4	16.2
Green Ext Time (p_c), s	0.0	24.3	0.1	0.0	0.0	59.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	380.2
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

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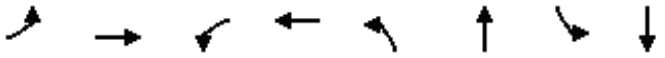
Future Background 2030 PM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	254	75	206	78	854	307	2204
v/c Ratio	0.41	0.97	0.44	0.78	0.64	0.48	0.71	1.07
Control Delay	46.8	96.5	48.3	51.6	45.8	23.4	19.0	70.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	96.5	48.3	51.6	45.8	23.4	19.0	70.9
Queue Length 50th (ft)	57	192	53	98	23	258	105	~1173
Queue Length 95th (ft)	102	#383	97	#205	#101	340	158	#1338
Internal Link Dist (ft)		2966		420		3738		8667
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	221	262	200	291	122	1782	469	2056
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.97	0.38	0.71	0.64	0.48	0.65	1.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	94	147	71	47	149	74	751	60	292	2012	82
Future Volume (vph)	77	94	147	71	47	149	74	751	60	292	2012	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1689		1583	1610		1770	3454		1752	3512	
Flt Permitted	0.29	1.00		0.25	1.00		0.06	1.00		0.24	1.00	
Satd. Flow (perm)	504	1689		409	1610		107	3454		434	3512	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	99	155	75	49	157	78	791	63	307	2118	86
RTOR Reduction (vph)	0	40	0	0	83	0	0	4	0	0	2	0
Lane Group Flow (vph)	81	214	0	75	123	0	78	850	0	307	2202	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	28.1	17.9		24.9	16.3		75.1	69.9		91.4	79.4	
Effective Green, g (s)	28.1	17.9		24.9	16.3		75.1	69.9		91.4	79.4	
Actuated g/C Ratio	0.21	0.13		0.18	0.12		0.55	0.51		0.67	0.58	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	190	221		148	192		122	1767		432	2041	
v/s Ratio Prot	0.03	c0.13		c0.03	0.08		0.02	0.25		c0.08	c0.63	
v/s Ratio Perm	0.06			0.06			0.33			0.40		
v/c Ratio	0.43	0.97		0.51	0.64		0.64	0.48		0.71	1.08	
Uniform Delay, d1	45.7	59.1		48.4	57.4		31.1	21.6		12.7	28.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	51.0		2.7	7.1		10.5	0.4		5.4	45.0	
Delay (s)	47.2	110.0		51.1	64.5		41.6	22.0		18.1	73.6	
Level of Service	D	F		D	E		D	C		B	E	
Approach Delay (s)		94.9			60.9			23.7			66.8	
Approach LOS		F			E			C			E	

Intersection Summary			
HCM 2000 Control Delay	58.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	136.6	Sum of lost time (s)	25.5
Intersection Capacity Utilization	101.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

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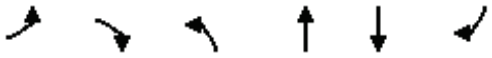
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	94	147	71	47	149	74	751	60	292	2012	82
Future Volume (veh/h)	77	94	147	71	47	149	74	751	60	292	2012	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	81	99	155	75	49	157	78	791	63	307	2118	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	151	88	138	137	51	163	116	1756	140	466	2055	83
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.04	0.53	0.53	0.09	0.59	0.59
Sat Flow, veh/h	1697	662	1037	1612	388	1244	1781	3308	263	1767	3482	140
Grp Volume(v), veh/h	81	0	254	75	0	206	78	421	433	307	1074	1130
Grp Sat Flow(s),veh/h/ln	1697	0	1699	1612	0	1632	1781	1763	1808	1767	1777	1845
Q Serve(g_s), s	5.5	0.0	17.8	5.4	0.0	16.8	2.7	19.8	19.8	10.2	79.2	79.2
Cycle Q Clear(g_c), s	5.5	0.0	17.8	5.4	0.0	16.8	2.7	19.8	19.8	10.2	79.2	79.2
Prop In Lane	1.00		0.61	1.00		0.76	1.00		0.15	1.00		0.08
Lane Grp Cap(c), veh/h	151	0	226	137	0	214	116	936	960	466	1049	1089
V/C Ratio(X)	0.54	0.00	1.13	0.55	0.00	0.96	0.67	0.45	0.45	0.66	1.02	1.04
Avail Cap(c_a), veh/h	218	0	226	204	0	214	123	936	960	539	1049	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	58.2	48.1	0.0	58.0	32.1	19.4	19.4	13.9	27.5	27.5
Incr Delay (d2), s/veh	3.0	0.0	98.0	3.4	0.0	50.8	12.4	0.7	0.7	2.4	34.0	37.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	13.7	2.3	0.0	10.0	1.6	7.6	7.8	3.9	39.4	42.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	0.0	156.2	51.5	0.0	108.7	44.6	20.1	20.1	16.3	61.5	65.1
LnGrp LOS	D	A	F	D	A	F	D	C	C	B	F	F
Approach Vol, veh/h		335			281			932			2511	
Approach Delay, s/veh		130.8			93.5			22.2			57.6	
Approach LOS		F			F			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	86.0	11.5	25.2	19.5	78.1	11.7	25.0
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 5.2	* 79	12.5	17.6	* 18	* 66	12.5	17.6
Max Q Clear Time (g_c+I1), s	4.7	81.2	7.4	19.8	12.2	21.8	7.5	18.8
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.5	12.1	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	58.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	43	27	866	2205	25
Future Volume (Veh/h)	18	43	27	866	2205	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	19	46	29	921	2346	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2864	1173	2373			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2864	1173	2373			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	75	86			
cM capacity (veh/h)	11	185	202			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	65	29	460	460	1173	1173	27
Volume Left	19	29	0	0	0	0	0
Volume Right	46	0	0	0	0	0	27
cSH	34	202	1700	1700	1700	1700	1700
Volume to Capacity	1.93	0.14	0.27	0.27	0.69	0.69	0.02
Queue Length 95th (ft)	182	12	0	0	0	0	0
Control Delay (s)	690.7	25.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	D					
Approach Delay (s)	690.7	0.8			0.0		
Approach LOS	F						

Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	13.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	43	27	866	2205	25
Future Vol, veh/h	18	43	27	866	2205	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	415	-	-	290
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	46	29	921	2346	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2865	1173	2373	0	-	0
Stage 1	2346	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 13	185	202	-	-	-
Stage 1	58	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 11	185	202	-	-	-
Mov Cap-2 Maneuver	~ 11	-	-	-	-	-
Stage 1	50	-	-	-	-	-
Stage 2	562	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 710.8	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	202	-	33	-	-
HCM Lane V/C Ratio	0.142	-	1.966	-	-
HCM Control Delay (s)	25.8	-	$ 710.8	-	-
HCM Lane LOS	D	-	F	-	-
HCM 95th %tile Q(veh)	0.5	-	7.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Queues
4: US-1 & Centreport Pkwy

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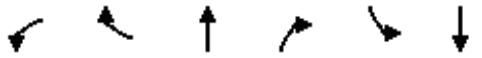
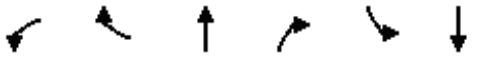
Future Background 2030 PM



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	608	160	721	680	346	2098
v/c Ratio	0.90	0.24	0.48	0.55	0.83	0.84
Control Delay	63.4	5.0	62.9	9.0	44.3	38.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3
Total Delay	63.4	5.0	62.9	9.0	44.3	38.7
Queue Length 50th (ft)	589	0	231	125	224	688
Queue Length 95th (ft)	#818	48	341	272	#323	754
Internal Link Dist (ft)	1062		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	685	671	1501	1249	434	2512
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	72
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.24	0.48	0.54	0.80	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	584	154	692	653	332	2014
Future Volume (vph)	584	154	692	653	332	2014
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	1805	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.29	1.00
Satd. Flow (perm)	1719	1442	5085	1599	560	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	608	160	721	680	346	2098
RTOR Reduction (vph)	0	97	0	49	0	0
Lane Group Flow (vph)	608	63	721	631	346	2098
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	62.8	62.8	47.2	110.0	69.6	79.8
Effective Green, g (s)	62.8	62.8	47.2	110.0	69.6	79.8
Actuated g/C Ratio	0.39	0.39	0.30	0.69	0.43	0.50
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	674	565	1500	1099	417	2511
v/s Ratio Prot	c0.35		0.14	0.23	0.12	c0.42
v/s Ratio Perm		0.04		0.17	0.24	
v/c Ratio	0.90	0.11	0.48	0.57	0.83	0.84
Uniform Delay, d1	45.7	30.9	46.3	12.9	32.1	34.5
Progression Factor	1.00	1.00	1.31	1.15	1.00	1.00
Incremental Delay, d2	16.8	0.2	1.0	1.4	12.8	3.5
Delay (s)	62.5	31.1	62.0	16.2	44.9	37.9
Level of Service	E	C	E	B	D	D
Approach Delay (s)	55.9		39.7			38.9
Approach LOS	E		D			D

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	584	154	692	653	332	2014
Future Volume (veh/h)	584	154	692	653	332	2014
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	608	160	721	680	346	2098
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	654	549	1575	1093	372	2610
Arrive On Green	0.38	0.38	0.10	0.10	0.14	0.52
Sat Flow, veh/h	1739	1459	5274	1598	1810	5233
Grp Volume(v), veh/h	608	160	721	680	346	2098
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1810	1689
Q Serve(g_s), s	53.7	12.3	21.3	32.5	20.7	54.8
Cycle Q Clear(g_c), s	53.7	12.3	21.3	32.5	20.7	54.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	654	549	1575	1093	372	2610
V/C Ratio(X)	0.93	0.29	0.46	0.62	0.93	0.80
Avail Cap(c_a), veh/h	693	582	1575	1093	383	2610
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	47.9	35.0	59.2	17.0	34.6	32.1
Incr Delay (d2), s/veh	20.8	1.1	0.9	2.5	28.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.0	4.4	9.9	14.1	11.8	22.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.8	36.0	60.2	19.5	63.0	34.8
LnGrp LOS	E	D	E	B	E	C
Approach Vol, veh/h	768		1401			2444
Approach Delay, s/veh	61.9		40.4			38.8
Approach LOS	E		D			D

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		92.6			33.1	59.6	67.4
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		78.8			23.8	44.8	63.8
Max Q Clear Time (g_c+I1), s		56.8			22.7	34.5	55.7
Green Ext Time (p_c), s		18.5			0.1	6.9	4.5

Intersection Summary	
HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 PM



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	190	630	547	491
v/c Ratio	0.60	0.63	0.90	0.98
Control Delay	24.1	20.3	55.0	73.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.1	20.3	55.0	73.1
Queue Length 50th (ft)	66	294	369	~349
Queue Length 95th (ft)	133	404	#590	#654
Internal Link Dist (ft)		2439	275	2063
Turn Bay Length (ft)	275			
Base Capacity (vph)	431	1286	740	503
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.49	0.74	0.98

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	586	0	0	509	0	304	1	152	0	0	0
Future Volume (vph)	177	586	0	0	509	0	304	1	152	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.96				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1810			1541				
Flt Permitted	0.13	1.00			1.00			0.97				
Satd. Flow (perm)	217	1827			1810			1541				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	190	630	0	0	547	0	327	1	163	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	190	630	0	0	547	0	0	478	0	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	60.6	60.6			37.3			35.4				
Effective Green, g (s)	60.6	60.6			37.3			35.4				
Actuated g/C Ratio	0.55	0.55			0.34			0.32				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	316	997			608			491				
v/s Ratio Prot	0.09	c0.34			c0.30							
v/s Ratio Perm	0.24							0.31				
v/c Ratio	0.60	0.63			0.90			0.97				
Uniform Delay, d1	19.2	17.5			35.1			37.3				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	3.2	1.3			16.1			33.6				
Delay (s)	22.4	18.8			51.2			71.0				
Level of Service	C	B			D			E				
Approach Delay (s)		19.6			51.2			71.0			0.0	
Approach LOS		B			D			E			A	

Intersection Summary			
HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	111.0	Sum of lost time (s)	22.4
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	586	0	0	509	0	304	1	152	0	0	0
Future Volume (veh/h)	177	586	0	0	509	0	304	1	152	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	190	630	0	0	547	0	327	1	163			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	287	960	0	0	621	0	358	1	179			
Arrive On Green	0.10	0.52	0.00	0.00	0.34	0.00	0.31	0.31	0.31			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1158	4	577			
Grp Volume(v), veh/h	190	630	0	0	547	0	491	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1738	0	0			
Q Serve(g_s), s	6.3	22.1	0.0	0.0	25.1	0.0	24.2	0.0	0.0			
Cycle Q Clear(g_c), s	6.3	22.1	0.0	0.0	25.1	0.0	24.2	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.67		0.33			
Lane Grp Cap(c), veh/h	287	960	0	0	621	0	538	0	0			
V/C Ratio(X)	0.66	0.66	0.00	0.00	0.88	0.00	0.91	0.00	0.00			
Avail Cap(c_a), veh/h	584	1603	0	0	925	0	685	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	19.8	15.5	0.0	0.0	27.6	0.0	29.5	0.0	0.0			
Incr Delay (d2), s/veh	2.6	0.8	0.0	0.0	6.9	0.0	14.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	8.1	0.0	0.0	11.1	0.0	11.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	16.2	0.0	0.0	34.5	0.0	43.8	0.0	0.0			
LnGrp LOS	C	B	A	A	C	A	D	A	A			
Approach Vol, veh/h		820			547			491				
Approach Delay, s/veh		17.7			34.5			43.8				
Approach LOS		B			C			D				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		53.8		35.1	16.2	37.6			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		24.1		26.2	8.3	27.1			
Green Ext Time (p_c), s		4.6		1.3	0.5	3.1			

Intersection Summary		
HCM 6th Ctrl Delay		29.5
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 PM



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	519	683	351	595	379
v/c Ratio	0.83	0.69	0.80	0.59	0.80
Control Delay	47.9	6.4	32.8	18.2	52.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	6.4	32.8	18.2	52.0
Queue Length 50th (ft)	339	0	134	248	258
Queue Length 95th (ft)	#554	60	#306	414	346
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	642	1005	440	1032	783
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.68	0.80	0.58	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	587	302	512	0	0	0	0	316	10	0
Future Volume (vph)	0	446	587	302	512	0	0	0	0	316	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.17	1.00						0.95	
Satd. Flow (perm)		1792	1583	317	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	519	683	351	595	0	0	0	0	367	12	0
RTOR Reduction (vph)	0	0	445	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	519	238	351	595	0	0	0	0	0	379	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		39.1	39.1	67.1	67.1						30.2	
Effective Green, g (s)		39.1	39.1	67.1	67.1						30.2	
Actuated g/C Ratio		0.35	0.35	0.60	0.60						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		625	552	441	1015						470	
v/s Ratio Prot		0.29		c0.14	0.35							
v/s Ratio Perm			0.15	c0.33							0.22	
v/c Ratio		0.83	0.43	0.80	0.59						0.81	
Uniform Delay, d1		33.5	28.0	20.3	13.9						38.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		9.6	0.7	9.6	1.0						10.3	
Delay (s)		43.0	28.7	29.9	14.9						48.5	
Level of Service		D	C	C	B						D	
Approach Delay (s)		34.9			20.5			0.0			48.5	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	112.1	Sum of lost time (s)	22.7
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Future Background 2030 PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	587	302	512	0	0	0	0	316	10	0
Future Volume (veh/h)	0	446	587	302	512	0	0	0	0	316	10	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	519	683	351	595	0				367	12	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	643	563	380	1002	0				405	13	0
Arrive On Green	0.00	0.36	0.36	0.16	0.58	0.00				0.29	0.29	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1413	46	0
Grp Volume(v), veh/h	0	519	683	351	595	0				379	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	29.2	40.0	15.3	24.9	0.0				28.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.2	40.0	15.3	24.9	0.0				28.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	643	563	380	1002	0				419	0	0
V/C Ratio(X)	0.00	0.81	1.21	0.92	0.59	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	643	563	416	1038	0				647	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.8	36.3	27.3	15.1	0.0				38.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	7.9	111.8	25.1	1.1	0.0				13.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.5	32.0	7.5	9.0	0.0				11.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	40.7	148.1	52.4	16.1	0.0				52.1	0.0	0.0
LnGrp LOS	A	D	F	D	B	A				D	A	A
Approach Vol, veh/h		1202			946						379	
Approach Delay, s/veh		101.8			29.6						52.1	
Approach LOS		F			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		73.4		39.2	25.5	47.9						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		26.9		30.2	17.3	42.0						
Green Ext Time (p_c), s		6.4		2.1	0.3	0.0						

Intersection Summary												
HCM 6th Ctrl Delay			67.3									
HCM 6th LOS			E									

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Future Background 2030 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	73	309	2	94	1	130	4	2	1	2	43
Future Volume (Veh/h)	63	73	309	2	94	1	130	4	2	1	2	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	79	336	2	102	1	141	4	2	1	2	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	103			415			538	490	247	494	658	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	103			317			450	399	134	402	581	102
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	94			100			66	99	100	100	99	94
cM capacity (veh/h)	1049			777			419	464	844	361	366	801

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	483	105	147	50
Volume Left	68	2	141	1
Volume Right	336	1	2	47
cSH	1049	777	423	748
Volume to Capacity	0.06	0.00	0.35	0.07
Queue Length 95th (ft)	5	0	38	5
Control Delay (s)	1.9	0.2	18.0	10.2
Lane LOS	A	A	C	B
Approach Delay (s)	1.9	0.2	18.0	10.2
Approach LOS			C	B

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	73	309	2	94	1	130	4	2	1	2	43
Future Vol, veh/h	63	73	309	2	94	1	130	4	2	1	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	68	79	336	2	102	1	141	4	2	1	2	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	415	0	0	514	490	247	493	658	103
Stage 1	-	-	-	-	-	-	383	383	-	107	107	-
Stage 2	-	-	-	-	-	-	131	107	-	386	551	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1049	-	-	767	-	-	466	482	797	359	387	801
Stage 1	-	-	-	-	-	-	634	616	-	707	811	-
Stage 2	-	-	-	-	-	-	865	811	-	479	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	767	-	-	406	438	797	330	351	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	406	438	-	330	351	-
Stage 1	-	-	-	-	-	-	578	561	-	644	809	-
Stage 2	-	-	-	-	-	-	810	809	-	432	473	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.2	18.6	10.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	410	1049	-	-	767	-	-	737
HCM Lane V/C Ratio	0.361	0.065	-	-	0.003	-	-	0.068
HCM Control Delay (s)	18.6	8.7	0	-	9.7	0	-	10.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.6	0.2	-	-	0	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Future Background 2030 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	11	1	132	1	4	29	307	7	1
Future Volume (Veh/h)	1	1	1	11	1	132	1	4	29	307	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	12	1	143	1	4	32	334	8	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	842	714	8	700	699	20	9			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	842	714	8	700	699	20	9			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	100	86	100			79		
cM capacity (veh/h)	206	283	1079	297	288	1049	1624			1575		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	156	37	343
Volume Left	1	12	1	334
Volume Right	1	143	32	1
cSH	322	866	1624	1575
Volume to Capacity	0.01	0.18	0.00	0.21
Queue Length 95th (ft)	1	16	0	20
Control Delay (s)	16.3	10.1	0.2	7.7
Lane LOS	C	B	A	A
Approach Delay (s)	16.3	10.1	0.2	7.7
Approach LOS	C	B		

Intersection Summary				
Average Delay	7.9			
Intersection Capacity Utilization	39.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	1	1	11	1	132	1	4	29	307	7	1
Future Vol, veh/h	1	1	1	11	1	132	1	4	29	307	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	5	0	0	8	2	33	0
Mvmt Flow	1	1	1	12	1	143	1	4	32	334	8	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	771	715	9	700	699	20	9	0	0	36	0	0
Stage 1	677	677	-	22	22	-	-	-	-	-	-	-
Stage 2	94	38	-	678	677	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.25	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.345	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	320	359	1079	357	366	1049	1624	-	-	1575	-	-
Stage 1	446	455	-	1002	881	-	-	-	-	-	-	-
Stage 2	918	867	-	445	455	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	230	282	1079	297	288	1049	1624	-	-	1575	-	-
Mov Cap-2 Maneuver	230	282	-	297	288	-	-	-	-	-	-	-
Stage 1	446	358	-	1001	880	-	-	-	-	-	-	-
Stage 2	791	866	-	349	358	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.7	10.1	0.2	7.7
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1624	-	-	340	866	1575	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01	0.181	0.212	-	-
HCM Control Delay (s)	7.2	0	-	15.7	10.1	7.9	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.8	-	-

I. 2030 Future Conditions without Development – Simulation Analysis Worksheets

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	81	97	160	157	189	140	186	167	362	371	302	225
Average Queue (ft)	32	52	80	80	82	59	112	79	189	213	92	97
95th Queue (ft)	69	89	131	134	149	113	173	148	311	330	221	192
Link Distance (ft)			2766	2766	2766		971	971			8608	8608
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)									0	0	0	
Queuing Penalty (veh)									0	0	0	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	50	48	169	152	83
Average Queue (ft)	9	14	90	69	27
95th Queue (ft)	32	39	152	135	63
Link Distance (ft)			1821	1821	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			500
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	134	178	259	351	83	354	373	130	226	249
Average Queue (ft)	50	69	67	153	27	172	171	30	82	96
95th Queue (ft)	107	140	155	280	67	320	328	87	178	198
Link Distance (ft)		2976		390		3728	3728		8608	8608
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)			0	1						
Queuing Penalty (veh)			0	1						

Intersection: 3: US-1 & Sage Ln

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	55	46
Average Queue (ft)	20	11
95th Queue (ft)	43	35
Link Distance (ft)	589	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		415
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B41	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	710	291	12	269	289	400	593	309	145	159	150
Average Queue (ft)	437	84	1	168	183	163	263	155	54	64	40
95th Queue (ft)	752	283	17	257	278	318	517	336	120	127	102
Link Distance (ft)	1008		521	1009	1009	1009			2884	2884	2884
Upstream Blk Time (%)	0	0									
Queuing Penalty (veh)	2	0									
Storage Bay Dist (ft)		1000					800	800			
Storage Blk Time (%)	0	0				0	0				
Queuing Penalty (veh)	1	0				1	0				

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	136	238	260	1501
Average Queue (ft)	59	120	172	801
95th Queue (ft)	109	208	261	1588
Link Distance (ft)		2475	251	2100
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			4	
Storage Bay Dist (ft)	275			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	208	161	147	267	213
Average Queue (ft)	100	70	63	129	116
95th Queue (ft)	175	127	117	225	188
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)					0
Queuing Penalty (veh)					1
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	45	169	102
Average Queue (ft)	2	3	77	46
95th Queue (ft)	19	20	134	86
Link Distance (ft)	390	609	212	438
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	27	143	41
Average Queue (ft)	2	73	3
95th Queue (ft)	13	113	23
Link Distance (ft)	150	1045	212
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 12

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	115	124	2794	2809	2804	299	478	422	395	400	4485	4202
Average Queue (ft)	34	53	2180	2349	2567	233	229	187	346	360	2106	1420
95th Queue (ft)	86	106	3817	3647	3317	345	490	431	505	512	4532	3804
Link Distance (ft)			2766	2766	2766		971	971			8608	8608
Upstream Blk Time (%)			34	67	74							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)						19	10		4	59	59	
Queuing Penalty (veh)						22	15		9	127	281	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	37	101	461	460	95
Average Queue (ft)	2	32	287	283	17
95th Queue (ft)	16	75	429	429	88
Link Distance (ft)			1821	1821	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			500
Storage Blk Time (%)			0	0	0
Queuing Penalty (veh)			0	0	0

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	286	487	237	323	108	306	326	272	506	521
Average Queue (ft)	75	244	65	147	35	129	137	87	279	290
95th Queue (ft)	245	489	172	304	86	274	292	180	460	473
Link Distance (ft)		2976		390		3728	3728		8608	8608
Upstream Blk Time (%)				2						
Queuing Penalty (veh)				6						
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)	0	4	0	4				0	0	
Queuing Penalty (veh)	0	3	0	3				0	1	

Intersection: 3: US-1 & Sage Ln

Movement	EB	NB	SB
Directions Served	LR	L	R
Maximum Queue (ft)	113	72	2
Average Queue (ft)	41	18	0
95th Queue (ft)	86	51	2
Link Distance (ft)	589		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		415	290
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B41	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	789	135	7	312	323	299	444	483	505	461	432
Average Queue (ft)	450	34	0	169	176	149	130	254	293	304	262
95th Queue (ft)	716	114	7	271	285	255	315	502	462	461	419
Link Distance (ft)	1008		521	1009	1009	1009			2884	2884	2884
Upstream Blk Time (%)	0										
Queuing Penalty (veh)	1										
Storage Bay Dist (ft)		1000					800	800			
Storage Blk Time (%)	0							0	0		
Queuing Penalty (veh)	0							1	0		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	274	379	266	579
Average Queue (ft)	98	177	196	288
95th Queue (ft)	201	324	292	521
Link Distance (ft)		2475	251	2100
Upstream Blk Time (%)			5	
Queuing Penalty (veh)			24	
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	1		
Queuing Penalty (veh)	0	3		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	446	405	290	337	231
Average Queue (ft)	230	170	141	153	181
95th Queue (ft)	405	338	253	288	253
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)	1	0			5
Queuing Penalty (veh)	13	0			17
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)	1	0			
Queuing Penalty (veh)	7	1			

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	108	50	125	119
Average Queue (ft)	17	4	53	42
95th Queue (ft)	70	27	113	94
Link Distance (ft)	390	609	212	438
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			2	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	27	98	8	64
Average Queue (ft)	3	48	0	11
95th Queue (ft)	16	84	5	44
Link Distance (ft)	150	1045	990	212
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 535

J. Documentation for Data Center Rates

Bowman

Memorandum

To: Mr. Casey Frazier – Sr. Real Estate Development Manager; AWS Data Center Supply Solutions

From: Michael J. Young, P.E.

Date: 3/1/2023

Re: AWS Data Center Trip Generation Assessment

As requested, Bowman has prepared a trip generation assessment to determine the weighted average trip generation rate for Amazon Web Services (AWS) Data Centers located in the Commonwealth of Virginia. This evaluation was performed in accordance with the criteria and guidelines established in the Institute of Transportation Engineers (ITE) *Trip Generation Handbook, 3rd Edition*.

Background Information

AWS develops and constructs data centers throughout the country and the Commonwealth of Virginia. The data centers developed by AWS are highly specialized and modern facilities, and the evolving design of these facilities incorporate efficient operations and automated systems.

There are several data centers planned in Virginia by AWS and, as part of the development of these sites, traffic projections need to be developed to anticipate potential impacts.

The ITE *Trip Generation Manual, 11th Edition* includes such traffic projection information for data center sites. However, the trip generation rates from the Manual were developed based on two (2) surveyed sites for daily trips, six (6) surveyed sites for AM peak hour trips, and five (5) surveyed sites for PM peak hour trips. Due to the limited number of surveyed sites, the Trip Generation Manual offers the following disclaimer for this information:

> *"Caution should be used when applying trip generation rates for data centers, as the database contains a small number of sites with limited data on the number of tenants and employees."*

Data centers have a very small number of visitors, and the majority of trips are typically driven by employees or deliveries. Due to the technological advancements referenced above, data centers have become more efficient over time and rely on fewer on-site employees to operate.

As such, the number of employees, and not the building square footage, appears to be a better indicator for the projected number of trips associated with a data center. The ITE Trip Generation Manual does not include employee information for data centers.

The ITE Trip Generation Manual also notes that the sites included were surveyed in the 2010s. Due to the aforementioned technological advancements, it is also likely that the traffic generation rates from the 2010s are no longer applicable to newer facilities.

Therefore, Bowman has prepared this trip generation assessment with the following purposes:

1. To determine the average weekday, morning peak hour, and evening peak hour trip generation rates for a fully operational AWS Data Center. These average rates will be developed based on data from six (6) existing facilities, and will then be utilized throughout the planning process for future AWS Data Center developments in the Commonwealth of Virginia.

2. To compare these trip generation rates to the trip generation data documented in the ITE *Trip Generation Manual, 11th Edition*.

Methodology

The methodology utilized for this assessment was developed based on the criteria and guidelines included in the ITE *Trip Generation Handbook, 3rd Edition,* Chapter 9, "Use of Local Data to Estimate Trip Generation." Chapter 9 outlines the process for calculating the weighted average trip rate based on traffic data collected from existing facilities.

Chapter 9 also notes that trip generation data should be collected at a minimum of three (3) local sites, but that collecting data at five (5) or more sites is preferrable. Please note that, for the purposes of this evaluation, trip generation information from six (6) existing sites was evaluated.

Site Selection

For the purposes of this assessment, traffic data was collected from six (6) existing AWS Data Center campuses, all of which are located within the Commonwealth of Virginia. The sites surveyed are similar in both size and anticipated operations as the future data centers planned in Virginia by AWS.

Additional information regarding the building square footage and number of employees at each surveyed campus is as follows:

- Campus 1: 285,000 SF / 50 Employees
- Campus 2: 600,000 SF / 100 Employees
- Campus 3: 520,000 SF / 75 Employees
- Campus 4: 310,000 SF / 50 Employees
- Campus 5: 435,000 SF / 75 Employees
- Campus 6: 725,000 SF / 160 Employees

Trip Generation Data Collection

Cumulative trip data for each campus identified above was provided by AWS for the time period of January, 2022 to January, 2023. The AWS Data Centers are all secure facilities with historical data records, and the trip data provided to Bowman was extracted from the security card readers at each campus entrance.

Typical vehicle and heavy vehicle information was able to be included in this dataset, as the security gates at the facilities have separate card readers for trucks vs. passenger cars.

The trip data provided to Bowman was further refined to only include the card reader information recorded on an average weekday (Tuesday, Wednesday, or Thursday). The card reader information is timestamped, and therefore, the AM and PM peak hour trips for each campus were able to be extracted from the highest one-hour period of trips from 7:00 AM – 9:00 AM (AM peak), and from 4:00 PM – 6:00 PM (PM peak).

Data Summary and Evaluation

Based on the data provided, the existing trips per day for each surveyed campus were developed as shown in **Table 1.**

Table 1. Existing Campus Trips per Day

Campus	No. of Average Weekdays Recorded Jan '22 - Jan '23	Trip Type	Total Recorded Daily Trips Jan '22 - Jan '23	Trips per Day	Total Recorded AM Peak Trips Jan '22 - Jan '23	AM Peak Hour Trips per Day	Total Recorded PM Peak Trips Jan '22 - Jan '23	PM Peak Hour Trips per Day
Campus 1	159	Car	39,272	246.99	4,360	27.42	1,583	9.96
		Truck	1,500	9.43	95	0.60	0	0.00
		TOTAL	**40,772**	**256.43**	**4,455**	**28.02**	**1,583**	**9.96**
Campus 2	159	Car	90,362	568.31	11,238	70.68	3,263	20.52
		Truck	2,026	12.74	198	1.25	7	0.04
		TOTAL	**92,388**	**581.06**	**11,436**	**71.92**	**3,270**	**20.57**
Campus 3	130	Car	41,442	318.78	5,867	45.13	1,930	14.85
		Truck	646	4.97	84	0.65	7	0.05
		TOTAL	**42,088**	**323.75**	**5,951**	**45.78**	**1,937**	**14.90**
Campus 4	159	Car	29,504	185.56	2,442	15.36	1,373	8.64
		Truck	3,984	25.06	195	1.23	60	0.38
		TOTAL	**33,488**	**210.62**	**2,637**	**16.58**	**1,433**	**9.01**
Campus 5	159	Car	45,538	286.40	6,309	39.68	1,863	11.72
		Truck	5,782	36.36	653	4.11	60	0.38
		TOTAL	**51,320**	**322.77**	**6,962**	**43.79**	**1,923**	**12.09**
Campus 6	130	Car	58,394	449.18	7,871	60.55	2,333	17.95
		Truck	2,324	17.88	285	2.19	50	0.38
		TOTAL	**60,718**	**467.06**	**8,156**	**62.74**	**2,383**	**18.33**

The campus-specific size and number of employees were then applied to these total trips to develop the average trips per 1,000 SF and the average trips per employee at each campus as shown in **Table 2.**

Table 2. Average Campus Trips per 1,000 SF and per Employee

Campus	Square Footage (SF)	No. of Employees	Trip Type	Trips per Day	Daily Trips per 1,000 SF	Daily Trips per Employee	AM Peak Hour Trips per Day	AM Peak Hour Trips per 1,000 SF	AM Peak Hour Trips per Employee	PM Peak Hour Trips per Day	PM Peak Hour Trips per 1,000 SF	PM Peak Hour Trips per Employee
Campus 1	285,000	50	Car	246.99	0.87	4.94	27.42	0.10	0.55	9.96	0.03	0.20
			Truck	9.43	0.03	0.19	0.60	0.00	0.01	0.00	0.00	0.00
			TOTAL	256.43	**0.90**	**5.13**	28.02	**0.10**	**0.56**	9.96	**0.03**	**0.20**
Campus 2	600,000	100	Car	568.31	0.95	5.68	70.68	0.12	0.71	20.52	0.03	0.21
			Truck	12.74	0.02	0.13	1.25	0.00	0.01	0.04	0.00	0.00
			TOTAL	581.06	**0.97**	**5.81**	71.92	**0.12**	**0.72**	20.57	**0.03**	**0.21**
Campus 3	520,000	75	Car	318.78	0.61	4.25	45.13	0.09	0.60	14.85	0.03	0.20
			Truck	4.97	0.01	0.07	0.65	0.00	0.01	0.05	0.00	0.00
			TOTAL	323.75	**0.62**	**4.32**	45.78	**0.09**	**0.61**	14.90	**0.03**	**0.20**
Campus 4	310,000	50	Car	185.56	0.60	3.71	15.36	0.05	0.31	8.64	0.03	0.17
			Truck	25.06	0.08	0.50	1.23	0.00	0.02	0.38	0.00	0.01
			TOTAL	210.62	**0.68**	**4.21**	16.58	**0.05**	**0.33**	9.01	**0.03**	**0.18**
Campus 5	435,000	75	Car	286.40	0.66	3.82	39.68	0.09	0.53	11.72	0.03	0.16
			Truck	36.36	0.08	0.48	4.11	0.01	0.05	0.38	0.00	0.01
			TOTAL	322.77	**0.74**	**4.30**	43.79	**0.10**	**0.58**	12.09	**0.03**	**0.16**
Campus 6	725,000	160	Car	449.18	0.62	2.81	60.55	0.08	0.38	17.95	0.02	0.11
			Truck	17.88	0.02	0.11	2.19	0.00	0.01	0.38	0.00	0.00
			TOTAL	467.06	**0.64**	**2.92**	62.74	**0.09**	**0.39**	18.33	**0.03**	**0.11**

The cumulative trip, square footage, and employee data across all six (6) campuses were then combined to develop the weighted average trip rates per the criteria in the ITE *Trip Generation Handbook, 3rd Edition*.

The weighted average trip generation rates are shown in **Table 3.**

Table 3. Weighted Average Trip Generation Rates

	Square Footage (SF)	No. of Employees	Trip Type	Trips per Day	Daily Trips per 1,000 SF	Daily Trips per Employee	AM Peak Hour Trips per Day	AM Peak Hour Trips per 1,000 SF	AM Peak Hour Trips per Employee	PM Peak Hour Trips per Day	PM Peak Hour Trips per 1,000 SF	PM Peak Hour Trips per Employee
WEIGHTED AVERAGE	2,875,000	510	Car	2055.24	0.71	4.03	258.82	0.09	0.51	83.62	0.03	0.16
			Truck	106.44	0.04	0.21	10.01	0.00	0.02	1.24	0.00	0.00
			TOTAL	2161.68	**0.75**	**4.24**	268.83	**0.09**	**0.53**	84.86	**0.03**	**0.17**

Note: Values shown represent the cumulative data from all six (6) surveyed AWS campuses.

Data Comparison with ITE Trip Generation Manual

The average projected trip generation rates for the existing data centers shown in **Table 3** were then compared with the published rates from the ITE Trip Generation Manual for data centers (Land Use 160).

As noted above, although the number of employees at a data center appears to be a better indicator of the projected number of trips, the ITE Trip Generation Manual does not include any employee information. Therefore, the comparison of rates was limited to building square footage only. The average rate comparison is shown in **Table 4.**

Table 4. Average Rate Comparison – ITE Trip Generation Manual vs. Existing Campus Data

Data Source	Weekday per 1,000 SF	AM Peak Hour per 1,000 SF	PM Peak Hour per 1,000 Sf
ITE Manual	0.99	0.11	0.09
Existing Campus Data	0.75	0.09	0.03
Existing Campus % of ITE Rate	**75.8%**	**81.8%**	**33.3%**

As shown in **Table 4,** the site-specific campus data indicates that the average trip rates for the AWS Data Centers are lower than those included in the ITE Trip Generation Manual.

PM Peak Hour of Generator Evaluation

Based on the data provided by AWS, the PM Peak Hour (highest one-hour period from 4:00 PM – 6:00 PM) trip generation rate shown in **Table 4** is 1/3 the size of both the ITE Manual PM Peak Hour trip generation rate, and the existing campus AM Peak Hour trip generation rate.

Upon review of the data provided by AWS, this PM Peak Hour trip generation rate appears to be a result of the campus operations being more intensive during times when the surrounding roadways are not as busy ("off-peak"). Therefore, through additional coordination with VDOT, it was requested that this memorandum also evaluate the PM Peak Hour of *Generator* for the existing data center campuses.

Instead of only evaluating the highest one-hour period from 4:00 PM – 6:00 PM, the "PM Peak Hour of Generator" is the most trip-intensive hour of a development for any time between 12:00 PM and 12:00 AM.

The trip data for each campus was combined into 15-minute intervals for this 12:00 PM – 12:00 AM timeframe in order to determine the PM Peak Hour of Generator for each campus. The results

of this evaluation indicate that the PM Peak Hour of Generator generally falls somewhere within the timeframe of 12:30 PM to 2:15 PM depending on the campus.

The existing PM Peak Hours of Generator and associated trips per day for each surveyed campus were developed and are included in **Table 5.** The campus-specific size and number of employees were then applied to these trips per day to develop the average PM Peak Hour of Generator trips per 1,000 SF and per employee at each campus.

Table 5. PM Peak Hour of Generator Existing Campus Trips per Day, per 1,000 SF, and per Employee

Campus	No. of Average Weekdays Recorded Jan '22 - Jan '23	Observed PM Peak Hour of Generator	Square Footage (SF)	No. of Employees	Trip Type	Total Recorded PM Peak Hour of Generator Trips Jan '22 - Jan '23	PM Peak Hour of Generator Trips per Day	PM Peak Hour of Generator Trips per 1,000 SF	PM Peak Hour of Generator Trips per Employee
Campus 1	159	1:15 PM - 2:15 PM	285,000	50	Car	3,710	23.33	0.08	0.47
					Truck	229	1.44	0.01	0.03
					TOTAL	**3,939**	**24.77**	**0.09**	**0.50**
Campus 2	159	1:15 PM - 2:15 PM	600,000	100	Car	8,386	52.74	0.09	0.53
					Truck	162	1.02	0.00	0.01
					TOTAL	**8,548**	**53.76**	**0.09**	**0.54**
Campus 3	130	1:15 PM - 2:15 PM	520,000	75	Car	3,355	25.81	0.05	0.34
					Truck	62	0.48	0.00	0.01
					TOTAL	**3,417**	**26.28**	**0.05**	**0.35**
Campus 4	159	1:00 PM - 2:00 PM	310,000	50	Car	2,743	17.25	0.06	0.35
					Truck	536	3.37	0.01	0.07
					TOTAL	**3,279**	**20.62**	**0.07**	**0.41**
Campus 5	159	12:30 PM - 1:30 PM	435,000	75	Car	3,195	20.09	0.05	0.27
					Truck	524	3.30	0.01	0.04
					TOTAL	**3,719**	**23.39**	**0.05**	**0.31**
Campus 6	130	1:00 PM - 2:00 PM	725,000	160	Car	4,919	37.84	0.05	0.24
					Truck	262	2.02	0.00	0.01
					TOTAL	**5,181**	**39.85**	**0.05**	**0.25**

This information was then combined in **Table 6** to develop the weighted average PM Peak Hour of Generator trip rates per the criteria in the ITE *Trip Generation Handbook, 3rd Edition*.

Table 6. Weighted Average PM Peak Hour of Generator Trip Generation Rates

	Square Footage (SF)	No. of Employees	Trip Type	PM Peak Hour of Generator Trips per Day	PM Peak Hour of Generator Trips per 1,000 SF	PM Peak Hour of Generator Trips per Employee
WEIGHTED AVERAGE	2,875,000	510	Car	177.07	0.06	0.35
			Truck	11.62	0.00	0.02
			TOTAL	188.69	**0.07**	**0.37**

Note: Values shown represent the cumulative data from all six (6) surveyed AWS campuses.

As shown in **Table 6**, the calculated PM Peak Hour of Generator for the existing campuses currently generates an average of 0.07 trips per 1,000 SF and 0.37 trips per employee. These rates represent values that are over twice as intensive as those associated with the standard PM Peak Hour from 4:00 PM – 6:00 PM (0.03 trips per 1,000 SF and 0.17 trips per employee).

Conclusions

Based on the evaluation contained in this memorandum, the anticipated site trip rates associated with the AWS Data Centers are lower than those included in the ITE Trip Generation Manual.

The AWS rates appear to be a more appropriate estimation of future trips, as the rates from the Trip Generation Manual were developed based on a fewer number of surveyed sites. The Trip Generation Manual also only includes data from the 2010s, and the lower AWS trip generation rate is consistent with changes in the data center industry since then.

The average PM Peak Hour trip generation rate at the existing campuses is 1/3 the size of both the ITE Manual PM Peak Hour trip generation rate and the existing campus average AM Peak Hour trip generation rate. Therefore, VDOT requested an additional evaluation to determine the PM Peak Hour of Generator for the existing campuses.

Based on this evaluation, the PM Peak Hour of Generator for each campus generally falls somewhere within the timeframe of 12:30 PM to 2:15 PM, and the site trips during these timeframes are over twice as intensive as those associated with the standard PM Peak Hour from 4:00 PM – 6:00 PM.

Data centers have become more efficient and automated over this time, and typically require fewer on-site employees to operate. Because data centers have a very small number of visitors, the majority of trips are typically associated with either employees or deliveries.

Therefore, the number of employees at a campus appears to be the most statistically relevant indicator for the projected number of data center site trips. As such, it is proposed to use the following rates throughout the planning process for future AWS Data Center developments in the Commonwealth of Virginia:

- **4.24 Daily Trips per Employee**
- **0.53 Morning Peak Hour Trips per Employee**
- **0.17 Evening Peak Hour Trips per Employee**

Mary Lee

From: Hedrich, Peter <peter.hedrich@vdot.virginia.gov>
Sent: Monday, March 6, 2023 8:26 AM
To: Michael Young
Cc: Carolyn Oster; Washington, Thomas; James Rice; Kevin D. Sitzman; Mike J. Zuraf; Mary Lee
Subject: Re: [EXTERNAL] Re: 2023-02-16 AWS Data Center Trip Generation Assessment Memorandum
Attachments: 2023-03-01 Revised AWS Data Center Trip Generation Assessment.pdf

Hello Michael,
Your trip generation study is approved by Fredericksburg District as well as Central Office Transportation Land Use. We will require using the trip generation based on square feet of building area. Trip generation based on the peak hour of adjacent street traffic is acceptable unless there is an afternoon analysis required due to school operations, in which case the PM peak hour of the generator is to be used.
I have also copied Gorove Slade as they were also looking for approval of trip generation for data centers based on a study. The Gorove Slade study provided a helpful comparison, but given the more extensive data set provided in the Bowman Study, we will be using the Bowman results going forward.
Please let me know if you have any questions.
Thank you,
Peter

Peter A. Hedrich, PE, PTOE
District Traffic Engineer
Virginia Department of Transportation
87 Deacon Rd.
Fredericksburg VA 22405
D: 540-899-4540 C: 207-939-0806
Peter.Hedrich@VDOT.virginia.gov
Office Hours 7 AM - 3:30 PM

K. 2030 Future Conditions with Development – Capacity Analysis Worksheets

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	266	560	77	268	662	727	127	14	301	83
v/c Ratio	0.45	0.60	0.67	0.54	0.64	0.80	0.36	0.11	0.13	0.35	0.13
Control Delay	57.5	55.2	15.7	66.4	55.3	48.3	15.6	1.9	56.0	36.6	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	55.2	15.7	66.4	55.3	48.3	15.6	1.9	56.0	36.6	3.6
Queue Length 50th (ft)	47	104	156	58	101	252	127	0	11	96	0
Queue Length 95th (ft)	77	142	303	108	142	#414	254	25	32	136	24
Internal Link Dist (ft)		2754			953		8663			2896	
Turn Bay Length (ft)	500		500	300		400		700	550		700
Base Capacity (vph)	396	823	834	166	713	830	2019	1173	267	940	689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.32	0.67	0.46	0.38	0.80	0.36	0.11	0.05	0.32	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - UNMIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	245	515	71	220	27	609	669	117	13	277	76
Future Volume (vph)	114	245	515	71	220	27	609	669	117	13	277	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3505	1404	1752	3411		2694	3438	1568	1805	3282	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3505	1404	1752	3411		2694	3438	1568	1805	3282	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	266	560	77	239	29	662	727	127	14	301	83
RTOR Reduction (vph)	0	0	172	0	9	0	0	0	47	0	0	55
Lane Group Flow (vph)	124	266	388	77	259	0	662	727	80	14	301	28
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	9.7	15.1	52.1	9.9	14.5		37.0	66.1	76.0	3.0	31.2	40.9
Effective Green, g (s)	9.7	15.1	52.1	9.9	14.5		37.0	66.1	76.0	3.0	31.2	40.9
Actuated g/C Ratio	0.08	0.13	0.43	0.08	0.12		0.31	0.55	0.63	0.02	0.26	0.34
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	274	441	609	144	412		830	1893	993	45	853	509
v/s Ratio Prot	0.04	0.08	c0.20	c0.04	0.08		c0.25	c0.21	0.01	0.01	0.09	0.00
v/s Ratio Perm			0.08						0.04			0.01
v/c Ratio	0.45	0.60	0.64	0.53	0.63		0.80	0.38	0.08	0.31	0.35	0.06
Uniform Delay, d1	52.6	49.6	26.6	52.8	50.2		38.1	15.4	8.5	57.5	36.2	26.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	2.3	2.2	3.8	3.0		5.4	0.6	0.0	3.9	1.1	0.0
Delay (s)	53.8	51.9	28.7	56.6	53.2		43.4	15.9	8.5	61.4	37.3	26.6
Level of Service	D	D	C	E	D		D	B	A	E	D	C
Approach Delay (s)		38.5			54.0			27.3			35.9	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	245	515	71	220	27	609	669	117	13	277	76
Future Volume (veh/h)	114	245	515	71	220	27	609	669	117	13	277	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1678	1856	1841	1826	1455	1826	1856	1900	1752	1781
Adj Flow Rate, veh/h	124	266	560	77	239	29	662	727	127	14	301	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	15	3	4	5	30	5	3	0	10	8
Cap, veh/h	200	828	562	106	734	88	430	1601	820	39	1060	569
Arrive On Green	0.06	0.24	0.24	0.06	0.23	0.23	0.16	0.46	0.46	0.02	0.32	0.32
Sat Flow, veh/h	3428	3526	1422	1767	3144	377	2689	3469	1572	1810	3328	1510
Grp Volume(v), veh/h	124	266	560	77	132	136	662	727	127	14	301	83
Grp Sat Flow(s),veh/h/ln	1714	1763	1422	1767	1749	1773	1345	1735	1572	1810	1664	1510
Q Serve(g_s), s	4.2	7.5	28.2	5.1	7.5	7.7	19.2	17.1	5.0	0.9	8.1	4.4
Cycle Q Clear(g_c), s	4.2	7.5	28.2	5.1	7.5	7.7	19.2	17.1	5.0	0.9	8.1	4.4
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	828	562	106	408	414	430	1601	820	39	1060	569
V/C Ratio(X)	0.62	0.32	1.00	0.73	0.32	0.33	1.54	0.45	0.15	0.36	0.28	0.15
Avail Cap(c_a), veh/h	400	828	562	168	408	414	430	1601	820	268	1060	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.58	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	38.0	36.2	55.4	38.1	38.2	50.4	22.0	14.9	57.9	30.7	24.7
Incr Delay (d2), s/veh	3.1	0.2	37.2	9.1	0.5	0.5	249.1	0.5	0.2	5.4	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.2	21.3	2.5	3.2	3.4	21.3	6.9	1.8	0.5	3.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	38.2	73.4	64.5	38.6	38.7	299.5	22.5	15.2	63.2	31.3	25.2
LnGrp LOS	E	D	E	E	D	D	F	C	B	E	C	C
Approach Vol, veh/h		950			345			1516			398	
Approach Delay, s/veh		61.6			44.4			142.9			31.2	
Approach LOS		E			D			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	61.0	15.0	34.2	27.0	43.8	14.8	34.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	17.8	* 37	* 14	* 25	19.2	* 34	11.4	* 28
Max Q Clear Time (g_c+I1), s	2.9	19.1	6.2	9.7	21.2	10.1	7.1	30.2
Green Ext Time (p_c), s	0.0	14.3	0.2	0.8	0.0	9.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	94.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

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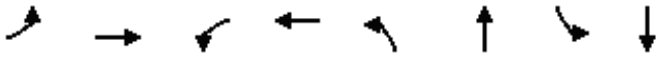

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	160	117	262	124	1281	85	853
v/c Ratio	0.33	0.50	0.36	0.68	0.37	0.78	0.38	0.58
Control Delay	34.9	22.9	34.6	37.5	14.3	29.6	16.1	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	22.9	34.6	37.5	14.3	29.6	16.1	24.2
Queue Length 50th (ft)	46	34	64	114	36	410	24	227
Queue Length 95th (ft)	94	105	123	224	76	589	56	334
Internal Link Dist (ft)		1275		420		3738		8663
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	265	583	335	618	348	2055	251	2006
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.27	0.35	0.42	0.36	0.62	0.34	0.43

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1606		1703	1638		1736	3448		1719	3310	
Flt Permitted	0.43	1.00		0.49	1.00		0.24	1.00		0.10	1.00	
Satd. Flow (perm)	755	1606		875	1638		430	3448		182	3310	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	38	122	117	66	196	124	1236	45	85	774	79
RTOR Reduction (vph)	0	92	0	0	83	0	0	2	0	0	5	0
Lane Group Flow (vph)	85	68	0	117	179	0	124	1279	0	85	848	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	23.1	16.8		29.9	20.2		60.4	51.8		57.0	50.1	
Effective Green, g (s)	23.1	16.8		29.9	20.2		60.4	51.8		57.0	50.1	
Actuated g/C Ratio	0.21	0.15		0.27	0.18		0.55	0.47		0.51	0.45	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	208	243		308	298		336	1613		189	1498	
v/s Ratio Prot	0.02	0.04		c0.03	c0.11		c0.03	c0.37		0.03	0.26	
v/s Ratio Perm	0.06			0.07			0.17			0.20		
v/c Ratio	0.41	0.28		0.38	0.60		0.37	0.79		0.45	0.57	
Uniform Delay, d1	36.6	41.6		31.8	41.6		13.6	24.9		17.8	22.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.6		0.8	3.4		0.7	3.2		1.7	0.8	
Delay (s)	37.9	42.2		32.6	45.0		14.3	28.1		19.5	23.1	
Level of Service	D	D		C	D		B	C		B	C	
Approach Delay (s)		40.8			41.1			26.9			22.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	85	38	122	117	66	196	124	1236	45	85	774	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	192	63	201	279	76	225	349	1638	60	222	1453	148
Arrive On Green	0.06	0.16	0.16	0.07	0.18	0.18	0.05	0.48	0.48	0.04	0.46	0.46
Sat Flow, veh/h	1682	384	1234	1725	422	1253	1753	3442	125	1739	3126	319
Grp Volume(v), veh/h	85	0	160	117	0	262	124	628	653	85	422	431
Grp Sat Flow(s),veh/h/ln	1682	0	1619	1725	0	1675	1753	1749	1818	1739	1706	1739
Q Serve(g_s), s	4.3	0.0	9.6	5.8	0.0	15.9	3.8	30.6	30.7	2.6	18.4	18.4
Cycle Q Clear(g_c), s	4.3	0.0	9.6	5.8	0.0	15.9	3.8	30.6	30.7	2.6	18.4	18.4
Prop In Lane	1.00		0.76	1.00		0.75	1.00		0.07	1.00		0.18
Lane Grp Cap(c), veh/h	192	0	263	279	0	301	349	832	866	222	793	808
V/C Ratio(X)	0.44	0.00	0.61	0.42	0.00	0.87	0.36	0.75	0.75	0.38	0.53	0.53
Avail Cap(c_a), veh/h	235	0	506	327	0	556	407	1026	1067	316	1018	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	0.0	40.6	33.2	0.0	41.6	14.9	22.3	22.3	18.5	19.8	19.8
Incr Delay (d2), s/veh	1.6	0.0	2.3	1.0	0.0	7.7	0.6	3.7	3.6	1.1	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	3.9	2.5	0.0	7.2	1.4	11.8	12.3	1.0	6.9	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	0.0	42.8	34.2	0.0	49.3	15.6	26.1	26.0	19.5	21.0	21.0
LnGrp LOS	D	A	D	C	A	D	B	C	C	B	C	C
Approach Vol, veh/h		245			379			1405			938	
Approach Delay, s/veh		40.5			44.6			25.1			20.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	55.3	12.1	24.4	11.4	56.4	10.3	26.2
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 62	10.5	32.6	* 10	* 61	8.5	34.6
Max Q Clear Time (g_c+I1), s	5.8	20.4	7.8	11.6	4.6	32.7	6.3	17.9
Green Ext Time (p_c), s	0.1	12.3	0.1	0.5	0.1	17.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
3: US-1 & Sage Lane /Connector Road

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Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	115	212	31	1160	128	187	817
v/c Ratio	0.11	0.47	0.33	0.08	0.74	0.16	0.54	0.28
Control Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Length 50th (ft)	0	77	25	8	360	0	53	118
Queue Length 95th (ft)	0	161	100	21	475	17	132	157
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		300	300	
Base Capacity (vph)	357	317	689	385	2573	1195	395	4052
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.31	0.08	0.45	0.11	0.47	0.20

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: US-1 & Sage Lane /Connector Road

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1689			1770	1583	1770	3539	1583	1770	5056	
Flt Permitted		0.98			0.95	1.00	0.33	1.00	1.00	0.11	1.00	
Satd. Flow (perm)		1689			1770	1583	618	3539	1583	204	5056	
Peak-hour factor, PHF	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Adj. Flow (vph)	19	0	22	115	0	212	31	1160	128	187	786	31
RTOR Reduction (vph)	0	39	0	0	0	119	0	0	70	0	3	0
Lane Group Flow (vph)	0	2	0	0	115	93	31	1160	58	187	814	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Effective Green, g (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Actuated g/C Ratio		0.06			0.13	0.27	0.48	0.45	0.45	0.64	0.56	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		96			234	508	331	1604	717	338	2816	
v/s Ratio Prot		c0.00			c0.06	0.02	0.00	c0.33		c0.07	0.16	
v/s Ratio Perm						0.03	0.04		0.04	0.28		
v/c Ratio		0.02			0.49	0.18	0.09	0.72	0.08	0.55	0.29	
Uniform Delay, d1		47.6			43.1	30.3	14.6	23.8	16.6	14.8	12.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			1.6	0.2	0.1	1.6	0.0	2.0	0.1	
Delay (s)		47.7			44.7	30.5	14.7	25.4	16.6	16.8	12.6	
Level of Service		D			D	C	B	C	B	B	B	
Approach Delay (s)		47.7			35.5			24.3			13.4	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
3: US-1 & Sage Lane /Connector Road

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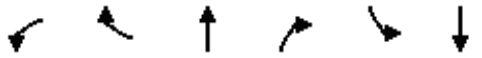
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	22	115	0	212	31	1160	128	187	786	31
Peak Hour Factor	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	0	73	257	0	353	405	1613	720	293	2506	99
Arrive On Green	0.08	0.00	0.08	0.14	0.00	0.14	0.03	0.45	0.45	0.08	0.50	0.50
Sat Flow, veh/h	774	0	896	1781	0	1585	1781	3554	1585	1781	5040	198
Grp Volume(v), veh/h	41	0	0	115	0	212	31	1160	128	187	530	287
Grp Sat Flow(s),veh/h/ln	1670	0	0	1781	0	1585	1781	1777	1585	1781	1702	1835
Q Serve(g_s), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Prop In Lane	0.46		0.54	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	137	0	0	257	0	353	405	1613	720	293	1692	912
V/C Ratio(X)	0.30	0.00	0.00	0.45	0.00	0.60	0.08	0.72	0.18	0.64	0.31	0.31
Avail Cap(c_a), veh/h	202	0	0	305	0	395	450	2541	1133	441	2777	1497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	0.0	38.8	0.0	34.6	13.3	22.0	16.1	18.3	14.9	14.9
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.2	0.0	2.1	0.1	0.6	0.1	2.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.7	0.0	4.8	0.3	9.7	1.6	2.0	3.1	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	0.0	40.1	0.0	36.7	13.4	22.6	16.2	20.6	15.0	15.1
LnGrp LOS	D	A	A	D	A	D	B	C	B	C	B	B
Approach Vol, veh/h		41			327			1319			1004	
Approach Delay, s/veh		44.1			37.9			21.8			16.1	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	55.4		14.1	13.7	51.1		20.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	81.0		12.0	16.0	71.0		17.0				
Max Q Clear Time (g_c+I1), s	2.9	11.3		4.3	7.4	28.3		13.9				
Green Ext Time (p_c), s	0.0	9.7		0.0	0.4	16.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		21.9	
HCM 6th LOS		C	

Queues
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	391	396	1054	1045	198	677
v/c Ratio	1.08	0.84	0.38	0.77	0.65	0.20
Control Delay	125.3	49.5	26.2	19.8	22.2	9.6
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	125.3	49.5	26.2	20.3	22.2	9.6
Queue Length 50th (ft)	~439	232	306	652	69	88
Queue Length 95th (ft)	#653	#408	393	922	104	106
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	363	470	2766	1358	303	3308
Starvation Cap Reductn	0	0	0	79	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.84	0.38	0.82	0.65	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	364	970	961	182	623
Future Volume (vph)	360	364	970	961	182	623
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	1612	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.23	1.00
Satd. Flow (perm)	1719	1583	4940	1568	397	4893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	396	1054	1045	198	677
RTOR Reduction (vph)	0	136	0	63	0	0
Lane Group Flow (vph)	391	260	1054	982	198	677
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	32.8	32.8	86.8	119.6	94.6	104.8
Effective Green, g (s)	32.8	32.8	86.8	119.6	94.6	104.8
Actuated g/C Ratio	0.21	0.21	0.56	0.77	0.61	0.68
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	363	334	2766	1209	303	3308
v/s Ratio Prot	c0.23		0.21	c0.17	c0.03	0.14
v/s Ratio Perm		0.16		0.45	0.37	
v/c Ratio	1.08	0.78	0.38	0.81	0.65	0.20
Uniform Delay, d1	61.1	57.7	19.1	10.8	14.3	9.4
Progression Factor	1.00	1.00	1.35	3.82	1.00	1.00
Incremental Delay, d2	69.4	13.6	0.3	4.4	5.0	0.1
Delay (s)	130.5	71.3	26.0	45.8	19.3	9.6
Level of Service	F	E	C	D	B	A
Approach Delay (s)	100.7		35.9			11.8
Approach LOS	F		D			B

Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	360	364	970	961	182	623
Future Volume (veh/h)	360	364	970	961	182	623
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	391	396	1054	1045	198	677
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	368	335	2791	1213	230	3343
Arrive On Green	0.21	0.21	1.00	1.00	0.05	0.68
Sat Flow, veh/h	1739	1585	5149	1572	1640	5107
Grp Volume(v), veh/h	391	396	1054	1045	198	677
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1640	1648
Q Serve(g_s), s	32.8	32.8	0.0	86.8	7.8	8.0
Cycle Q Clear(g_c), s	32.8	32.8	0.0	86.8	7.8	8.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	368	335	2791	1213	230	3343
V/C Ratio(X)	1.06	1.18	0.38	0.86	0.86	0.20
Avail Cap(c_a), veh/h	368	335	2791	1213	230	3343
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	61.1	61.1	0.0	8.1	17.6	9.4
Incr Delay (d2), s/veh	64.4	107.7	0.3	6.9	26.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	22.8	0.1	7.3	4.7	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	125.5	168.8	0.3	15.0	44.4	9.6
LnGrp LOS	F	F	A	B	D	A
Approach Vol, veh/h	787		2099			875
Approach Delay, s/veh	147.3		7.6			17.4
Approach LOS	F		A			B

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		115.0			18.0	97.0	40.0
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		104.8			7.8	86.8	32.8
Max Q Clear Time (g_c+I1), s		10.0			9.8	88.8	34.8
Green Ext Time (p_c), s		7.6			0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.1
HCM 6th LOS	D

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
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Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	138	414	421	772
v/c Ratio	0.42	0.46	0.85	1.18
Control Delay	17.3	17.9	50.3	122.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.3	17.9	50.3	122.6
Queue Length 50th (ft)	46	164	248	~539
Queue Length 95th (ft)	79	234	389	#963
Internal Link Dist (ft)		2439	275	2104
Turn Bay Length (ft)	275			
Base Capacity (vph)	486	1443	807	656
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.28	0.29	0.52	1.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.94				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1759			1656				
Flt Permitted	0.20	1.00			1.00			0.97				
Satd. Flow (perm)	338	1827			1759			1656				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	138	414	0	0	421	0	424	0	348	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	65	0	0	0	0
Lane Group Flow (vph)	138	414	0	0	421	0	0	707	0	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	48.6	48.6			28.1			35.5				
Effective Green, g (s)	48.6	48.6			28.1			35.5				
Actuated g/C Ratio	0.49	0.49			0.28			0.36				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	332	895			498			593				
v/s Ratio Prot	0.05	c0.23			c0.24							
v/s Ratio Perm	0.15							0.43				
v/c Ratio	0.42	0.46			0.85			1.19				
Uniform Delay, d1	16.9	16.6			33.5			31.8				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	0.8	0.4			12.5			102.5				
Delay (s)	17.7	17.0			45.9			134.3				
Level of Service	B	B			D			F				
Approach Delay (s)		17.2			45.9			134.3			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	76.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	99.1	Sum of lost time (s)	22.4
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	138	414	0	0	421	0	424	0	348			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	257	807	0	0	489	0	370	0	304			
Arrive On Green	0.08	0.44	0.00	0.00	0.27	0.00	0.39	0.00	0.39			
Sat Flow, veh/h	1626	1841	0	0	1781	0	941	0	773			
Grp Volume(v), veh/h	138	414	0	0	421	0	772	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1714	0	0			
Q Serve(g_s), s	5.1	14.5	0.0	0.0	20.0	0.0	35.0	0.0	0.0			
Cycle Q Clear(g_c), s	5.1	14.5	0.0	0.0	20.0	0.0	35.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.55		0.45			
Lane Grp Cap(c), veh/h	257	807	0	0	489	0	673	0	0			
V/C Ratio(X)	0.54	0.51	0.00	0.00	0.86	0.00	1.15	0.00	0.00			
Avail Cap(c_a), veh/h	581	1600	0	0	900	0	673	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	22.0	18.1	0.0	0.0	30.7	0.0	27.0	0.0	0.0			
Incr Delay (d2), s/veh	1.7	0.5	0.0	0.0	4.6	0.0	82.5	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.9	5.6	0.0	0.0	8.6	0.0	28.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	18.6	0.0	0.0	35.3	0.0	109.6	0.0	0.0			
LnGrp LOS	C	B	A	A	D	A	F	A	A			
Approach Vol, veh/h		552			421			772				
Approach Delay, s/veh		19.9			35.3			109.6				
Approach LOS		B			D			F				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		46.5		42.6	14.6	31.8			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		16.5		37.0	7.1	22.0			
Green Ext Time (p_c), s		2.6		0.0	0.3	2.4			

Intersection Summary		
HCM 6th Ctrl Delay		63.3
HCM 6th LOS		E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	296	388	205	668	277
v/c Ratio	0.62	0.57	0.41	0.66	0.63
Control Delay	33.0	6.4	12.1	16.5	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	6.4	12.1	16.5	36.0
Queue Length 50th (ft)	126	0	46	208	121
Queue Length 95th (ft)	255	68	104	410	252
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	882	943	581	1535	1154
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.41	0.35	0.44	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1774	
Flt Permitted		1.00	1.00	0.37	1.00						0.95	
Satd. Flow (perm)		1696	1455	598	1810						1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	388	205	668	0	0	0	0	276	1	0
RTOR Reduction (vph)	0	0	277	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	111	205	668	0	0	0	0	0	277	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		22.9	22.9	45.2	45.2						19.9	
Effective Green, g (s)		22.9	22.9	45.2	45.2						19.9	
Actuated g/C Ratio		0.29	0.29	0.57	0.57						0.25	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		486	417	508	1023						441	
v/s Ratio Prot		0.17		0.07	c0.37							
v/s Ratio Perm			0.08	0.16							0.16	
v/c Ratio		0.61	0.27	0.40	0.65						0.63	
Uniform Delay, d1		24.6	22.0	9.7	11.9						26.7	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		2.5	0.5	0.5	1.7						3.2	
Delay (s)		27.1	22.5	10.2	13.6						29.9	
Level of Service		C	C	B	B						C	
Approach Delay (s)		24.5			12.8			0.0			29.9	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	22.7
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - UNMIT

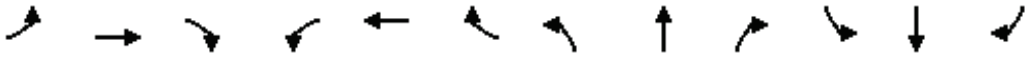
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	296	388	205	668	0				276	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	584	499	423	1047	0				359	1	0
Arrive On Green	0.00	0.34	0.34	0.11	0.57	0.00				0.20	0.20	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1803	7	0
Grp Volume(v), veh/h	0	296	388	205	668	0				277	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	8.9	15.4	5.1	16.0	0.0				9.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.9	15.4	5.1	16.0	0.0				9.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h	0	584	499	423	1047	0				360	0	0
V/C Ratio(X)	0.00	0.51	0.78	0.48	0.64	0.00				0.77	0.00	0.00
Avail Cap(c_a), veh/h	0	1058	905	728	1905	0				1390	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.2	19.3	11.3	9.3	0.0				24.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	3.7	0.9	0.9	0.0				4.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.2	4.9	1.5	4.6	0.0				4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.1	23.0	12.2	10.3	0.0				29.6	0.0	0.0
LnGrp LOS	A	B	C	B	B	A				C	A	A
Approach Vol, veh/h		684			873						277	
Approach Delay, s/veh		20.9			10.7						29.6	
Approach LOS		C			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		45.2		19.9	15.3	30.0						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		18.0		11.4	7.1	17.4						
Green Ext Time (p_c), s		7.7		1.6	0.5	4.7						

Intersection Summary												
HCM 6th Ctrl Delay			17.4									
HCM 6th LOS			B									

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Future Volume (Veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	74	61	8	63	1	248	2	9	1	1	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked												
vC, conflicting volume	64			135			320	252	104	262	282	64
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			135			320	252	104	262	282	64
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			56	100	99	100	100	92
cM capacity (veh/h)	1431			1201			563	634	911	671	611	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	169	72	259	70
Volume Left	34	8	248	1
Volume Right	61	1	9	68
cSH	1431	1201	571	852
Volume to Capacity	0.02	0.01	0.45	0.08
Queue Length 95th (ft)	2	1	59	7
Control Delay (s)	1.7	0.9	16.4	9.6
Lane LOS	A	A	C	A
Approach Delay (s)	1.7	0.9	16.4	9.6
Approach LOS			C	A

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Future Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	34	74	61	8	63	1	248	2	9	1	1	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	135	0	0	287	253	105	258	283	64
Stage 1	-	-	-	-	-	-	173	173	-	80	80	-
Stage 2	-	-	-	-	-	-	114	80	-	178	203	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1431	-	-	1201	-	-	659	654	910	699	629	859
Stage 1	-	-	-	-	-	-	822	760	-	934	832	-
Stage 2	-	-	-	-	-	-	884	832	-	828	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1201	-	-	590	632	910	673	608	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	632	-	673	608	-
Stage 1	-	-	-	-	-	-	801	740	-	910	826	-
Stage 2	-	-	-	-	-	-	807	826	-	796	718	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.9	15.6	9.6
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1431	-	-	1201	-	-	850
HCM Lane V/C Ratio	0.433	0.024	-	-	0.006	-	-	0.083
HCM Control Delay (s)	15.6	7.6	0	-	8	0	-	9.6
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-	0.3

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 AM - UNMIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Future Volume (Veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	249	1	11	23	58	10	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	400	163	11	152	152	22	12			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	400	163	11	152	152	22	12			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	76	100			96		
cM capacity (veh/h)	418	702	1076	791	712	1054	1620			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	261	35	70
Volume Left	1	12	1	58
Volume Right	1	249	23	2
cSH	602	1039	1620	1578
Volume to Capacity	0.00	0.25	0.00	0.04
Queue Length 95th (ft)	0	25	0	3
Control Delay (s)	11.0	9.6	0.2	6.2
Lane LOS	B	A	A	A
Approach Delay (s)	11.0	9.6	0.2	6.2
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Future Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	25	2	2	0	0
Mvmt Flow	1	0	1	12	0	249	1	11	23	58	10	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	276	163	11	153	153	23	12	0	0	34	0	0
Stage 1	127	127	-	25	25	-	-	-	-	-	-	-
Stage 2	149	36	-	128	128	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	729	1076	814	739	1054	1620	-	-	1578	-	-
Stage 1	882	791	-	993	874	-	-	-	-	-	-	-
Stage 2	858	865	-	876	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	505	701	1076	790	711	1054	1620	-	-	1578	-	-
Mov Cap-2 Maneuver	505	701	-	790	711	-	-	-	-	-	-	-
Stage 1	881	762	-	992	873	-	-	-	-	-	-	-
Stage 2	655	864	-	843	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9.6	0.2	6.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	687	1038	1578	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.251	0.037	-	-
HCM Control Delay (s)	7.2	0	-	10.3	9.6	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0.1	-	-

HCM Unsignalized Intersection Capacity Analysis
9: West Campus 1/West Campus 2 & Connector Road

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Future Volume (Veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	247	60	3	271	1	49	0	2	1	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	272			307			580	573	277	574	602	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272			307			580	573	277	574	602	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			88	100	100	100	100	99
cM capacity (veh/h)	1291			1254			418	426	762	425	409	767

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	316	275	51	9
Volume Left	9	3	49	1
Volume Right	60	1	2	8
cSH	1291	1254	425	704
Volume to Capacity	0.01	0.00	0.12	0.01
Queue Length 95th (ft)	1	0	10	1
Control Delay (s)	0.3	0.1	14.6	10.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	0.1	14.6	10.2
Approach LOS			B	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Future Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	247	60	3	271	1	49	0	2	1	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	272	0	0	307	0	0	577	573	277	574	603	272
Stage 1	-	-	-	-	-	-	295	295	-	278	278	-
Stage 2	-	-	-	-	-	-	282	278	-	296	325	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1291	-	-	1254	-	-	428	430	762	430	413	767
Stage 1	-	-	-	-	-	-	713	669	-	728	680	-
Stage 2	-	-	-	-	-	-	725	680	-	712	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1291	-	-	1254	-	-	420	425	762	425	408	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	425	-	425	408	-
Stage 1	-	-	-	-	-	-	707	664	-	722	678	-
Stage 2	-	-	-	-	-	-	716	678	-	704	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	14.5	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	428	1291	-	-	1254	-	-	697
HCM Lane V/C Ratio	0.119	0.007	-	-	0.003	-	-	0.012
HCM Control Delay (s)	14.5	7.8	0	-	7.9	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

HCM Unsignalized Intersection Capacity Analysis
10: South Campus 1 & Connector Road

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	27	1	231	22	1
Future Volume (Veh/h)	203	27	1	231	22	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	29	1	251	24	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			250		488	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		488	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1316		538	804

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	250	252	25
Volume Left	0	1	24
Volume Right	29	0	1
cSH	1700	1316	545
Volume to Capacity	0.15	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	11.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

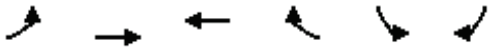
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	27	1	231	22	1
Future Vol, veh/h	203	27	1	231	22	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	221	29	1	251	24	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	250	0	489	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1316	-	538	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1316	-	537	803
Mov Cap-2 Maneuver	-	-	-	-	537	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	1316	-
HCM Lane V/C Ratio	0.046	-	-	0.001	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	160	196	2	1	36
Future Volume (Veh/h)	44	160	196	2	1	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	174	213	2	1	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	215				484	214
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215				484	214
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	95
cM capacity (veh/h)	1355				523	826

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	222	215	40
Volume Left	48	0	1
Volume Right	0	2	39
cSH	1355	1700	814
Volume to Capacity	0.04	0.13	0.05
Queue Length 95th (ft)	3	0	4
Control Delay (s)	1.9	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	1.9	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization		34.6%	ICU Level of Service
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	160	196	2	1	36
Future Vol, veh/h	44	160	196	2	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	174	213	2	1	39

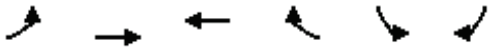
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	215	0	-	0	484	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1355	-	-	-	542	826
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1355	-	-	-	521	826
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	813
HCM Lane V/C Ratio	0.035	-	-	-	0.049
HCM Control Delay (s)	7.8	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	161	198	158	35	1
Future Volume (Veh/h)	1	161	198	158	35	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	175	215	172	38	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	387				478	301
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387				478	301
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	100
cM capacity (veh/h)	1171				546	739

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	176	387	39
Volume Left	1	0	38
Volume Right	0	172	1
cSH	1171	1700	549
Volume to Capacity	0.00	0.23	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.1	0.0	12.1
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	12.1
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	161	198	158	35	1
Future Vol, veh/h	1	161	198	158	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	175	215	172	38	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	387	0	-	0	478	301
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1171	-	-	-	546	739
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	854	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1171	-	-	-	545	739
Mov Cap-2 Maneuver	-	-	-	-	545	-
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	854	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1171	-	-	-	549
HCM Lane V/C Ratio	0.001	-	-	-	0.071
HCM Control Delay (s)	8.1	0	-	-	12.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
13: South Campus 2 & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	41	2	323	33	2
Future Volume (Veh/h)	155	41	2	323	33	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	168	45	2	351	36	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			213		546	190
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		546	190
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1357		498	851

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	353	38
Volume Left	0	2	36
Volume Right	45	0	2
cSH	1700	1357	509
Volume to Capacity	0.13	0.00	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.1	12.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.6
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

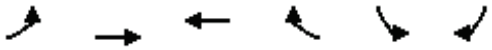
Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	155	41	2	323	33	2
Future Vol, veh/h	155	41	2	323	33	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	45	2	351	36	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	213	0	546	191
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	355	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1357	-	499	851
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1357	-	498	851
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	510	-	-	1357	-
HCM Lane V/C Ratio	0.075	-	-	0.002	-
HCM Control Delay (s)	12.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	67	252	5	4	73
Future Volume (Veh/h)	90	67	252	5	4	73
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	73	274	5	4	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	279				546	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				546	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	90
cM capacity (veh/h)	1284				461	762

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	171	279	83
Volume Left	98	0	4
Volume Right	0	5	79
cSH	1284	1700	739
Volume to Capacity	0.08	0.16	0.11
Queue Length 95th (ft)	6	0	9
Control Delay (s)	4.9	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	4.9	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	67	252	5	4	73
Future Vol, veh/h	90	67	252	5	4	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	73	274	5	4	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	279	0	-	0	546	277
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1284	-	-	-	499	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	776	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	459	762
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	776	-

Approach	EB	WB	SB
HCM Control Delay, s	4.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	737
HCM Lane V/C Ratio	0.076	-	-	-	0.114
HCM Control Delay (s)	8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

HCM Unsignalized Intersection Capacity Analysis
15: Neighborhood Connector & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - UNMIT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	8	1	250	7	1
Future Volume (Veh/h)	63	8	1	250	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	9	1	272	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			77		346	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		346	72
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1522		650	990

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	273	9
Volume Left	0	1	8
Volume Right	9	0	1
cSH	1700	1522	676
Volume to Capacity	0.05	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	10.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

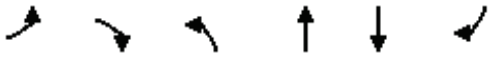
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	8	1	250	7	1
Future Vol, veh/h	63	8	1	250	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	9	1	272	8	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	347	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1522	-	650	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1522	-	649	989
Mov Cap-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	678	-	-	1522	-
HCM Lane V/C Ratio	0.013	-	-	0.001	-
HCM Control Delay (s)	10.4	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	1	1	1	1	9
Future Volume (Veh/h)	8	1	1	1	1	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	1	1	1	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	9	6	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9	6	11			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	1011	1077	1608			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	2	11
Volume Left	9	1	0
Volume Right	1	0	10
cSH	1017	1608	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	1	1	1	1	9
Future Vol, veh/h	8	1	1	1	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	1	1	1	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	9	6	11	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1011	1077	1608	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1010	1077	1608	-	-	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1017	-	-
HCM Lane V/C Ratio	0.001	-	0.01	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	134	364	913	155	274	544	449	82	32	1443	74
v/c Ratio	0.61	1.26	2.67	1.24	0.91	2.34	0.19	0.07	0.36	0.65	0.06
Control Delay	92.2	200.2	781.8	219.8	110.3	647.9	12.1	1.3	90.9	22.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.2	200.2	781.8	219.8	110.3	647.9	12.1	1.3	90.9	22.5	1.7
Queue Length 50th (ft)	78	~273	~1713	~219	165	~523	103	0	36	531	2
Queue Length 95th (ft)	118	#387	#1979	#381	#268	#648	137	16	76	603	17
Internal Link Dist (ft)		2754			953		8663			2896	
Turn Bay Length (ft)	500		500	300		400		700	550		700
Base Capacity (vph)	235	290	342	125	300	232	2377	1220	126	2212	1167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	1.26	2.67	1.24	0.91	2.34	0.19	0.07	0.25	0.65	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	349	876	149	236	27	522	431	79	31	1385	71
Future Volume (vph)	129	349	876	149	236	27	522	431	79	31	1385	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3574	1568	1770	3523		3335	3574	1568	1736	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3574	1568	1770	3523		3335	3574	1568	1736	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	364	912	155	246	28	544	449	82	32	1443	74
RTOR Reduction (vph)	0	0	56	0	5	0	0	0	22	0	0	21
Lane Group Flow (vph)	134	364	857	155	269	0	544	449	60	32	1443	53
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	11.1	14.2	26.4	12.4	14.7		12.2	115.0	127.4	7.5	109.4	120.5
Effective Green, g (s)	11.1	14.2	26.4	12.4	14.7		12.2	115.0	127.4	7.5	109.4	120.5
Actuated g/C Ratio	0.06	0.08	0.15	0.07	0.08		0.07	0.66	0.73	0.04	0.63	0.69
Clearance Time (s)	8.0	5.8	7.8	7.6	6.2		7.8	5.3	7.6	7.2	5.6	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	217	290	236	125	295		232	2348	1141	74	2212	1090
v/s Ratio Prot	0.04	0.10	c0.25	c0.09	0.08		0.16	c0.13	0.00	0.02	c0.41	0.00
v/s Ratio Perm			0.29						0.03			0.03
v/c Ratio	0.62	1.26	3.63	1.24	0.91		2.34	0.19	0.05	0.43	0.65	0.05
Uniform Delay, d1	79.9	80.4	74.3	81.3	79.5		81.4	11.8	6.7	81.7	20.8	8.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	139.9	1194.5	158.6	30.8		618.4	0.2	0.0	4.0	1.5	0.0
Delay (s)	85.0	220.3	1268.8	239.9	110.3		699.8	11.9	6.7	85.7	22.3	8.8
Level of Service	F	F	F	F	F		F	B	A	F	C	A
Approach Delay (s)		885.9			157.1			359.6			22.9	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	389.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	117.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	349	876	149	236	27	522	431	79	31	1385	71
Future Volume (veh/h)	129	349	876	149	236	27	522	431	79	31	1385	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1870	1885	1900	1826	1885	1856	1841	1870	1870
Adj Flow Rate, veh/h	134	364	912	155	246	28	544	449	82	32	1443	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	174	291	237	126	322	36	235	2380	1156	55	2213	1067
Arrive On Green	0.05	0.08	0.08	0.07	0.10	0.10	0.07	0.66	0.66	0.03	0.62	0.62
Sat Flow, veh/h	3456	3582	1572	1781	3245	366	3374	3582	1572	1753	3554	1585
Grp Volume(v), veh/h	134	364	912	155	135	139	544	449	82	32	1443	74
Grp Sat Flow(s),veh/h/ln	1728	1791	1572	1781	1791	1819	1687	1791	1572	1753	1777	1585
Q Serve(g_s), s	6.7	14.2	14.2	12.4	12.8	13.1	12.2	8.4	2.5	3.2	45.1	2.8
Cycle Q Clear(g_c), s	6.7	14.2	14.2	12.4	12.8	13.1	12.2	8.4	2.5	3.2	45.1	2.8
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	291	237	126	178	181	235	2380	1156	55	2213	1067
V/C Ratio(X)	0.77	1.25	3.84	1.23	0.76	0.77	2.31	0.19	0.07	0.58	0.65	0.07
Avail Cap(c_a), veh/h	237	291	237	126	178	181	235	2380	1156	128	2222	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.1	80.4	74.3	81.3	76.8	76.9	81.4	11.3	6.5	83.6	21.0	9.8
Incr Delay (d2), s/veh	10.0	138.7	1290.2	153.8	17.0	18.3	602.3	0.2	0.1	9.2	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	12.1	95.6	11.1	6.8	7.1	25.0	3.4	0.9	1.6	18.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	219.1	1364.5	235.1	93.8	95.2	683.7	11.4	6.6	92.8	22.5	9.9
LnGrp LOS	F	F	F	F	F	F	F	B	A	F	C	A
Approach Vol, veh/h		1410			429			1075			1549	
Approach Delay, s/veh		947.9			145.3			351.2			23.3	
Approach LOS		F			F			F			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	121.9	16.8	23.6	20.0	114.6	20.0	20.4
Change Period (Y+Rc), s	7.2	* 5.6	* 8	* 6.2	7.8	* 5.6	7.6	* 6.2
Max Green Setting (Gmax), s	12.8	* 1.1E2	* 12	* 14	12.2	* 1.1E2	12.4	* 14
Max Q Clear Time (g_c+I1), s	5.2	10.4	8.7	15.1	14.2	47.1	14.4	16.2
Green Ext Time (p_c), s	0.0	24.8	0.1	0.0	0.0	59.5	0.0	0.0

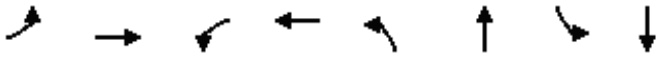
Intersection Summary	
HCM 6th Ctrl Delay	406.1
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	259	69	177	91	927	235	2302
v/c Ratio	0.37	0.98	0.41	0.71	0.75	0.50	0.60	1.12
Control Delay	45.3	99.6	47.5	48.9	59.1	22.5	15.8	88.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	99.6	47.5	48.9	59.1	22.5	15.8	88.1
Queue Length 50th (ft)	57	~197	48	86	30	274	76	~1263
Queue Length 95th (ft)	102	#391	90	171	#136	371	119	#1434
Internal Link Dist (ft)		1275		420		3738		8663
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	241	263	200	278	122	1848	450	2061
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.98	0.34	0.64	0.75	0.50	0.52	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1686		1583	1622		1770	3467		1752	3513	
Flt Permitted	0.37	1.00		0.25	1.00		0.06	1.00		0.21	1.00	
Satd. Flow (perm)	656	1686		417	1622		103	3467		396	3513	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	99	160	69	49	128	91	876	51	235	2216	86
RTOR Reduction (vph)	0	42	0	0	68	0	0	3	0	0	2	0
Lane Group Flow (vph)	81	217	0	69	109	0	91	924	0	235	2300	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	28.0	17.8		24.4	16.0		77.3	72.1		91.4	79.4	
Effective Green, g (s)	28.0	17.8		24.4	16.0		77.3	72.1		91.4	79.4	
Actuated g/C Ratio	0.21	0.13		0.18	0.12		0.57	0.53		0.67	0.58	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	210	220		146	190		122	1833		389	2046	
v/s Ratio Prot	0.03	c0.13		c0.03	0.07		0.03	0.27		c0.06	c0.65	
v/s Ratio Perm	0.05			0.06			0.39			0.35		
v/c Ratio	0.39	0.99		0.47	0.57		0.75	0.50		0.60	1.12	
Uniform Delay, d1	45.4	59.1		48.5	56.9		31.3	20.6		12.1	28.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	56.6		2.4	4.1		21.7	0.5		2.6	62.9	
Delay (s)	46.6	115.7		50.9	61.1		53.0	21.1		14.7	91.4	
Level of Service	D	F		D	E		D	C		B	F	
Approach Delay (s)		99.3			58.2			23.9			84.3	
Approach LOS		F			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	69.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	136.3	Sum of lost time (s)	25.5
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	81	99	160	69	49	128	91	876	51	235	2216	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	169	85	138	132	57	150	118	1876	109	425	2068	80
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.04	0.55	0.55	0.07	0.59	0.59
Sat Flow, veh/h	1697	648	1048	1612	455	1187	1781	3386	197	1767	3489	134
Grp Volume(v), veh/h	81	0	259	69	0	177	91	456	471	235	1121	1181
Grp Sat Flow(s),veh/h/ln	1697	0	1697	1612	0	1642	1781	1763	1820	1767	1777	1846
Q Serve(g_s), s	5.5	0.0	17.6	4.9	0.0	14.1	2.9	20.8	20.8	7.5	79.2	79.2
Cycle Q Clear(g_c), s	5.5	0.0	17.6	4.9	0.0	14.1	2.9	20.8	20.8	7.5	79.2	79.2
Prop In Lane	1.00		0.62	1.00		0.72	1.00		0.11	1.00		0.07
Lane Grp Cap(c), veh/h	169	0	224	132	0	207	118	977	1009	425	1054	1095
V/C Ratio(X)	0.48	0.00	1.16	0.52	0.00	0.85	0.77	0.47	0.47	0.55	1.06	1.08
Avail Cap(c_a), veh/h	236	0	224	205	0	216	123	977	1009	533	1054	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	58.0	48.6	0.0	57.1	32.3	17.9	17.9	13.2	27.2	27.2
Incr Delay (d2), s/veh	2.1	0.0	109.7	3.2	0.0	26.0	24.2	0.7	0.7	1.1	46.6	51.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	14.2	2.1	0.0	7.4	2.3	7.9	8.2	2.8	42.9	45.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	0.0	167.7	51.8	0.0	83.1	56.6	18.6	18.6	14.3	73.8	78.2
LnGrp LOS	D	A	F	D	A	F	E	B	B	B	F	F
Approach Vol, veh/h		340			246			1018			2537	
Approach Delay, s/veh		139.6			74.3			22.0			70.3	
Approach LOS		F			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	86.0	10.9	25.0	16.8	80.8	11.7	24.3
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 5.2	* 79	12.5	17.6	* 18	* 66	12.5	17.6
Max Q Clear Time (g_c+I1), s	4.9	81.2	6.9	19.6	9.5	22.8	7.5	16.1
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.5	13.4	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	64.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
3: US-1 & Sage Lane /Connector Road

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Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	57	100	29	909	35	104	2367
v/c Ratio	0.21	0.26	0.28	0.17	0.44	0.04	0.26	0.69
Control Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Length 50th (ft)	0	45	0	7	214	0	28	541
Queue Length 95th (ft)	4	91	49	18	263	0	48	606
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		300	300	
Base Capacity (vph)	479	216	360	172	2396	1109	396	3436
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.28	0.17	0.38	0.03	0.26	0.69

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: US-1 & Sage Lane /Connector Road

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.90			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1661			1770	1583	1770	3539	1583	1770	5077	
Flt Permitted		0.99			0.95	1.00	0.06	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1661			1770	1583	108	3539	1583	464	5077	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	0	46	57	0	100	29	909	35	104	2340	27
RTOR Reduction (vph)	0	60	0	0	0	87	0	0	14	0	1	0
Lane Group Flow (vph)	0	5	0	0	57	13	29	909	21	104	2366	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Effective Green, g (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Actuated g/C Ratio		0.07			0.07	0.13	0.62	0.59	0.59	0.68	0.62	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		120			128	288	110	2090	935	391	3160	
v/s Ratio Prot		c0.00			c0.03	0.00	0.01	0.26		c0.02	c0.47	
v/s Ratio Perm						0.01	0.15		0.01	0.17		
v/c Ratio		0.04			0.45	0.05	0.26	0.43	0.02	0.27	0.75	
Uniform Delay, d1		50.4			51.9	44.4	13.6	13.2	9.9	7.5	15.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			2.5	0.1	1.3	0.1	0.0	0.4	1.0	
Delay (s)		50.5			54.4	44.4	14.9	13.3	9.9	7.9	16.6	
Level of Service		D			D	D	B	B	A	A	B	
Approach Delay (s)		50.5			48.0			13.2			16.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
3: US-1 & Sage Lane /Connector Road

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	46	57	0	100	29	909	35	104	2340	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	0	102	175	0	232	151	2017	900	402	3043	35
Arrive On Green	0.09	0.00	0.09	0.10	0.00	0.10	0.03	0.57	0.57	0.05	0.58	0.58
Sat Flow, veh/h	479	0	1159	1781	0	1585	1781	3554	1585	1781	5204	60
Grp Volume(v), veh/h	65	0	0	57	0	100	29	909	35	104	1530	837
Grp Sat Flow(s),veh/h/ln	1638	0	0	1781	0	1585	1781	1777	1585	1781	1702	1860
Q Serve(g_s), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Cycle Q Clear(g_c), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Prop In Lane	0.29		0.71	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	144	0	0	175	0	232	151	2017	900	402	1991	1088
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.43	0.19	0.45	0.04	0.26	0.77	0.77
Avail Cap(c_a), veh/h	311	0	0	176	0	233	184	2198	981	405	2106	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	0.0	50.9	0.0	47.1	17.8	15.2	11.6	11.1	19.0	19.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	1.3	0.6	0.2	0.0	0.3	1.7	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	1.7	0.0	2.9	0.3	6.5	0.4	1.0	14.3	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	0.0	52.0	0.0	48.4	18.4	15.4	11.6	11.5	20.7	22.1
LnGrp LOS	D	A	A	D	A	D	B	B	B	B	C	C
Approach Vol, veh/h		65			157			973			2471	
Approach Delay, s/veh		54.7			49.7			15.3			20.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	76.9		16.7	11.8	74.8		17.9				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	75.0		23.0	6.0	75.0		12.0				
Max Q Clear Time (g_c+I1), s	2.8	43.2		6.6	4.9	20.0		9.0				
Green Ext Time (p_c), s	0.0	27.7		0.2	0.0	12.2		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

Queues
4: US-1 & Centreport Pkwy

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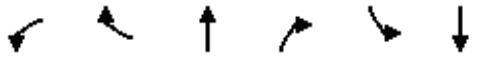

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	608	174	729	680	378	2117
v/c Ratio	0.90	0.26	0.50	0.56	0.90	0.84
Control Delay	63.4	4.9	63.6	9.5	53.1	38.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3
Total Delay	63.4	4.9	63.6	9.5	53.1	39.2
Queue Length 50th (ft)	589	0	234	138	250	698
Queue Length 95th (ft)	#818	50	344	267	#405	764
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	685	679	1471	1234	426	2512
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	76
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.26	0.50	0.55	0.89	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	584	167	700	653	363	2032
Future Volume (vph)	584	167	700	653	363	2032
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	1805	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.29	1.00
Satd. Flow (perm)	1719	1442	5085	1599	547	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	608	174	729	680	378	2117
RTOR Reduction (vph)	0	106	0	41	0	0
Lane Group Flow (vph)	608	68	729	639	378	2117
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	Perm	NA	pm+ov	D.P+P	NA
Protected Phases	3		6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	62.8	62.8	46.3	109.1	69.6	79.8
Effective Green, g (s)	62.8	62.8	46.3	109.1	69.6	79.8
Actuated g/C Ratio	0.39	0.39	0.29	0.68	0.43	0.50
Clearance Time (s)	7.2	7.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	6.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	674	565	1471	1090	421	2511
v/s Ratio Prot	c0.35		0.14	0.23	0.13	c0.42
v/s Ratio Perm		0.05		0.17	c0.26	
v/c Ratio	0.90	0.12	0.50	0.59	0.90	0.84
Uniform Delay, d1	45.7	31.0	47.2	13.5	33.3	34.7
Progression Factor	1.00	1.00	1.31	1.10	1.00	1.00
Incremental Delay, d2	16.8	0.3	1.1	1.4	21.2	3.7
Delay (s)	62.5	31.3	62.9	16.3	54.5	38.3
Level of Service	E	C	E	B	D	D
Approach Delay (s)	55.5		40.4			40.8
Approach LOS	E		D			D

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	584	167	700	653	363	2032
Future Volume (veh/h)	584	167	700	653	363	2032
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	608	174	729	680	378	2117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	654	549	1545	1084	379	2609
Arrive On Green	0.38	0.38	0.10	0.10	0.15	0.51
Sat Flow, veh/h	1739	1459	5274	1598	1810	5233
Grp Volume(v), veh/h	608	174	729	680	378	2117
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1810	1689
Q Serve(g_s), s	53.7	13.5	21.6	32.8	23.7	55.7
Cycle Q Clear(g_c), s	53.7	13.5	21.6	32.8	23.7	55.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	654	549	1545	1084	379	2609
V/C Ratio(X)	0.93	0.32	0.47	0.63	1.00	0.81
Avail Cap(c_a), veh/h	693	582	1545	1084	379	2609
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	47.9	35.3	59.9	17.5	36.7	32.3
Incr Delay (d2), s/veh	20.7	1.2	1.0	2.6	45.3	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.9	4.9	10.0	14.3	15.0	22.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.6	36.5	60.9	20.0	82.1	35.2
LnGrp LOS	E	D	E	C	F	D
Approach Vol, veh/h	782		1409			2495
Approach Delay, s/veh	61.5		41.2			42.3
Approach LOS	E		D			D

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		92.6			34.0	58.6	67.4
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		78.8			23.8	44.8	63.8
Max Q Clear Time (g_c+I1), s		57.7			25.7	34.8	55.7
Green Ext Time (p_c), s		17.9			0.0	6.7	4.6

Intersection Summary	
HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

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Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	190	632	575	503
v/c Ratio	0.61	0.62	0.92	1.02
Control Delay	25.8	19.7	56.6	85.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.8	19.7	56.6	85.5
Queue Length 50th (ft)	66	296	397	~409
Queue Length 95th (ft)	141	405	#651	#684
Internal Link Dist (ft)		2439	275	2104
Turn Bay Length (ft)	275			
Base Capacity (vph)	419	1252	721	492
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.50	0.80	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1810			1540				
Flt Permitted	0.12	1.00			1.00			0.97				
Satd. Flow (perm)	195	1827			1810			1540				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	190	632	0	0	575	0	327	1	175	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	190	632	0	0	575	0	0	489	0	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	63.5	63.5			39.6			35.3				
Effective Green, g (s)	63.5	63.5			39.6			35.3				
Actuated g/C Ratio	0.56	0.56			0.35			0.31				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	312	1019			629			477				
v/s Ratio Prot	0.09	c0.35			c0.32							
v/s Ratio Perm	0.25							0.32				
v/c Ratio	0.61	0.62			0.91			1.02				
Uniform Delay, d1	19.7	17.0			35.5			39.2				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	3.4	1.2			17.8			47.5				
Delay (s)	23.1	18.2			53.3			86.7				
Level of Service	C	B			D			F				
Approach Delay (s)		19.3			53.3			86.7			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	113.8	Sum of lost time (s)	22.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	190	632	0	0	575	0	327	1	175			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	274	970	0	0	643	0	354	1	189			
Arrive On Green	0.10	0.53	0.00	0.00	0.35	0.00	0.31	0.31	0.31			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1128	3	604			
Grp Volume(v), veh/h	190	632	0	0	575	0	503	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1735	0	0			
Q Serve(g_s), s	6.6	23.3	0.0	0.0	28.0	0.0	26.4	0.0	0.0			
Cycle Q Clear(g_c), s	6.6	23.3	0.0	0.0	28.0	0.0	26.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.65		0.35			
Lane Grp Cap(c), veh/h	274	970	0	0	643	0	544	0	0			
V/C Ratio(X)	0.69	0.65	0.00	0.00	0.89	0.00	0.92	0.00	0.00			
Avail Cap(c_a), veh/h	550	1514	0	0	873	0	645	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	21.0	16.0	0.0	0.0	28.8	0.0	31.2	0.0	0.0			
Incr Delay (d2), s/veh	3.1	0.7	0.0	0.0	9.2	0.0	17.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.4	8.7	0.0	0.0	12.9	0.0	13.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.1	16.8	0.0	0.0	38.1	0.0	48.6	0.0	0.0			
LnGrp LOS	C	B	A	A	D	A	D	A	A			
Approach Vol, veh/h		822			575			503				
Approach Delay, s/veh		18.5			38.1			48.6				
Approach LOS		B			D			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		57.0		37.1	16.4	40.5						
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4						
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45						
Max Q Clear Time (g_c+I1), s		25.3		28.4	8.6	30.0						
Green Ext Time (p_c), s		4.6		1.2	0.5	3.1						

Intersection Summary												
HCM 6th Ctrl Delay			32.4									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	519	683	380	595	382
v/c Ratio	0.84	0.69	0.87	0.59	0.81
Control Delay	48.2	6.4	40.8	18.4	52.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	6.4	40.8	18.4	52.1
Queue Length 50th (ft)	341	0	161	250	260
Queue Length 95th (ft)	#555	60	#361	417	350
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	641	1005	439	1030	781
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.68	0.87	0.58	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.17	1.00						0.95	
Satd. Flow (perm)		1792	1583	314	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	519	683	380	595	0	0	0	0	370	12	0
RTOR Reduction (vph)	0	0	445	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	519	238	380	595	0	0	0	0	0	382	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		39.1	39.1	67.1	67.1						30.5	
Effective Green, g (s)		39.1	39.1	67.1	67.1						30.5	
Actuated g/C Ratio		0.35	0.35	0.60	0.60						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		623	550	438	1012						474	
v/s Ratio Prot		0.29		c0.15	0.35							
v/s Ratio Perm			0.15	c0.36							0.22	
v/c Ratio		0.83	0.43	0.87	0.59						0.81	
Uniform Delay, d1		33.7	28.1	22.8	14.1						38.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		9.7	0.7	16.4	1.0						10.2	
Delay (s)		43.4	28.9	39.2	15.1						48.4	
Level of Service		D	C	D	B						D	
Approach Delay (s)		35.1			24.5			0.0			48.4	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	112.4	Sum of lost time (s)	22.7
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	519	683	380	595	0				370	12	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	624	546	398	1007	0				407	13	0
Arrive On Green	0.00	0.34	0.34	0.17	0.58	0.00				0.29	0.29	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1413	46	0
Grp Volume(v), veh/h	0	519	683	380	595	0				382	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	30.6	40.0	18.4	25.5	0.0				29.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.6	40.0	18.4	25.5	0.0				29.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	624	546	398	1007	0				420	0	0
V/C Ratio(X)	0.00	0.83	1.25	0.95	0.59	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	624	546	398	1007	0				628	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	35.0	38.1	30.5	15.3	0.0				39.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.7	127.6	33.3	1.1	0.0				14.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.5	34.0	10.8	9.3	0.0				12.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.7	165.6	63.8	16.4	0.0				54.4	0.0	0.0
LnGrp LOS	A	D	F	E	B	A				D	A	A
Approach Vol, veh/h		1202			975						382	
Approach Delay, s/veh		113.4			34.9						54.4	
Approach LOS		F			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		75.8		40.3	27.9	47.9						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		27.5		31.3	20.4	42.0						
Green Ext Time (p_c), s		6.4		2.1	0.0	0.0						

Intersection Summary												
HCM 6th Ctrl Delay			74.7									
HCM 6th LOS			E									

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Future Volume (Veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	79	249	2	102	1	107	4	2	1	2	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	103			328			494	446	204	450	570	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	103			261			436	386	129	390	517	102
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	94			100			76	99	100	100	100	94
cM capacity (veh/h)	1049			847			442	486	876	381	410	801

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	396	105	113	50
Volume Left	68	2	107	1
Volume Right	249	1	2	47
cSH	1049	847	447	756
Volume to Capacity	0.06	0.00	0.25	0.07
Queue Length 95th (ft)	5	0	25	5
Control Delay (s)	2.1	0.2	15.7	10.1
Lane LOS	A	A	C	B
Approach Delay (s)	2.1	0.2	15.7	10.1
Approach LOS			C	B

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Future Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	68	79	249	2	102	1	107	4	2	1	2	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	328	0	0	471	447	204	450	571	103
Stage 1	-	-	-	-	-	-	340	340	-	107	107	-
Stage 2	-	-	-	-	-	-	131	107	-	343	464	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1049	-	-	838	-	-	498	509	842	386	434	801
Stage 1	-	-	-	-	-	-	669	643	-	707	811	-
Stage 2	-	-	-	-	-	-	865	811	-	509	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	838	-	-	437	466	842	357	397	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	437	466	-	357	397	-
Stage 1	-	-	-	-	-	-	614	590	-	649	809	-
Stage 2	-	-	-	-	-	-	810	809	-	463	521	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.2	15.9	10.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	442	1049	-	-	838	-	-	748
HCM Lane V/C Ratio	0.256	0.065	-	-	0.003	-	-	0.067
HCM Control Delay (s)	15.9	8.7	0	-	9.3	0	-	10.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - UNMIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Future Volume (Veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	109	1	4	32	246	8	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	632	538	8	524	523	20	9			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	632	538	8	524	523	20	9			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	90	100			84		
cM capacity (veh/h)	313	379	1079	408	387	1058	1624			1575		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	121	37	255
Volume Left	1	12	1	246
Volume Right	1	109	32	1
cSH	485	914	1624	1575
Volume to Capacity	0.00	0.13	0.00	0.16
Queue Length 95th (ft)	0	11	0	14
Control Delay (s)	12.5	9.5	0.2	7.5
Lane LOS	B	A	A	A
Approach Delay (s)	12.5	9.5	0.2	7.5
Approach LOS	B	A		

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Future Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	33	0
Mvmt Flow	1	0	1	12	0	109	1	4	32	246	8	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	578	539	9	523	523	20	9	0	0	36	0	0
Stage 1	501	501	-	22	22	-	-	-	-	-	-	-
Stage 2	77	38	-	501	501	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	430	449	1079	465	459	1058	1624	-	-	1575	-	-
Stage 1	556	543	-	996	877	-	-	-	-	-	-	-
Stage 2	937	863	-	552	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	378	1079	408	386	1058	1624	-	-	1575	-	-
Mov Cap-2 Maneuver	339	378	-	408	386	-	-	-	-	-	-	-
Stage 1	555	458	-	995	876	-	-	-	-	-	-	-
Stage 2	840	862	-	465	458	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	9.5	0.2	7.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1624	-	-	516	914	1575	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.132	0.156	-	-
HCM Control Delay (s)	7.2	0	-	12	9.5	7.7	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.6	-	-

HCM Unsignalized Intersection Capacity Analysis
9: West Campus 1/West Campus 2 & Connector Road

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Future Volume (Veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	130	11	1	132	1	25	0	1	1	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	133			141			278	274	136	275	280	132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	133			141			278	274	136	275	280	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	100	100	100	100
cM capacity (veh/h)	1452			1442			670	631	913	676	627	917

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	143	134	26	5
Volume Left	2	1	25	1
Volume Right	11	1	1	4
cSH	1452	1442	677	856
Volume to Capacity	0.00	0.00	0.04	0.01
Queue Length 95th (ft)	0	0	3	0
Control Delay (s)	0.1	0.1	10.5	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	0.1	0.1	10.5	9.2
Approach LOS			B	A

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	19.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Future Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	130	11	1	132	1	25	0	1	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	141	0	0	277	275	136	275	280	133
Stage 1	-	-	-	-	-	-	140	140	-	135	135	-
Stage 2	-	-	-	-	-	-	137	135	-	140	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1442	-	-	675	632	913	677	628	916
Stage 1	-	-	-	-	-	-	863	781	-	868	785	-
Stage 2	-	-	-	-	-	-	866	785	-	863	777	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1442	-	-	671	631	913	675	627	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	671	631	-	675	627	-
Stage 1	-	-	-	-	-	-	862	780	-	867	784	-
Stage 2	-	-	-	-	-	-	861	784	-	861	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.5	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	678	1452	-	-	1442	-	-	855
HCM Lane V/C Ratio	0.038	0.001	-	-	0.001	-	-	0.006
HCM Control Delay (s)	10.5	7.5	0	-	7.5	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

HCM Unsignalized Intersection Capacity Analysis
10: South Campus 1 & Connector Road

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	115	5	1	110	12	1
Future Volume (Veh/h)	115	5	1	110	12	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	125	5	1	120	13	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			130		250	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		250	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1455		738	923

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	130	121	14
Volume Left	0	1	13
Volume Right	5	0	1
cSH	1700	1455	749
Volume to Capacity	0.08	0.00	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.1	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		16.6%	ICU Level of Service
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	5	1	110	12	1
Future Vol, veh/h	115	5	1	110	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	5	1	120	13	1

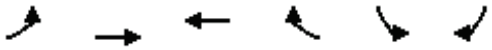
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	250	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	739	922
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	738	922
Mov Cap-2 Maneuver	-	-	-	-	738	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	750	-	-	1455	-
HCM Lane V/C Ratio	0.019	-	-	0.001	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
11: Connector Road & North Campus

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	108	91	1	1	19
Future Volume (Veh/h)	8	108	91	1	1	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	117	99	1	1	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	100				234	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				234	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1493				749	956

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	126	100	22
Volume Left	9	0	1
Volume Right	0	1	21
cSH	1493	1700	944
Volume to Capacity	0.01	0.06	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.6	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	108	91	1	1	19
Future Vol, veh/h	8	108	91	1	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	117	99	1	1	21

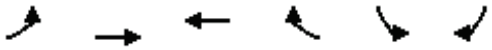
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	235	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1493	-	-	-	753	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	748	956
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	943
HCM Lane V/C Ratio	0.006	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM Unsignalized Intersection Capacity Analysis
12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	109	92	65	165	1
Future Volume (Veh/h)	1	109	92	65	165	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	118	100	71	179	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171				256	136
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171				256	136
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				76	100
cM capacity (veh/h)	1406				733	913

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	119	171	180
Volume Left	1	0	179
Volume Right	0	71	1
cSH	1406	1700	733
Volume to Capacity	0.00	0.10	0.25
Queue Length 95th (ft)	0	0	24
Control Delay (s)	0.1	0.0	11.5
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	11.5
Approach LOS			B

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	109	92	65	165	1
Future Vol, veh/h	1	109	92	65	165	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	118	100	71	179	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	171	0	-	0	256	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1406	-	-	-	733	913
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	732	913
Mov Cap-2 Maneuver	-	-	-	-	732	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	733
HCM Lane V/C Ratio	0.001	-	-	-	0.246
HCM Control Delay (s)	7.6	0	-	-	11.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1

HCM Unsignalized Intersection Capacity Analysis
13: South Campus 2 & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	267	7	1	140	17	1
Future Volume (Veh/h)	267	7	1	140	17	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	290	8	1	152	18	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			298		448	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		448	294
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1263		568	745

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	298	153	19
Volume Left	0	1	18
Volume Right	8	0	1
cSH	1700	1263	575
Volume to Capacity	0.18	0.00	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.1	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	267	7	1	140	17	1
Future Vol, veh/h	267	7	1	140	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	290	8	1	152	18	1

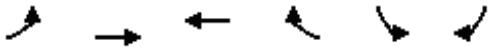
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	298	0	448	294
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1263	-	568	745
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1263	-	567	745
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	873	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	1263	-
HCM Lane V/C Ratio	0.034	-	-	0.001	-
HCM Control Delay (s)	11.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
14: Eskimo Hill Road & East Campus

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	251	102	1	2	38
Future Volume (Veh/h)	17	251	102	1	2	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	273	111	1	2	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	112				420	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				420	112
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	96
cM capacity (veh/h)	1478				582	942

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	291	112	43
Volume Left	18	0	2
Volume Right	0	1	41
cSH	1478	1700	915
Volume to Capacity	0.01	0.07	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	251	102	1	2	38
Future Vol, veh/h	17	251	102	1	2	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	273	111	1	2	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	421	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	309	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1478	-	-	-	589	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1478	-	-	-	581	941
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1478	-	-	-	913
HCM Lane V/C Ratio	0.013	-	-	-	0.048
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM Unsignalized Intersection Capacity Analysis
15: Neighborhood Connector & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 PM - UNMIT

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	252	1	1	100	3	1
Future Volume (Veh/h)	252	1	1	100	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	274	1	1	109	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		386	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		386	274
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1288		617	764

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	275	110	4
Volume Left	0	1	3
Volume Right	1	0	1
cSH	1700	1288	648
Volume to Capacity	0.16	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.6
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	252	1	1	100	3	1
Future Vol, veh/h	252	1	1	100	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	1	1	109	3	1

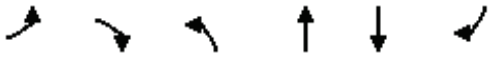
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	386	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	617	764
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1288	-	616	764
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	647	-	-	1288	-
HCM Lane V/C Ratio	0.007	-	-	0.001	-
HCM Control Delay (s)	10.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
16: Neighborhood Connector & South Campus 3

Stafford Technology Campus
Total Future 2030 PM - UNMIT



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	1	1	1	1	1
Future Volume (Veh/h)	3	1	1	1	1	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	1	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1017	1083	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	2	2
Volume Left	3	1	0
Volume Right	1	0	1
cSH	1033	1620	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	1	1	1	1
Future Vol, veh/h	3	1	1	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	1	1	1	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	5	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1017	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1016	1082	1620	-	-	-
Mov Cap-2 Maneuver	1016	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1032	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - MIT



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	266	560	77	268	662	727	127	14	301	83
v/c Ratio	0.46	0.81	0.38	0.51	0.42	0.88	0.37	0.11	0.14	0.32	0.12
Control Delay	58.1	65.6	3.0	63.7	43.0	55.5	17.3	1.9	56.8	36.8	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	65.6	3.0	63.7	43.0	55.5	17.3	1.9	56.8	36.8	2.4
Queue Length 50th (ft)	47	198	14	58	93	240	143	0	11	103	0
Queue Length 95th (ft)	78	287	45	106	130	#365	260	24	32	146	19
Internal Link Dist (ft)		2739			953		8663			2894	
Turn Bay Length (ft)	500		500	300		400		700	550		700
Base Capacity (vph)	325	387	1504	197	769	768	1940	1166	145	935	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.69	0.37	0.39	0.35	0.86	0.37	0.11	0.10	0.32	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	245	515	71	220	27	609	669	117	13	277	76
Future Volume (vph)	114	245	515	71	220	27	609	669	117	13	277	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.8	4.5	4.5	6.2		4.5	5.3	4.5	4.5	5.6	4.5
Lane Util. Factor	0.97	1.00	0.88	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	1845	2472	1752	3411		2694	3438	1568	1805	3282	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	1845	2472	1752	3411		2694	3438	1568	1805	3282	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	266	560	77	239	29	662	727	127	14	301	83
RTOR Reduction (vph)	0	0	264	0	8	0	0	0	47	0	0	53
Lane Group Flow (vph)	124	266	296	77	260	0	662	727	80	14	301	30
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	9.5	21.5	55.0	10.4	22.0		33.5	65.0	75.4	3.0	34.2	43.7
Effective Green, g (s)	9.5	21.5	55.0	10.4	22.0		33.5	65.0	75.4	3.0	34.2	43.7
Actuated g/C Ratio	0.08	0.18	0.46	0.09	0.18		0.28	0.54	0.63	0.02	0.29	0.36
Clearance Time (s)	4.5	5.8	4.5	4.5	6.2		4.5	5.3	4.5	4.5	5.6	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	269	330	1133	151	625		752	1862	985	45	935	544
v/s Ratio Prot	0.04	c0.14	0.07	c0.04	0.08		c0.25	c0.21	0.01	0.01	0.09	0.00
v/s Ratio Perm			0.05						0.04			0.02
v/c Ratio	0.46	0.81	0.26	0.51	0.42		0.88	0.39	0.08	0.31	0.32	0.06
Uniform Delay, d1	52.8	47.2	20.0	52.4	43.3		41.3	16.0	8.7	57.5	33.8	24.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	13.4	0.1	2.7	0.5		11.7	0.6	0.0	3.9	0.9	0.0
Delay (s)	54.1	60.6	20.1	55.1	43.8		53.0	16.6	8.8	61.4	34.7	24.8
Level of Service	D	E	C	E	D		D	B	A	E	C	C
Approach Delay (s)		35.9			46.3			31.9			33.6	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	245	515	71	220	27	609	669	117	13	277	76
Future Volume (veh/h)	114	245	515	71	220	27	609	669	117	13	277	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1678	1856	1841	1826	1455	1826	1856	1900	1752	1781
Adj Flow Rate, veh/h	124	266	560	77	239	29	662	727	127	14	301	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	15	3	4	5	30	5	3	0	10	8
Cap, veh/h	181	350	1128	99	602	72	706	1967	979	28	1065	563
Arrive On Green	0.05	0.19	0.19	0.06	0.19	0.19	0.26	0.57	0.57	0.02	0.32	0.32
Sat Flow, veh/h	3428	1856	2502	1767	3144	377	2689	3469	1572	1810	3328	1510
Grp Volume(v), veh/h	124	266	560	77	132	136	662	727	127	14	301	83
Grp Sat Flow(s),veh/h/ln	1714	1856	1251	1767	1749	1773	1345	1735	1572	1810	1664	1510
Q Serve(g_s), s	4.3	16.3	19.0	5.2	7.9	8.1	28.9	13.8	4.0	0.9	8.1	4.4
Cycle Q Clear(g_c), s	4.3	16.3	19.0	5.2	7.9	8.1	28.9	13.8	4.0	0.9	8.1	4.4
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	181	350	1128	99	335	339	706	1967	979	28	1065	563
V/C Ratio(X)	0.69	0.76	0.50	0.78	0.39	0.40	0.94	0.37	0.13	0.50	0.28	0.15
Avail Cap(c_a), veh/h	329	390	1182	199	391	396	728	1967	979	146	1065	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.58	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	46.1	23.3	55.9	42.4	42.5	43.3	14.2	9.3	58.6	30.5	25.0
Incr Delay (d2), s/veh	4.5	7.7	0.3	12.5	0.8	0.8	13.1	0.3	0.2	13.0	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	8.1	5.5	2.6	3.5	3.6	10.7	5.3	1.3	0.5	3.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	53.8	23.7	68.4	43.2	43.3	56.4	14.5	9.4	71.6	31.2	25.5
LnGrp LOS	E	D	C	E	D	D	E	B	A	E	C	C
Approach Vol, veh/h		950			345			1516			398	
Approach Delay, s/veh		36.9			48.8			32.4			31.4	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	73.6	10.8	29.2	36.0	44.0	11.2	28.8
Change Period (Y+Rc), s	4.5	* 5.6	4.5	* 6.2	4.5	* 5.6	4.5	* 6.2
Max Green Setting (Gmax), s	9.7	* 52	11.5	* 27	32.5	* 28	13.5	* 25
Max Q Clear Time (g_c+I1), s	2.9	15.8	6.3	10.1	30.9	10.1	7.2	21.0
Green Ext Time (p_c), s	0.0	25.8	0.2	0.8	0.6	7.7	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

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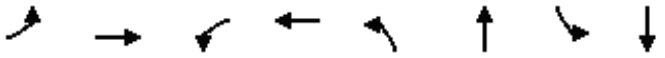

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	160	117	262	124	1281	85	853
v/c Ratio	0.33	0.50	0.36	0.68	0.37	0.78	0.38	0.58
Control Delay	34.9	22.9	34.6	37.5	14.3	29.6	16.1	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	22.9	34.6	37.5	14.3	29.6	16.1	24.2
Queue Length 50th (ft)	46	34	64	114	36	410	24	227
Queue Length 95th (ft)	94	105	123	224	76	589	56	334
Internal Link Dist (ft)		2701		420		3738		8663
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	265	583	335	618	348	2055	251	2006
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.27	0.35	0.42	0.36	0.62	0.34	0.43

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1606		1703	1638		1736	3448		1719	3310	
Flt Permitted	0.43	1.00		0.49	1.00		0.24	1.00		0.10	1.00	
Satd. Flow (perm)	755	1606		875	1638		430	3448		182	3310	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	38	122	117	66	196	124	1236	45	85	774	79
RTOR Reduction (vph)	0	92	0	0	83	0	0	2	0	0	5	0
Lane Group Flow (vph)	85	68	0	117	179	0	124	1279	0	85	848	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	23.1	16.8		29.9	20.2		60.4	51.8		57.0	50.1	
Effective Green, g (s)	23.1	16.8		29.9	20.2		60.4	51.8		57.0	50.1	
Actuated g/C Ratio	0.21	0.15		0.27	0.18		0.55	0.47		0.51	0.45	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	208	243		308	298		336	1613		189	1498	
v/s Ratio Prot	0.02	0.04		c0.03	c0.11		c0.03	c0.37		0.03	0.26	
v/s Ratio Perm	0.06			0.07			0.17			0.20		
v/c Ratio	0.41	0.28		0.38	0.60		0.37	0.79		0.45	0.57	
Uniform Delay, d1	36.6	41.6		31.8	41.6		13.6	24.9		17.8	22.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.6		0.8	3.4		0.7	3.2		1.7	0.8	
Delay (s)	37.9	42.2		32.6	45.0		14.3	28.1		19.5	23.1	
Level of Service	D	D		C	D		B	C		B	C	
Approach Delay (s)		40.8			41.1			26.9			22.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	85	38	122	117	66	196	124	1236	45	85	774	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	192	63	201	279	76	225	349	1638	60	222	1453	148
Arrive On Green	0.06	0.16	0.16	0.07	0.18	0.18	0.05	0.48	0.48	0.04	0.46	0.46
Sat Flow, veh/h	1682	384	1234	1725	422	1253	1753	3442	125	1739	3126	319
Grp Volume(v), veh/h	85	0	160	117	0	262	124	628	653	85	422	431
Grp Sat Flow(s),veh/h/ln	1682	0	1619	1725	0	1675	1753	1749	1818	1739	1706	1739
Q Serve(g_s), s	4.3	0.0	9.6	5.8	0.0	15.9	3.8	30.6	30.7	2.6	18.4	18.4
Cycle Q Clear(g_c), s	4.3	0.0	9.6	5.8	0.0	15.9	3.8	30.6	30.7	2.6	18.4	18.4
Prop In Lane	1.00		0.76	1.00		0.75	1.00		0.07	1.00		0.18
Lane Grp Cap(c), veh/h	192	0	263	279	0	301	349	832	866	222	793	808
V/C Ratio(X)	0.44	0.00	0.61	0.42	0.00	0.87	0.36	0.75	0.75	0.38	0.53	0.53
Avail Cap(c_a), veh/h	235	0	506	327	0	556	407	1026	1067	316	1018	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	0.0	40.6	33.2	0.0	41.6	14.9	22.3	22.3	18.5	19.8	19.8
Incr Delay (d2), s/veh	1.6	0.0	2.3	1.0	0.0	7.7	0.6	3.7	3.6	1.1	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	3.9	2.5	0.0	7.2	1.4	11.8	12.3	1.0	6.9	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	0.0	42.8	34.2	0.0	49.3	15.6	26.1	26.0	19.5	21.0	21.0
LnGrp LOS	D	A	D	C	A	D	B	C	C	B	C	C
Approach Vol, veh/h		245			379			1405			938	
Approach Delay, s/veh		40.5			44.6			25.1			20.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	55.3	12.1	24.4	11.4	56.4	10.3	26.2
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 62	10.5	32.6	* 10	* 61	8.5	34.6
Max Q Clear Time (g_c+I1), s	5.8	20.4	7.8	11.6	4.6	32.7	6.3	17.9
Green Ext Time (p_c), s	0.1	12.3	0.1	0.5	0.1	17.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 AM - MIT



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	115	212	31	1160	128	187	817
v/c Ratio	0.11	0.47	0.33	0.08	0.74	0.16	0.54	0.28
Control Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Length 50th (ft)	0	77	25	8	360	0	53	118
Queue Length 95th (ft)	0	161	100	21	475	17	132	157
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		500	300	
Base Capacity (vph)	357	317	689	385	2573	1195	395	4052
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.31	0.08	0.45	0.11	0.47	0.20

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1689			1770	1583	1770	3539	1583	1770	5056	
Flt Permitted		0.98			0.95	1.00	0.33	1.00	1.00	0.11	1.00	
Satd. Flow (perm)		1689			1770	1583	618	3539	1583	204	5056	
Peak-hour factor, PHF	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Adj. Flow (vph)	19	0	22	115	0	212	31	1160	128	187	786	31
RTOR Reduction (vph)	0	39	0	0	0	119	0	0	70	0	3	0
Lane Group Flow (vph)	0	2	0	0	115	93	31	1160	58	187	814	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Effective Green, g (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Actuated g/C Ratio		0.06			0.13	0.27	0.48	0.45	0.45	0.64	0.56	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		96			234	508	331	1604	717	338	2816	
v/s Ratio Prot		c0.00			c0.06	0.02	0.00	c0.33		c0.07	0.16	
v/s Ratio Perm						0.03	0.04		0.04	0.28		
v/c Ratio		0.02			0.49	0.18	0.09	0.72	0.08	0.55	0.29	
Uniform Delay, d1		47.6			43.1	30.3	14.6	23.8	16.6	14.8	12.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			1.6	0.2	0.1	1.6	0.0	2.0	0.1	
Delay (s)		47.7			44.7	30.5	14.7	25.4	16.6	16.8	12.6	
Level of Service		D			D	C	B	C	B	B	B	
Approach Delay (s)		47.7			35.5			24.3			13.4	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
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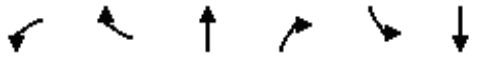
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	22	115	0	212	31	1160	128	187	786	31
Peak Hour Factor	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	0	73	257	0	353	405	1613	720	293	2506	99
Arrive On Green	0.08	0.00	0.08	0.14	0.00	0.14	0.03	0.45	0.45	0.08	0.50	0.50
Sat Flow, veh/h	774	0	896	1781	0	1585	1781	3554	1585	1781	5040	198
Grp Volume(v), veh/h	41	0	0	115	0	212	31	1160	128	187	530	287
Grp Sat Flow(s),veh/h/ln	1670	0	0	1781	0	1585	1781	1777	1585	1781	1702	1835
Q Serve(g_s), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Prop In Lane	0.46		0.54	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	137	0	0	257	0	353	405	1613	720	293	1692	912
V/C Ratio(X)	0.30	0.00	0.00	0.45	0.00	0.60	0.08	0.72	0.18	0.64	0.31	0.31
Avail Cap(c_a), veh/h	202	0	0	305	0	395	450	2541	1133	441	2777	1497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	0.0	38.8	0.0	34.6	13.3	22.0	16.1	18.3	14.9	14.9
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.2	0.0	2.1	0.1	0.6	0.1	2.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.7	0.0	4.8	0.3	9.7	1.6	2.0	3.1	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	0.0	40.1	0.0	36.7	13.4	22.6	16.2	20.6	15.0	15.1
LnGrp LOS	D	A	A	D	A	D	B	C	B	C	B	B
Approach Vol, veh/h		41			327			1319			1004	
Approach Delay, s/veh		44.1			37.9			21.8			16.1	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	55.4		14.1	13.7	51.1		20.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	81.0		12.0	16.0	71.0		17.0				
Max Q Clear Time (g_c+I1), s	2.9	11.3		4.3	7.4	28.3		13.9				
Green Ext Time (p_c), s	0.0	9.7		0.0	0.4	16.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		21.9	
HCM 6th LOS		C	

Queues
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT

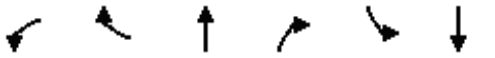


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	391	396	1054	1045	198	677
v/c Ratio	1.08	0.69	0.40	0.78	0.61	0.20
Control Delay	125.3	42.5	28.9	21.4	18.4	9.6
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	125.3	42.5	28.9	22.0	18.4	9.6
Queue Length 50th (ft)	~439	281	317	671	69	88
Queue Length 95th (ft)	#653	409	405	907	104	106
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	363	581	2658	1336	332	3308
Starvation Cap Reductn	0	0	0	77	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.68	0.40	0.83	0.60	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	364	970	961	182	623
Future Volume (vph)	360	364	970	961	182	623
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	1612	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.23	1.00
Satd. Flow (perm)	1719	1583	4940	1568	391	4893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	396	1054	1045	198	677
RTOR Reduction (vph)	0	57	0	78	0	0
Lane Group Flow (vph)	391	339	1054	967	198	677
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	32.8	44.0	83.4	116.2	94.6	104.8
Effective Green, g (s)	32.8	44.0	83.4	116.2	94.6	104.8
Actuated g/C Ratio	0.21	0.28	0.54	0.75	0.61	0.68
Clearance Time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	3.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	363	449	2658	1175	326	3308
v/s Ratio Prot	c0.23	c0.05	0.21	c0.17	0.04	0.14
v/s Ratio Perm		0.16		0.44	0.33	
v/c Ratio	1.08	0.76	0.40	0.82	0.61	0.20
Uniform Delay, d1	61.1	50.6	21.0	12.7	13.9	9.4
Progression Factor	1.00	1.00	1.35	3.38	1.00	1.00
Incremental Delay, d2	69.4	7.1	0.4	4.9	3.2	0.1
Delay (s)	130.5	57.7	28.7	47.7	17.1	9.6
Level of Service	F	E	C	D	B	A
Approach Delay (s)	93.9		38.2			11.3
Approach LOS	F		D			B

Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	360	364	970	961	182	623
Future Volume (veh/h)	360	364	970	961	182	623
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	391	396	1054	1045	198	677
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	368	442	2708	1187	254	3343
Arrive On Green	0.21	0.21	1.00	1.00	0.07	0.68
Sat Flow, veh/h	1739	1585	5149	1572	1640	5107
Grp Volume(v), veh/h	391	396	1054	1045	198	677
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1640	1648
Q Serve(g_s), s	32.8	32.8	0.0	84.2	8.3	8.0
Cycle Q Clear(g_c), s	32.8	32.8	0.0	84.2	8.3	8.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	368	442	2708	1187	254	3343
V/C Ratio(X)	1.06	0.90	0.39	0.88	0.78	0.20
Avail Cap(c_a), veh/h	368	442	2708	1187	269	3343
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	61.1	53.8	0.0	9.4	15.5	9.4
Incr Delay (d2), s/veh	64.4	22.7	0.4	8.0	13.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	17.1	0.1	13.2	3.9	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	125.5	76.5	0.4	17.4	28.5	9.6
LnGrp LOS	F	E	A	B	C	A
Approach Vol, veh/h	787		2099			875
Approach Delay, s/veh	100.9		8.9			13.8
Approach LOS	F		A			B

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		115.0			20.6	94.4	40.0
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		104.8			11.8	82.8	32.8
Max Q Clear Time (g_c+I1), s		10.0			10.3	86.2	34.8
Green Ext Time (p_c), s		7.6			0.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	138	414	421	772
v/c Ratio	0.65	0.55	0.84	0.96
Control Delay	36.6	27.5	52.8	50.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.6	27.5	52.8	50.9
Queue Length 50th (ft)	62	219	280	465
Queue Length 95th (ft)	103	310	397	#871
Internal Link Dist (ft)		2439	275	2104
Turn Bay Length (ft)	275			
Base Capacity (vph)	211	1038	776	804
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.40	0.54	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.94				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1759			1656				
Flt Permitted	0.20	1.00			1.00			0.97				
Satd. Flow (perm)	329	1827			1759			1656				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	138	414	0	0	421	0	424	0	348	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	55	0	0	0	0
Lane Group Flow (vph)	138	414	0	0	421	0	0	717	0	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	45.5	45.5			31.5			50.1				
Effective Green, g (s)	45.5	45.5			31.5			50.1				
Actuated g/C Ratio	0.41	0.41			0.28			0.45				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	211	751			500			750				
v/s Ratio Prot	0.04	c0.23			c0.24							
v/s Ratio Perm	0.23							0.43				
v/c Ratio	0.65	0.55			0.84			0.96				
Uniform Delay, d1	24.1	24.8			37.2			29.2				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	7.1	0.9			12.2			22.4				
Delay (s)	31.2	25.7			49.4			51.6				
Level of Service	C	C			D			D				
Approach Delay (s)		27.0			49.4			51.6			0.0	
Approach LOS		C			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.6	Sum of lost time (s)	22.4
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	138	414	0	0	421	0	424	0	348			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	203	733	0	0	477	0	435	0	357			
Arrive On Green	0.06	0.40	0.00	0.00	0.27	0.00	0.46	0.00	0.46			
Sat Flow, veh/h	1626	1841	0	0	1781	0	941	0	773			
Grp Volume(v), veh/h	138	414	0	0	421	0	772	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1714	0	0			
Q Serve(g_s), s	6.5	18.7	0.0	0.0	24.3	0.0	47.3	0.0	0.0			
Cycle Q Clear(g_c), s	6.5	18.7	0.0	0.0	24.3	0.0	47.3	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.55		0.45			
Lane Grp Cap(c), veh/h	203	733	0	0	477	0	791	0	0			
V/C Ratio(X)	0.68	0.56	0.00	0.00	0.88	0.00	0.98	0.00	0.00			
Avail Cap(c_a), veh/h	203	1075	0	0	808	0	796	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	28.7	25.0	0.0	0.0	37.6	0.0	28.3	0.0	0.0			
Incr Delay (d2), s/veh	8.7	0.7	0.0	0.0	6.3	0.0	25.8	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.9	7.8	0.0	0.0	10.9	0.0	23.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	25.7	0.0	0.0	44.0	0.0	54.0	0.0	0.0			
LnGrp LOS	D	C	A	A	D	A	D	A	A			
Approach Vol, veh/h		552			421			772				
Approach Delay, s/veh		28.7			44.0			54.0				
Approach LOS		C			D			D				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		50.1		57.1	14.0	36.1			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 63		* 50	* 6.6	* 49			
Max Q Clear Time (g_c+I1), s		20.7		49.3	8.5	26.3			
Green Ext Time (p_c), s		2.6		0.2	0.0	2.4			

Intersection Summary		
HCM 6th Ctrl Delay		43.6
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	296	388	205	668	277
v/c Ratio	0.62	0.57	0.41	0.66	0.63
Control Delay	33.0	6.4	12.1	16.5	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	6.4	12.1	16.5	36.0
Queue Length 50th (ft)	126	0	46	208	121
Queue Length 95th (ft)	255	68	104	410	252
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	882	943	581	1535	1154
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.41	0.35	0.44	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1774	
Flt Permitted		1.00	1.00	0.37	1.00						0.95	
Satd. Flow (perm)		1696	1455	598	1810						1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	388	205	668	0	0	0	0	276	1	0
RTOR Reduction (vph)	0	0	277	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	111	205	668	0	0	0	0	0	277	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		22.9	22.9	45.2	45.2						19.9	
Effective Green, g (s)		22.9	22.9	45.2	45.2						19.9	
Actuated g/C Ratio		0.29	0.29	0.57	0.57						0.25	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		486	417	508	1023						441	
v/s Ratio Prot		0.17		0.07	c0.37							
v/s Ratio Perm			0.08	0.16							0.16	
v/c Ratio		0.61	0.27	0.40	0.65						0.63	
Uniform Delay, d1		24.6	22.0	9.7	11.9						26.7	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		2.5	0.5	0.5	1.7						3.2	
Delay (s)		27.1	22.5	10.2	13.6						29.9	
Level of Service		C	C	B	B						C	
Approach Delay (s)		24.5			12.8			0.0			29.9	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	22.7
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	296	0	205	668	0				276	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	415		416	944	0				374	1	0
Arrive On Green	0.00	0.24	0.00	0.13	0.52	0.00				0.21	0.21	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1803	7	0
Grp Volume(v), veh/h	0	296	0	205	668	0				277	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	8.5	0.0	4.8	15.0	0.0				7.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.5	0.0	4.8	15.0	0.0				7.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h	0	415		416	944	0				375	0	0
V/C Ratio(X)	0.00	0.71		0.49	0.71	0.00				0.74	0.00	0.00
Avail Cap(c_a), veh/h	0	1282		798	2308	0				1685	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.7	0.0	12.1	9.9	0.0				19.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.3	0.0	0.9	1.4	0.0				4.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.0	1.3	4.2	0.0				3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.9	0.0	13.1	11.3	0.0				24.0	0.0	0.0
LnGrp LOS	A	C		B	B	A				C	A	A
Approach Vol, veh/h		296			873						277	
Approach Delay, s/veh		21.9			11.7						24.0	
Approach LOS		C			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		35.7		18.0	14.8	20.8						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		17.0		9.7	6.8	10.5						
Green Ext Time (p_c), s		7.7		1.6	0.5	2.5						

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Future Volume (Veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	74	61	8	63	1	248	2	9	1	1	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked												
vC, conflicting volume	64			135			320	252	104	262	282	64
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			135			320	252	104	262	282	64
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			56	100	99	100	100	92
cM capacity (veh/h)	1431			1201			563	634	911	671	611	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	169	72	259	70
Volume Left	34	8	248	1
Volume Right	61	1	9	68
cSH	1431	1201	571	852
Volume to Capacity	0.02	0.01	0.45	0.08
Queue Length 95th (ft)	2	1	59	7
Control Delay (s)	1.7	0.9	16.4	9.6
Lane LOS	A	A	C	A
Approach Delay (s)	1.7	0.9	16.4	9.6
Approach LOS			C	A

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Future Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	34	74	61	8	63	1	248	2	9	1	1	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	135	0	0	287	253	105	258	283	64
Stage 1	-	-	-	-	-	-	173	173	-	80	80	-
Stage 2	-	-	-	-	-	-	114	80	-	178	203	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1431	-	-	1201	-	-	659	654	910	699	629	859
Stage 1	-	-	-	-	-	-	822	760	-	934	832	-
Stage 2	-	-	-	-	-	-	884	832	-	828	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1201	-	-	590	632	910	673	608	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	632	-	673	608	-
Stage 1	-	-	-	-	-	-	801	740	-	910	826	-
Stage 2	-	-	-	-	-	-	807	826	-	796	718	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.9	15.6	9.6
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1431	-	-	1201	-	-	850
HCM Lane V/C Ratio	0.433	0.024	-	-	0.006	-	-	0.083
HCM Control Delay (s)	15.6	7.6	0	-	8	0	-	9.6
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-	0.3

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 AM - MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Future Volume (Veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	249	1	11	23	58	10	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	400	163	11	152	152	22	12			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	400	163	11	152	152	22	12			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	76	100			96		
cM capacity (veh/h)	418	702	1076	791	712	1054	1620			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	261	35	70
Volume Left	1	12	1	58
Volume Right	1	249	23	2
cSH	602	1039	1620	1578
Volume to Capacity	0.00	0.25	0.00	0.04
Queue Length 95th (ft)	0	25	0	3
Control Delay (s)	11.0	9.6	0.2	6.2
Lane LOS	B	A	A	A
Approach Delay (s)	11.0	9.6	0.2	6.2
Approach LOS	B	A		

Intersection Summary				
Average Delay	8.1			
Intersection Capacity Utilization	31.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Future Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	25	2	2	0	0
Mvmt Flow	1	0	1	12	0	249	1	11	23	58	10	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	276	163	11	153	153	23	12	0	0	34	0	0
Stage 1	127	127	-	25	25	-	-	-	-	-	-	-
Stage 2	149	36	-	128	128	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	729	1076	814	739	1054	1620	-	-	1578	-	-
Stage 1	882	791	-	993	874	-	-	-	-	-	-	-
Stage 2	858	865	-	876	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	505	701	1076	790	711	1054	1620	-	-	1578	-	-
Mov Cap-2 Maneuver	505	701	-	790	711	-	-	-	-	-	-	-
Stage 1	881	762	-	992	873	-	-	-	-	-	-	-
Stage 2	655	864	-	843	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9.6	0.2	6.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	687	1038	1578	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.251	0.037	-	-
HCM Control Delay (s)	7.2	0	-	10.3	9.6	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0.1	-	-

HCM Unsignalized Intersection Capacity Analysis
9: West Campus 1/West Campus 2 & Connector Road

Stafford Technology Campus
Total Future 2030 AM - MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Future Volume (Veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	247	60	3	271	1	49	0	2	1	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	272			307			580	573	277	574	602	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272			307			580	573	277	574	602	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			88	100	100	100	100	99
cM capacity (veh/h)	1291			1254			418	426	762	425	409	767

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	316	275	51	9
Volume Left	9	3	49	1
Volume Right	60	1	2	8
cSH	1291	1254	425	704
Volume to Capacity	0.01	0.00	0.12	0.01
Queue Length 95th (ft)	1	0	10	1
Control Delay (s)	0.3	0.1	14.6	10.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	0.1	14.6	10.2
Approach LOS			B	B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Future Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	247	60	3	271	1	49	0	2	1	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	272	0	0	307	0	0	577	573	277	574	603	272
Stage 1	-	-	-	-	-	-	295	295	-	278	278	-
Stage 2	-	-	-	-	-	-	282	278	-	296	325	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1291	-	-	1254	-	-	428	430	762	430	413	767
Stage 1	-	-	-	-	-	-	713	669	-	728	680	-
Stage 2	-	-	-	-	-	-	725	680	-	712	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1291	-	-	1254	-	-	420	425	762	425	408	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	425	-	425	408	-
Stage 1	-	-	-	-	-	-	707	664	-	722	678	-
Stage 2	-	-	-	-	-	-	716	678	-	704	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	14.5	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	428	1291	-	-	1254	-	-	697
HCM Lane V/C Ratio	0.119	0.007	-	-	0.003	-	-	0.012
HCM Control Delay (s)	14.5	7.8	0	-	7.9	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

HCM Unsignalized Intersection Capacity Analysis
10: South Campus 1 & Connector Road

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	27	1	231	22	1
Future Volume (Veh/h)	203	27	1	231	22	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	29	1	251	24	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			250		488	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		488	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1316		538	804

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	250	252	25
Volume Left	0	1	24
Volume Right	29	0	1
cSH	1700	1316	545
Volume to Capacity	0.15	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	11.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

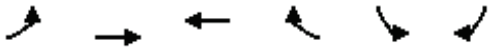
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	27	1	231	22	1
Future Vol, veh/h	203	27	1	231	22	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	221	29	1	251	24	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	250	0	489	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1316	-	538	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1316	-	537	803
Mov Cap-2 Maneuver	-	-	-	-	537	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	1316	-
HCM Lane V/C Ratio	0.046	-	-	0.001	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	160	196	2	1	36
Future Volume (Veh/h)	44	160	196	2	1	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	174	213	2	1	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	215				484	214
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215				484	214
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	95
cM capacity (veh/h)	1355				523	826

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	222	215	40
Volume Left	48	0	1
Volume Right	0	2	39
cSH	1355	1700	814
Volume to Capacity	0.04	0.13	0.05
Queue Length 95th (ft)	3	0	4
Control Delay (s)	1.9	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	1.9	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	160	196	2	1	36
Future Vol, veh/h	44	160	196	2	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	174	213	2	1	39

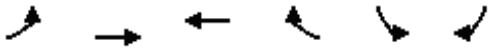
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	215	0	-	0	484	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1355	-	-	-	542	826
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1355	-	-	-	521	826
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	813
HCM Lane V/C Ratio	0.035	-	-	-	0.049
HCM Control Delay (s)	7.8	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	161	198	158	35	1
Future Volume (Veh/h)	1	161	198	158	35	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	175	215	172	38	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	387				392	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387				392	215
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	100
cM capacity (veh/h)	1171				612	825

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	176	215	172	39
Volume Left	1	0	0	38
Volume Right	0	0	172	1
cSH	1171	1700	1700	616
Volume to Capacity	0.00	0.13	0.10	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.1	0.0	0.0	11.2
Lane LOS	A			B
Approach Delay (s)	0.1	0.0		11.2
Approach LOS				B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	161	198	158	35	1
Future Vol, veh/h	1	161	198	158	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	300	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	175	215	172	38	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	387	0	-	0	392	215
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1171	-	-	-	612	825
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	854	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1171	-	-	-	611	825
Mov Cap-2 Maneuver	-	-	-	-	611	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	854	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1171	-	-	-	615
HCM Lane V/C Ratio	0.001	-	-	-	0.064
HCM Control Delay (s)	8.1	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
13: South Campus 2 & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	41	2	323	33	2
Future Volume (Veh/h)	155	41	2	323	33	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	168	45	2	351	36	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			213		546	190
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		546	190
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1357		498	851

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	353	38
Volume Left	0	2	36
Volume Right	45	0	2
cSH	1700	1357	509
Volume to Capacity	0.13	0.00	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.1	12.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.6
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

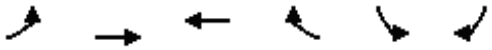
Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	155	41	2	323	33	2
Future Vol, veh/h	155	41	2	323	33	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	45	2	351	36	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	213	0	546	191
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	355	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1357	-	499	851
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1357	-	498	851
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	510	-	-	1357	-
HCM Lane V/C Ratio	0.075	-	-	0.002	-
HCM Control Delay (s)	12.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	67	252	5	4	73
Future Volume (Veh/h)	90	67	252	5	4	73
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	73	274	5	4	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	279				546	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				546	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	90
cM capacity (veh/h)	1284				461	762

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	171	279	83
Volume Left	98	0	4
Volume Right	0	5	79
cSH	1284	1700	739
Volume to Capacity	0.08	0.16	0.11
Queue Length 95th (ft)	6	0	9
Control Delay (s)	4.9	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	4.9	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	67	252	5	4	73
Future Vol, veh/h	90	67	252	5	4	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	73	274	5	4	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	279	0	-	0	546	277
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1284	-	-	-	499	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	776	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	459	762
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	776	-

Approach	EB	WB	SB
HCM Control Delay, s	4.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	737
HCM Lane V/C Ratio	0.076	-	-	-	0.114
HCM Control Delay (s)	8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

HCM Unsignalized Intersection Capacity Analysis
15: Neighborhood Connector & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - MIT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	8	1	250	7	1
Future Volume (Veh/h)	63	8	1	250	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	9	1	272	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			77		346	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		346	72
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1522		650	990

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	273	9
Volume Left	0	1	8
Volume Right	9	0	1
cSH	1700	1522	676
Volume to Capacity	0.05	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	10.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

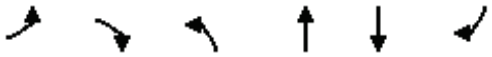
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	8	1	250	7	1
Future Vol, veh/h	63	8	1	250	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	9	1	272	8	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	347	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1522	-	650	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1522	-	649	989
Mov Cap-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	678	-	-	1522	-
HCM Lane V/C Ratio	0.013	-	-	0.001	-
HCM Control Delay (s)	10.4	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	1	1	1	1	9
Future Volume (Veh/h)	8	1	1	1	1	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	1	1	1	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	9	6	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9	6	11			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	1011	1077	1608			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	2	11
Volume Left	9	1	0
Volume Right	1	0	10
cSH	1017	1608	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	1	1	1	1	9
Future Vol, veh/h	8	1	1	1	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	1	1	1	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	9	6	11	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1011	1077	1608	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1010	1077	1608	-	-	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1017	-	-
HCM Lane V/C Ratio	0.001	-	0.01	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 PM - MIT



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	134	364	913	155	274	544	449	82	32	1443	74
v/c Ratio	0.57	1.25	0.88	1.06	0.46	0.94	0.21	0.07	0.38	0.87	0.08
Control Delay	88.5	192.9	60.6	163.8	67.6	95.0	16.2	1.6	91.9	48.2	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.5	192.9	60.6	163.8	67.6	95.0	16.2	1.6	91.9	48.2	2.9
Queue Length 50th (ft)	78	~517	535	~194	148	322	121	0	36	771	0
Queue Length 95th (ft)	115	#734	643	#356	203	#435	159	18	76	876	23
Internal Link Dist (ft)		2739			953		8663			2894	
Turn Bay Length (ft)	500		500	300		400		700	550		700
Base Capacity (vph)	284	292	1032	146	595	581	2176	1155	233	1666	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	1.25	0.88	1.06	0.46	0.94	0.21	0.07	0.14	0.87	0.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 PM - MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	349	876	149	236	27	522	431	79	31	1385	71
Future Volume (vph)	129	349	876	149	236	27	522	431	79	31	1385	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.8	4.5	4.5	6.2		4.5	5.3	4.5	4.5	5.6	4.5
Lane Util. Factor	0.97	1.00	0.88	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1881	2760	1770	3523		3335	3574	1568	1736	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1881	2760	1770	3523		3335	3574	1568	1736	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	134	364	912	155	246	28	544	449	82	32	1443	74
RTOR Reduction (vph)	0	0	33	0	5	0	0	0	26	0	0	34
Lane Group Flow (vph)	134	364	880	155	269	0	544	449	56	32	1443	40
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	5	7	4		5	2	7	1	6	3
Permitted Phases			8						2			6
Actuated Green, G (s)	12.0	27.2	57.7	14.5	29.3		30.5	105.7	120.2	7.5	82.4	94.4
Effective Green, g (s)	12.0	27.2	57.7	14.5	29.3		30.5	105.7	120.2	7.5	82.4	94.4
Actuated g/C Ratio	0.07	0.16	0.33	0.08	0.17		0.17	0.60	0.69	0.04	0.47	0.54
Clearance Time (s)	4.5	5.8	4.5	4.5	6.2		4.5	5.3	4.5	4.5	5.6	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	235	292	910	146	589		581	2158	1076	74	1666	853
v/s Ratio Prot	0.04	c0.19	c0.17	c0.09	0.08		0.16	0.13	0.00	0.02	c0.41	0.00
v/s Ratio Perm			0.15						0.03			0.02
v/c Ratio	0.57	1.25	0.97	1.06	0.46		0.94	0.21	0.05	0.43	0.87	0.05
Uniform Delay, d1	79.0	73.9	57.7	80.2	65.7		71.3	15.7	8.9	81.7	41.4	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	136.3	22.0	91.9	0.6		22.6	0.2	0.0	4.0	6.3	0.0
Delay (s)	82.3	210.2	79.7	172.1	66.2		93.9	15.9	8.9	85.7	47.7	19.1
Level of Service	F	F	E	F	E		F	B	A	F	D	B
Approach Delay (s)		113.6			104.5			54.8			47.1	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	75.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	349	876	149	236	27	522	431	79	31	1385	71
Future Volume (veh/h)	129	349	876	149	236	27	522	431	79	31	1385	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1870	1885	1900	1826	1885	1856	1841	1870	1870
Adj Flow Rate, veh/h	134	364	912	155	246	28	544	449	82	32	1443	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	2	1	0	5	1	3	4	2	2
Cap, veh/h	176	293	906	148	608	69	579	2218	1104	41	1674	827
Arrive On Green	0.05	0.16	0.16	0.08	0.19	0.19	0.17	0.62	0.62	0.02	0.47	0.47
Sat Flow, veh/h	3456	1885	2768	1781	3245	366	3374	3582	1572	1753	3554	1585
Grp Volume(v), veh/h	134	364	912	155	135	139	544	449	82	32	1443	74
Grp Sat Flow(s),veh/h/ln	1728	1885	1384	1781	1791	1819	1687	1791	1572	1753	1777	1585
Q Serve(g_s), s	6.7	27.2	27.2	14.5	11.6	11.8	27.9	9.5	2.9	3.2	63.3	4.1
Cycle Q Clear(g_c), s	6.7	27.2	27.2	14.5	11.6	11.8	27.9	9.5	2.9	3.2	63.3	4.1
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	176	293	906	148	336	341	579	2218	1104	41	1674	827
V/C Ratio(X)	0.76	1.24	1.01	1.05	0.40	0.41	0.94	0.20	0.07	0.77	0.86	0.09
Avail Cap(c_a), veh/h	286	293	906	148	336	341	588	2218	1104	235	1674	827
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	82.0	73.9	58.9	80.3	62.5	62.6	71.6	14.5	8.2	85.0	41.2	21.0
Incr Delay (d2), s/veh	6.7	134.5	31.7	88.0	0.8	0.8	20.7	0.2	0.1	25.8	6.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	24.0	23.7	10.3	5.4	5.6	13.7	4.0	1.0	1.7	28.9	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.7	208.4	90.5	168.3	63.2	63.3	92.2	14.7	8.3	110.7	47.3	21.2
LnGrp LOS	F	F	F	F	E	E	F	B	A	F	D	C
Approach Vol, veh/h		1410			429			1075			1549	
Approach Delay, s/veh		120.8			101.2			53.4			47.4	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	114.0	13.4	39.0	34.6	88.0	19.0	33.4
Change Period (Y+Rc), s	4.5	* 5.6	4.5	* 6.2	4.5	* 5.6	4.5	* 6.2
Max Green Setting (Gmax), s	23.5	* 90	14.5	* 27	30.5	* 82	14.5	* 27
Max Q Clear Time (g_c+I1), s	5.2	11.5	8.7	13.8	29.9	65.3	16.5	29.2
Green Ext Time (p_c), s	0.1	23.5	0.2	0.8	0.2	16.8	0.0	0.0

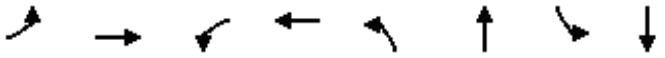
Intersection Summary	
HCM 6th Ctrl Delay	77.2
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - MIT



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	259	69	177	91	927	235	2302
v/c Ratio	0.37	0.98	0.41	0.71	0.75	0.50	0.60	1.12
Control Delay	45.3	99.6	47.5	48.9	59.1	22.5	15.8	88.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	99.6	47.5	48.9	59.1	22.5	15.8	88.1
Queue Length 50th (ft)	57	~197	48	86	30	274	76	~1263
Queue Length 95th (ft)	102	#391	90	171	#136	371	119	#1434
Internal Link Dist (ft)		2701		420		3738		8663
Turn Bay Length (ft)	500		300		500		500	
Base Capacity (vph)	241	263	200	278	122	1848	450	2061
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.98	0.34	0.64	0.75	0.50	0.52	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1686		1583	1622		1770	3467		1752	3513	
Flt Permitted	0.37	1.00		0.25	1.00		0.06	1.00		0.21	1.00	
Satd. Flow (perm)	656	1686		417	1622		103	3467		396	3513	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	99	160	69	49	128	91	876	51	235	2216	86
RTOR Reduction (vph)	0	42	0	0	68	0	0	3	0	0	2	0
Lane Group Flow (vph)	81	217	0	69	109	0	91	924	0	235	2300	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	28.0	17.8		24.4	16.0		77.3	72.1		91.4	79.4	
Effective Green, g (s)	28.0	17.8		24.4	16.0		77.3	72.1		91.4	79.4	
Actuated g/C Ratio	0.21	0.13		0.18	0.12		0.57	0.53		0.67	0.58	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	210	220		146	190		122	1833		389	2046	
v/s Ratio Prot	0.03	c0.13		c0.03	0.07		0.03	0.27		c0.06	c0.65	
v/s Ratio Perm	0.05			0.06			0.39			0.35		
v/c Ratio	0.39	0.99		0.47	0.57		0.75	0.50		0.60	1.12	
Uniform Delay, d1	45.4	59.1		48.5	56.9		31.3	20.6		12.1	28.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	56.6		2.4	4.1		21.7	0.5		2.6	62.9	
Delay (s)	46.6	115.7		50.9	61.1		53.0	21.1		14.7	91.4	
Level of Service	D	F		D	E		D	C		B	F	
Approach Delay (s)		99.3			58.2			23.9			84.3	
Approach LOS		F			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	69.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	136.3	Sum of lost time (s)	25.5
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	81	99	160	69	49	128	91	876	51	235	2216	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	169	85	138	132	57	150	118	1876	109	425	2068	80
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.04	0.55	0.55	0.07	0.59	0.59
Sat Flow, veh/h	1697	648	1048	1612	455	1187	1781	3386	197	1767	3489	134
Grp Volume(v), veh/h	81	0	259	69	0	177	91	456	471	235	1121	1181
Grp Sat Flow(s),veh/h/ln	1697	0	1697	1612	0	1642	1781	1763	1820	1767	1777	1846
Q Serve(g_s), s	5.5	0.0	17.6	4.9	0.0	14.1	2.9	20.8	20.8	7.5	79.2	79.2
Cycle Q Clear(g_c), s	5.5	0.0	17.6	4.9	0.0	14.1	2.9	20.8	20.8	7.5	79.2	79.2
Prop In Lane	1.00		0.62	1.00		0.72	1.00		0.11	1.00		0.07
Lane Grp Cap(c), veh/h	169	0	224	132	0	207	118	977	1009	425	1054	1095
V/C Ratio(X)	0.48	0.00	1.16	0.52	0.00	0.85	0.77	0.47	0.47	0.55	1.06	1.08
Avail Cap(c_a), veh/h	236	0	224	205	0	216	123	977	1009	533	1054	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	58.0	48.6	0.0	57.1	32.3	17.9	17.9	13.2	27.2	27.2
Incr Delay (d2), s/veh	2.1	0.0	109.7	3.2	0.0	26.0	24.2	0.7	0.7	1.1	46.6	51.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	14.2	2.1	0.0	7.4	2.3	7.9	8.2	2.8	42.9	45.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	0.0	167.7	51.8	0.0	83.1	56.6	18.6	18.6	14.3	73.8	78.2
LnGrp LOS	D	A	F	D	A	F	E	B	B	B	F	F
Approach Vol, veh/h		340			246			1018			2537	
Approach Delay, s/veh		139.6			74.3			22.0			70.3	
Approach LOS		F			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	86.0	10.9	25.0	16.8	80.8	11.7	24.3
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 5.2	* 79	12.5	17.6	* 18	* 66	12.5	17.6
Max Q Clear Time (g_c+I1), s	4.9	81.2	6.9	19.6	9.5	22.8	7.5	16.1
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.5	13.4	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	64.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	57	100	29	909	35	104	2367
v/c Ratio	0.21	0.26	0.28	0.17	0.44	0.04	0.26	0.69
Control Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Length 50th (ft)	0	45	0	7	214	0	28	541
Queue Length 95th (ft)	4	91	49	18	263	0	48	606
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		500	300	
Base Capacity (vph)	479	216	360	172	2396	1109	396	3436
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.28	0.17	0.38	0.03	0.26	0.69

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.90			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1661			1770	1583	1770	3539	1583	1770	5077	
Flt Permitted		0.99			0.95	1.00	0.06	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1661			1770	1583	108	3539	1583	464	5077	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	0	46	57	0	100	29	909	35	104	2340	27
RTOR Reduction (vph)	0	60	0	0	0	87	0	0	14	0	1	0
Lane Group Flow (vph)	0	5	0	0	57	13	29	909	21	104	2366	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Effective Green, g (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Actuated g/C Ratio		0.07			0.07	0.13	0.62	0.59	0.59	0.68	0.62	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		120			128	288	110	2090	935	391	3160	
v/s Ratio Prot		c0.00			c0.03	0.00	0.01	0.26		c0.02	c0.47	
v/s Ratio Perm						0.01	0.15		0.01	0.17		
v/c Ratio		0.04			0.45	0.05	0.26	0.43	0.02	0.27	0.75	
Uniform Delay, d1		50.4			51.9	44.4	13.6	13.2	9.9	7.5	15.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			2.5	0.1	1.3	0.1	0.0	0.4	1.0	
Delay (s)		50.5			54.4	44.4	14.9	13.3	9.9	7.9	16.6	
Level of Service		D			D	D	B	B	A	A	B	
Approach Delay (s)		50.5			48.0			13.2			16.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT



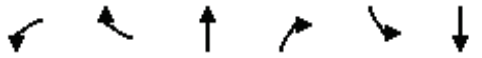
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	46	57	0	100	29	909	35	104	2340	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	0	102	175	0	232	151	2017	900	402	3043	35
Arrive On Green	0.09	0.00	0.09	0.10	0.00	0.10	0.03	0.57	0.57	0.05	0.58	0.58
Sat Flow, veh/h	479	0	1159	1781	0	1585	1781	3554	1585	1781	5204	60
Grp Volume(v), veh/h	65	0	0	57	0	100	29	909	35	104	1530	837
Grp Sat Flow(s),veh/h/ln	1638	0	0	1781	0	1585	1781	1777	1585	1781	1702	1860
Q Serve(g_s), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Cycle Q Clear(g_c), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Prop In Lane	0.29		0.71	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	144	0	0	175	0	232	151	2017	900	402	1991	1088
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.43	0.19	0.45	0.04	0.26	0.77	0.77
Avail Cap(c_a), veh/h	311	0	0	176	0	233	184	2198	981	405	2106	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	0.0	50.9	0.0	47.1	17.8	15.2	11.6	11.1	19.0	19.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	1.3	0.6	0.2	0.0	0.3	1.7	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	1.7	0.0	2.9	0.3	6.5	0.4	1.0	14.3	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	0.0	52.0	0.0	48.4	18.4	15.4	11.6	11.5	20.7	22.1
LnGrp LOS	D	A	A	D	A	D	B	B	B	B	C	C
Approach Vol, veh/h		65			157			973			2471	
Approach Delay, s/veh		54.7			49.7			15.3			20.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	76.9		16.7	11.8	74.8		17.9				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	75.0		23.0	6.0	75.0		12.0				
Max Q Clear Time (g_c+I1), s	2.8	43.2		6.6	4.9	20.0		9.0				
Green Ext Time (p_c), s	0.0	27.7		0.2	0.0	12.2		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

Queues
4: US-1 & Centreport Pkwy

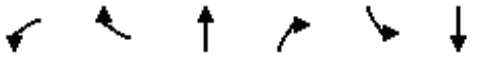
Stafford Technology Campus
Total Future 2030 PM - MIT



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	608	174	729	680	378	2117
v/c Ratio	0.92	0.20	0.50	0.56	0.87	0.83
Control Delay	66.2	13.0	64.0	9.8	48.2	37.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3
Total Delay	66.2	13.0	64.0	9.8	48.2	38.0
Queue Length 50th (ft)	596	65	235	140	246	689
Queue Length 95th (ft)	#829	105	344	267	#390	754
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)		1000		800	800	
Base Capacity (vph)	674	866	1464	1225	448	2542
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	76
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.20	0.50	0.56	0.84	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	584	167	700	653	363	2032
Future Volume (vph)	584	167	700	653	363	2032
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	1805	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.29	1.00
Satd. Flow (perm)	1719	1442	5085	1599	546	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	608	174	729	680	378	2117
RTOR Reduction (vph)	0	14	0	46	0	0
Lane Group Flow (vph)	608	160	729	634	378	2117
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	61.8	86.3	46.1	107.9	70.6	80.8
Effective Green, g (s)	61.8	86.3	46.1	107.9	70.6	80.8
Actuated g/C Ratio	0.39	0.54	0.29	0.67	0.44	0.50
Clearance Time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	3.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	663	777	1465	1078	433	2543
v/s Ratio Prot	c0.35	0.03	0.14	0.23	0.13	c0.42
v/s Ratio Perm		0.08		0.17	0.25	
v/c Ratio	0.92	0.21	0.50	0.59	0.87	0.83
Uniform Delay, d1	46.7	19.1	47.3	14.1	32.2	33.8
Progression Factor	1.00	1.00	1.31	1.09	1.00	1.00
Incremental Delay, d2	18.9	0.1	1.1	1.5	17.4	3.4
Delay (s)	65.5	19.2	63.0	16.8	49.6	37.2
Level of Service	E	B	E	B	D	D
Approach Delay (s)	55.2		40.7			39.1
Approach LOS	E		D			D

Intersection Summary			
HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	584	167	700	653	363	2032
Future Volume (veh/h)	584	167	700	653	363	2032
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	608	174	729	680	378	2117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	650	780	1497	1066	396	2620
Arrive On Green	0.37	0.37	0.10	0.10	0.16	0.52
Sat Flow, veh/h	1739	1459	5274	1598	1810	5233
Grp Volume(v), veh/h	608	174	729	680	378	2117
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1810	1689
Q Serve(g_s), s	53.8	10.1	21.7	33.7	23.6	55.5
Cycle Q Clear(g_c), s	53.8	10.1	21.7	33.7	23.6	55.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	650	780	1497	1066	396	2620
V/C Ratio(X)	0.93	0.22	0.49	0.64	0.95	0.81
Avail Cap(c_a), veh/h	683	807	1497	1066	398	2620
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	48.2	19.7	60.8	18.5	36.4	32.0
Incr Delay (d2), s/veh	21.7	0.5	1.1	2.7	33.3	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.2	3.4	10.1	14.7	13.8	22.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.9	20.2	61.9	21.2	69.7	34.8
LnGrp LOS	E	C	E	C	E	C
Approach Vol, veh/h	782		1409			2495
Approach Delay, s/veh	58.9		42.3			40.1
Approach LOS	E		D			D

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		93.0			35.8	57.1	67.0
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		79.8			25.8	43.8	62.8
Max Q Clear Time (g_c+I1), s		57.5			25.6	35.7	55.8
Green Ext Time (p_c), s		18.9			0.0	5.7	4.0

Intersection Summary		
HCM 6th Ctrl Delay		43.9
HCM 6th LOS		D

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT



Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	190	632	575	503
v/c Ratio	0.61	0.62	0.92	1.02
Control Delay	25.8	19.7	56.6	85.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.8	19.7	56.6	85.5
Queue Length 50th (ft)	66	296	397	~409
Queue Length 95th (ft)	141	405	#651	#684
Internal Link Dist (ft)		2439	275	2104
Turn Bay Length (ft)	275			
Base Capacity (vph)	419	1252	721	492
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.50	0.80	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6				
Lane Util. Factor	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1597	1827			1810			1540				
Flt Permitted	0.12	1.00			1.00			0.97				
Satd. Flow (perm)	195	1827			1810			1540				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	190	632	0	0	575	0	327	1	175	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	190	632	0	0	575	0	0	489	0	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA				
Protected Phases	5	2			6			4				
Permitted Phases	2						4					
Actuated Green, G (s)	63.5	63.5			39.6			35.3				
Effective Green, g (s)	63.5	63.5			39.6			35.3				
Actuated g/C Ratio	0.56	0.56			0.35			0.31				
Clearance Time (s)	7.4	7.4			7.4			7.6				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	312	1019			629			477				
v/s Ratio Prot	0.09	c0.35			c0.32							
v/s Ratio Perm	0.25							0.32				
v/c Ratio	0.61	0.62			0.91			1.02				
Uniform Delay, d1	19.7	17.0			35.5			39.2				
Progression Factor	1.00	1.00			1.00			1.00				
Incremental Delay, d2	3.4	1.2			17.8			47.5				
Delay (s)	23.1	18.2			53.3			86.7				
Level of Service	C	B			D			F				
Approach Delay (s)		19.3			53.3			86.7			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	113.8	Sum of lost time (s)	22.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	190	632	0	0	575	0	327	1	175			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	274	970	0	0	643	0	354	1	189			
Arrive On Green	0.10	0.53	0.00	0.00	0.35	0.00	0.31	0.31	0.31			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1128	3	604			
Grp Volume(v), veh/h	190	632	0	0	575	0	503	0	0			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1735	0	0			
Q Serve(g_s), s	6.6	23.3	0.0	0.0	28.0	0.0	26.4	0.0	0.0			
Cycle Q Clear(g_c), s	6.6	23.3	0.0	0.0	28.0	0.0	26.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	0.65		0.35			
Lane Grp Cap(c), veh/h	274	970	0	0	643	0	544	0	0			
V/C Ratio(X)	0.69	0.65	0.00	0.00	0.89	0.00	0.92	0.00	0.00			
Avail Cap(c_a), veh/h	550	1514	0	0	873	0	645	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	21.0	16.0	0.0	0.0	28.8	0.0	31.2	0.0	0.0			
Incr Delay (d2), s/veh	3.1	0.7	0.0	0.0	9.2	0.0	17.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.4	8.7	0.0	0.0	12.9	0.0	13.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.1	16.8	0.0	0.0	38.1	0.0	48.6	0.0	0.0			
LnGrp LOS	C	B	A	A	D	A	D	A	A			
Approach Vol, veh/h		822			575			503				
Approach Delay, s/veh		18.5			38.1			48.6				
Approach LOS		B			D			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		57.0		37.1	16.4	40.5						
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4						
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45						
Max Q Clear Time (g_c+I1), s		25.3		28.4	8.6	30.0						
Green Ext Time (p_c), s		4.6		1.2	0.5	3.1						

Intersection Summary												
HCM 6th Ctrl Delay			32.4									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	519	683	380	595	382
v/c Ratio	0.84	0.69	0.87	0.59	0.81
Control Delay	48.2	6.4	40.8	18.4	52.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	6.4	40.8	18.4	52.1
Queue Length 50th (ft)	341	0	161	250	260
Queue Length 95th (ft)	#555	60	#361	417	350
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	641	1005	439	1030	781
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.68	0.87	0.58	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.17	1.00						0.95	
Satd. Flow (perm)		1792	1583	314	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	519	683	380	595	0	0	0	0	370	12	0
RTOR Reduction (vph)	0	0	445	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	519	238	380	595	0	0	0	0	0	382	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		39.1	39.1	67.1	67.1						30.5	
Effective Green, g (s)		39.1	39.1	67.1	67.1						30.5	
Actuated g/C Ratio		0.35	0.35	0.60	0.60						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		623	550	438	1012						474	
v/s Ratio Prot		0.29		c0.15	0.35							
v/s Ratio Perm			0.15	c0.36							0.22	
v/c Ratio		0.83	0.43	0.87	0.59						0.81	
Uniform Delay, d1		33.7	28.1	22.8	14.1						38.2	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		9.7	0.7	16.4	1.0						10.2	
Delay (s)		43.4	28.9	39.2	15.1						48.4	
Level of Service		D	C	D	B						D	
Approach Delay (s)		35.1			24.5			0.0			48.4	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	112.4	Sum of lost time (s)	22.7
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	519	0	380	595	0				370	12	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	578		410	978	0				412	13	0
Arrive On Green	0.00	0.32	0.00	0.17	0.57	0.00				0.29	0.29	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1413	46	0
Grp Volume(v), veh/h	0	519	0	380	595	0				382	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	28.8	0.0	15.9	24.0	0.0				26.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	28.8	0.0	15.9	24.0	0.0				26.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	578		410	978	0				425	0	0
V/C Ratio(X)	0.00	0.90		0.93	0.61	0.00				0.90	0.00	0.00
Avail Cap(c_a), veh/h	0	689		439	1112	0				694	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.2	0.0	25.4	15.0	0.0				35.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	13.8	0.0	25.1	1.0	0.0				11.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.1	0.0	8.8	8.5	0.0				10.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	48.0	0.0	50.5	16.0	0.0				47.2	0.0	0.0
LnGrp LOS	A	D		D	B	A				D	A	A
Approach Vol, veh/h		519			975						382	
Approach Delay, s/veh		48.0			29.5						47.2	
Approach LOS		D			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		67.6		37.5	26.1	41.5						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		26.0		28.4	17.9	30.8						
Green Ext Time (p_c), s		6.4		2.2	0.3	2.8						

Intersection Summary												
HCM 6th Ctrl Delay			38.2									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Total Future 2030 PM - MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Future Volume (Veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	79	249	2	102	1	107	4	2	1	2	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	103			328			494	446	204	450	570	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	103			261			436	386	129	390	517	102
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	94			100			76	99	100	100	100	94
cM capacity (veh/h)	1049			847			442	486	876	381	410	801

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	396	105	113	50
Volume Left	68	2	107	1
Volume Right	249	1	2	47
cSH	1049	847	447	756
Volume to Capacity	0.06	0.00	0.25	0.07
Queue Length 95th (ft)	5	0	25	5
Control Delay (s)	2.1	0.2	15.7	10.1
Lane LOS	A	A	C	B
Approach Delay (s)	2.1	0.2	15.7	10.1
Approach LOS			C	B

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Future Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	68	79	249	2	102	1	107	4	2	1	2	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	328	0	0	471	447	204	450	571	103
Stage 1	-	-	-	-	-	-	340	340	-	107	107	-
Stage 2	-	-	-	-	-	-	131	107	-	343	464	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1049	-	-	838	-	-	498	509	842	386	434	801
Stage 1	-	-	-	-	-	-	669	643	-	707	811	-
Stage 2	-	-	-	-	-	-	865	811	-	509	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	838	-	-	437	466	842	357	397	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	437	466	-	357	397	-
Stage 1	-	-	-	-	-	-	614	590	-	649	809	-
Stage 2	-	-	-	-	-	-	810	809	-	463	521	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.2	15.9	10.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	442	1049	-	-	838	-	-	748
HCM Lane V/C Ratio	0.256	0.065	-	-	0.003	-	-	0.067
HCM Control Delay (s)	15.9	8.7	0	-	9.3	0	-	10.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Future Volume (Veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	109	1	4	32	246	8	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	632	538	8	524	523	20	9			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	632	538	8	524	523	20	9			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	90	100			84		
cM capacity (veh/h)	313	379	1079	408	387	1058	1624			1575		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	121	37	255
Volume Left	1	12	1	246
Volume Right	1	109	32	1
cSH	485	914	1624	1575
Volume to Capacity	0.00	0.13	0.00	0.16
Queue Length 95th (ft)	0	11	0	14
Control Delay (s)	12.5	9.5	0.2	7.5
Lane LOS	B	A	A	A
Approach Delay (s)	12.5	9.5	0.2	7.5
Approach LOS	B	A		

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Future Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	33	0
Mvmt Flow	1	0	1	12	0	109	1	4	32	246	8	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	578	539	9	523	523	20	9	0	0	36	0	0
Stage 1	501	501	-	22	22	-	-	-	-	-	-	-
Stage 2	77	38	-	501	501	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	430	449	1079	465	459	1058	1624	-	-	1575	-	-
Stage 1	556	543	-	996	877	-	-	-	-	-	-	-
Stage 2	937	863	-	552	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	378	1079	408	386	1058	1624	-	-	1575	-	-
Mov Cap-2 Maneuver	339	378	-	408	386	-	-	-	-	-	-	-
Stage 1	555	458	-	995	876	-	-	-	-	-	-	-
Stage 2	840	862	-	465	458	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	9.5	0.2	7.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1624	-	-	516	914	1575	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.132	0.156	-	-
HCM Control Delay (s)	7.2	0	-	12	9.5	7.7	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.6	-	-

HCM Unsignalized Intersection Capacity Analysis
9: West Campus 1/West Campus 2 & Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Future Volume (Veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	130	11	1	132	1	25	0	1	1	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	133			141			278	274	136	275	280	132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	133			141			278	274	136	275	280	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	100	100	100	100
cM capacity (veh/h)	1452			1442			670	631	913	676	627	917

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	143	134	26	5
Volume Left	2	1	25	1
Volume Right	11	1	1	4
cSH	1452	1442	677	856
Volume to Capacity	0.00	0.00	0.04	0.01
Queue Length 95th (ft)	0	0	3	0
Control Delay (s)	0.1	0.1	10.5	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	0.1	0.1	10.5	9.2
Approach LOS			B	A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Future Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	130	11	1	132	1	25	0	1	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	141	0	0	277	275	136	275	280	133
Stage 1	-	-	-	-	-	-	140	140	-	135	135	-
Stage 2	-	-	-	-	-	-	137	135	-	140	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1442	-	-	675	632	913	677	628	916
Stage 1	-	-	-	-	-	-	863	781	-	868	785	-
Stage 2	-	-	-	-	-	-	866	785	-	863	777	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1442	-	-	671	631	913	675	627	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	671	631	-	675	627	-
Stage 1	-	-	-	-	-	-	862	780	-	867	784	-
Stage 2	-	-	-	-	-	-	861	784	-	861	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.5	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	678	1452	-	-	1442	-	-	855
HCM Lane V/C Ratio	0.038	0.001	-	-	0.001	-	-	0.006
HCM Control Delay (s)	10.5	7.5	0	-	7.5	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	115	5	1	110	12	1
Future Volume (Veh/h)	115	5	1	110	12	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	125	5	1	120	13	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			130		250	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		250	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1455		738	923

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	130	121	14
Volume Left	0	1	13
Volume Right	5	0	1
cSH	1700	1455	749
Volume to Capacity	0.08	0.00	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.1	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		16.6%	ICU Level of Service
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	5	1	110	12	1
Future Vol, veh/h	115	5	1	110	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	5	1	120	13	1

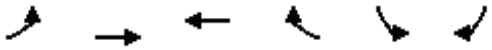
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	250	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	739	922
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	738	922
Mov Cap-2 Maneuver	-	-	-	-	738	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	750	-	-	1455	-
HCM Lane V/C Ratio	0.019	-	-	0.001	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
11: Connector Road & North Campus

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	108	91	1	1	19
Future Volume (Veh/h)	8	108	91	1	1	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	117	99	1	1	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	100				234	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				234	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1493				749	956

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	126	100	22
Volume Left	9	0	1
Volume Right	0	1	21
cSH	1493	1700	944
Volume to Capacity	0.01	0.06	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.6	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	108	91	1	1	19
Future Vol, veh/h	8	108	91	1	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	117	99	1	1	21

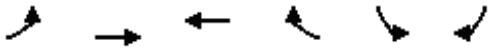
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	235	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1493	-	-	-	753	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	748	956
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	943
HCM Lane V/C Ratio	0.006	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM Unsignalized Intersection Capacity Analysis
12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	109	92	65	165	1
Future Volume (Veh/h)	1	109	92	65	165	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	118	100	71	179	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171				220	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171				220	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				77	100
cM capacity (veh/h)	1406				768	956

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	119	100	71	180
Volume Left	1	0	0	179
Volume Right	0	0	71	1
cSH	1406	1700	1700	768
Volume to Capacity	0.00	0.06	0.04	0.23
Queue Length 95th (ft)	0	0	0	23
Control Delay (s)	0.1	0.0	0.0	11.1
Lane LOS	A			B
Approach Delay (s)	0.1	0.0		11.1
Approach LOS				B

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	109	92	65	165	1
Future Vol, veh/h	1	109	92	65	165	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	300	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	118	100	71	179	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	171	0	-	0	220	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1406	-	-	-	768	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	767	956
Mov Cap-2 Maneuver	-	-	-	-	767	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	768
HCM Lane V/C Ratio	0.001	-	-	-	0.235
HCM Control Delay (s)	7.6	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	267	7	1	140	17	1
Future Volume (Veh/h)	267	7	1	140	17	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	290	8	1	152	18	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			298		448	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		448	294
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1263		568	745

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	298	153	19
Volume Left	0	1	18
Volume Right	8	0	1
cSH	1700	1263	575
Volume to Capacity	0.18	0.00	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.1	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

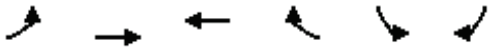
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	267	7	1	140	17	1
Future Vol, veh/h	267	7	1	140	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	290	8	1	152	18	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	298	0	448	294
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1263	-	568	745
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1263	-	567	745
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	873	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	1263	-
HCM Lane V/C Ratio	0.034	-	-	0.001	-
HCM Control Delay (s)	11.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	251	102	1	2	38
Future Volume (Veh/h)	17	251	102	1	2	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	273	111	1	2	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	112				420	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				420	112
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	96
cM capacity (veh/h)	1478				582	942

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	291	112	43
Volume Left	18	0	2
Volume Right	0	1	41
cSH	1478	1700	915
Volume to Capacity	0.01	0.07	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	251	102	1	2	38
Future Vol, veh/h	17	251	102	1	2	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	273	111	1	2	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	421	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	309	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1478	-	-	-	589	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1478	-	-	-	581	941
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1478	-	-	-	913
HCM Lane V/C Ratio	0.013	-	-	-	0.048
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM Unsignalized Intersection Capacity Analysis
15: Neighborhood Connector & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 PM - MIT

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	252	1	1	100	3	1
Future Volume (Veh/h)	252	1	1	100	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	274	1	1	109	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		386	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		386	274
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1288		617	764

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	275	110	4
Volume Left	0	1	3
Volume Right	1	0	1
cSH	1700	1288	648
Volume to Capacity	0.16	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.6
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	252	1	1	100	3	1
Future Vol, veh/h	252	1	1	100	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	1	1	109	3	1

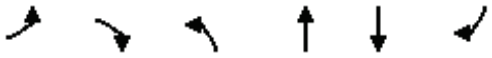
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	386	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	617	764
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1288	-	616	764
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	647	-	-	1288	-
HCM Lane V/C Ratio	0.007	-	-	0.001	-
HCM Control Delay (s)	10.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
16: Neighborhood Connector & South Campus 3

Stafford Technology Campus
Total Future 2030 PM - MIT



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	1	1	1	1	1
Future Volume (Veh/h)	3	1	1	1	1	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	1	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1017	1083	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	2	2
Volume Left	3	1	0
Volume Right	1	0	1
cSH	1033	1620	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	1	1	1	1
Future Vol, veh/h	3	1	1	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	1	1	1	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	5	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1017	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1016	1082	1620	-	-	-
Mov Cap-2 Maneuver	1016	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1032	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D

Lane Group	EBT	EBR	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	266	684	1054	727	127	315	83
v/c Ratio	0.41	0.52	0.88	0.38	0.14	0.17	0.10
Control Delay	30.6	3.3	44.7	16.5	2.8	14.4	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	3.3	44.7	16.5	2.8	14.4	7.5
Queue Length 50th (ft)	152	0	387	164	0	62	13
Queue Length 95th (ft)	219	40	462	219	30	92	40
Internal Link Dist (ft)	2772		953	7002		1803	
Turn Bay Length (ft)		500			700		500
Base Capacity (vph)	710	1372	1304	1899	922	1805	843
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.50	0.81	0.38	0.14	0.17	0.10

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱↱		↑↑↱			↑↑	↱		↑↑	↱
Traffic Volume (vph)	0	245	629	0	829	141	0	669	117	0	290	76
Future Volume (vph)	0	245	629	0	829	141	0	669	117	0	290	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		6.2			5.3	5.3		5.6	5.6
Lane Util. Factor		1.00	0.88		0.95			0.95	1.00		0.95	1.00
Frt		1.00	0.85		0.98			1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Satd. Flow (prot)		1845	2472		3391			3438	1568		3282	1495
Flt Permitted		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Satd. Flow (perm)		1845	2472		3391			3438	1568		3282	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	266	684	0	901	153	0	727	127	0	315	83
RTOR Reduction (vph)	0	0	441	0	12	0	0	0	57	0	0	21
Lane Group Flow (vph)	0	266	243	0	1042	0	0	727	70	0	315	62
Heavy Vehicles (%)	3%	3%	15%	3%	4%	5%	30%	5%	3%	0%	10%	8%
Turn Type		NA	Perm		NA			NA	Perm		NA	Perm
Protected Phases		8			4			2			6	
Permitted Phases			8						2			6
Actuated Green, G (s)		42.6	42.6		42.2			66.3	66.3		66.0	66.0
Effective Green, g (s)		42.6	42.6		42.2			66.3	66.3		66.0	66.0
Actuated g/C Ratio		0.36	0.36		0.35			0.55	0.55		0.55	0.55
Clearance Time (s)		5.8	5.8		6.2			5.3	5.3		5.6	5.6
Vehicle Extension (s)		3.0	3.0		3.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)		654	877		1192			1899	866		1805	822
v/s Ratio Prot		0.14			c0.31			c0.21			0.10	
v/s Ratio Perm			0.10						0.04			0.04
v/c Ratio		0.41	0.28		0.87			0.38	0.08		0.17	0.08
Uniform Delay, d1		29.2	27.7		36.4			15.2	12.6		13.4	12.7
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	0.2		7.4			0.6	0.2		0.2	0.2
Delay (s)		29.6	27.9		43.8			15.8	12.8		13.7	12.9
Level of Service		C	C		D			B	B		B	B
Approach Delay (s)		28.3			43.8			15.4			13.5	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱↑		↑↑↱			↑↑	↱		↑↑	↱
Traffic Volume (veh/h)	0	245	629	0	829	141	0	669	117	0	290	76
Future Volume (veh/h)	0	245	629	0	829	141	0	669	117	0	290	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1678	0	1841	1826	0	1826	1856	0	1752	1781
Adj Flow Rate, veh/h	0	266	684	0	901	153	0	727	127	0	315	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	15	0	4	5	0	5	3	0	10	8
Cap, veh/h	0	616	831	0	993	169	0	1976	896	0	1896	860
Arrive On Green	0.00	0.33	0.33	0.00	0.33	0.33	0.00	0.57	0.57	0.00	0.57	0.57
Sat Flow, veh/h	0	1856	2502	0	3082	508	0	3561	1572	0	3416	1510
Grp Volume(v), veh/h	0	266	684	0	527	527	0	727	127	0	315	83
Grp Sat Flow(s),veh/h/ln	0	1856	1251	0	1749	1749	0	1735	1572	0	1664	1510
Q Serve(g_s), s	0.0	13.4	30.1	0.0	34.6	34.6	0.0	13.7	4.5	0.0	5.4	3.0
Cycle Q Clear(g_c), s	0.0	13.4	30.1	0.0	34.6	34.6	0.0	13.7	4.5	0.0	5.4	3.0
Prop In Lane	0.00		1.00	0.00		0.29	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	616	831	0	581	581	0	1976	896	0	1896	860
V/C Ratio(X)	0.00	0.43	0.82	0.00	0.91	0.91	0.00	0.37	0.14	0.00	0.17	0.10
Avail Cap(c_a), veh/h	0	714	963	0	667	668	0	1976	896	0	1896	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	31.2	36.8	0.0	38.3	38.3	0.0	14.1	12.1	0.0	12.3	11.8
Incr Delay (d2), s/veh	0.0	0.5	5.2	0.0	14.9	15.0	0.0	0.5	0.3	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	9.5	0.0	16.9	16.9	0.0	5.3	1.6	0.0	2.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.7	42.0	0.0	53.2	53.3	0.0	14.6	12.4	0.0	12.5	12.0
LnGrp LOS	A	C	D	A	D	D	A	B	B	A	B	B
Approach Vol, veh/h		950			1054			854			398	
Approach Delay, s/veh		39.1			53.2			14.3			12.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		73.9		46.1		73.9		46.1				
Change Period (Y+Rc), s		* 5.6		* 6.2		* 5.6		* 6.2				
Max Green Setting (Gmax), s		* 63		* 46		* 62		* 46				
Max Q Clear Time (g_c+I1), s		15.7		36.6		7.4		32.1				
Green Ext Time (p_c), s		31.7		3.3		14.1		4.0				

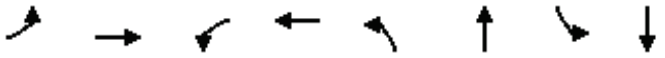
Intersection Summary		
HCM 6th Ctrl Delay		33.9
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	160	117	262	124	1281	85	853
v/c Ratio	0.30	0.49	0.33	0.66	0.35	0.59	0.33	0.45
Control Delay	29.6	21.1	29.5	33.7	14.3	23.9	14.8	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	21.1	29.5	33.7	14.3	23.9	14.8	22.0
Queue Length 50th (ft)	40	30	56	101	35	234	23	138
Queue Length 95th (ft)	84	97	110	204	76	333	55	202
Internal Link Dist (ft)		2965		420		3738		1572
Turn Bay Length (ft)	500		300		300		200	
Base Capacity (vph)	297	631	368	670	367	3252	292	3175
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.25	0.32	0.39	0.34	0.39	0.29	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (vph)	78	35	112	108	61	180	114	1137	41	78	712	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.89		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1606		1703	1638		1736	4955		1719	4756	
Flt Permitted	0.47	1.00		0.52	1.00		0.26	1.00		0.15	1.00	
Satd. Flow (perm)	826	1606		924	1638		482	4955		264	4756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	38	122	117	66	196	124	1236	45	85	774	79
RTOR Reduction (vph)	0	91	0	0	82	0	0	3	0	0	9	0
Lane Group Flow (vph)	85	69	0	117	180	0	124	1278	0	85	844	0
Heavy Vehicles (%)	9%	4%	5%	6%	0%	4%	4%	4%	8%	5%	7%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	22.1	15.8		28.5	19.0		51.4	42.8		47.8	41.0	
Effective Green, g (s)	22.1	15.8		28.5	19.0		51.4	42.8		47.8	41.0	
Actuated g/C Ratio	0.22	0.16		0.28	0.19		0.51	0.43		0.48	0.41	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	233	252		336	309		354	2112		224	1942	
v/s Ratio Prot	0.02	0.04		c0.03	c0.11		c0.03	c0.26		0.03	0.18	
v/s Ratio Perm	0.06			0.07			0.15			0.15		
v/c Ratio	0.36	0.27		0.35	0.58		0.35	0.61		0.38	0.43	
Uniform Delay, d1	32.2	37.2		27.7	37.1		13.2	22.3		15.4	21.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.6		0.6	2.8		0.6	0.7		1.1	0.3	
Delay (s)	33.2	37.8		28.4	39.9		13.8	23.0		16.5	21.7	
Level of Service	C	D		C	D		B	C		B	C	
Approach Delay (s)		36.2			36.3			22.2			21.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	25.5
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Future Volume (veh/h)	78	35	112	108	61	180	114	1137	41	78	712	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1841	1826	1811	1900	1841	1841	1841	1781	1826	1796	1707
Adj Flow Rate, veh/h	85	38	122	117	66	196	124	1236	45	85	774	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	4	5	6	0	4	4	4	8	5	7	13
Cap, veh/h	207	64	204	295	77	230	375	2152	78	266	1905	193
Arrive On Green	0.06	0.17	0.17	0.07	0.18	0.18	0.06	0.43	0.43	0.05	0.42	0.42
Sat Flow, veh/h	1682	384	1234	1725	422	1253	1753	4977	181	1739	4524	459
Grp Volume(v), veh/h	85	0	160	117	0	262	124	832	449	85	558	295
Grp Sat Flow(s),veh/h/ln	1682	0	1619	1725	0	1675	1753	1675	1808	1739	1635	1714
Q Serve(g_s), s	3.8	0.0	8.4	5.0	0.0	13.8	3.6	17.1	17.1	2.5	10.9	11.0
Cycle Q Clear(g_c), s	3.8	0.0	8.4	5.0	0.0	13.8	3.6	17.1	17.1	2.5	10.9	11.0
Prop In Lane	1.00		0.76	1.00		0.75	1.00		0.10	1.00		0.27
Lane Grp Cap(c), veh/h	207	0	268	295	0	307	375	1449	782	266	1377	722
V/C Ratio(X)	0.41	0.00	0.60	0.40	0.00	0.85	0.33	0.57	0.57	0.32	0.41	0.41
Avail Cap(c_a), veh/h	269	0	578	365	0	635	447	2247	1213	376	2228	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	35.3	28.7	0.0	36.1	14.1	19.6	19.6	15.3	18.4	18.5
Incr Delay (d2), s/veh	1.3	0.0	2.1	0.9	0.0	6.7	0.5	0.8	1.4	0.7	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	3.3	2.1	0.0	6.2	1.3	5.9	6.5	0.9	3.7	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	37.4	29.6	0.0	42.8	14.6	20.3	21.0	16.0	18.8	19.3
LnGrp LOS	C	A	D	C	A	D	B	C	C	B	B	B
Approach Vol, veh/h		245			379			1405			938	
Approach Delay, s/veh		35.3			38.7			20.0			18.7	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	45.2	11.3	22.5	11.2	46.3	9.6	24.1
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 62	10.5	32.6	* 10	* 61	8.5	34.6
Max Q Clear Time (g_c+I1), s	5.6	13.0	7.0	10.4	4.5	19.1	5.8	15.8
Green Ext Time (p_c), s	0.1	12.8	0.1	0.5	0.1	20.3	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	115	212	31	1160	128	187	817
v/c Ratio	0.11	0.47	0.33	0.08	0.74	0.16	0.54	0.28
Control Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	54.7	11.0	9.6	27.5	1.6	19.1	12.6
Queue Length 50th (ft)	0	77	25	8	360	0	53	118
Queue Length 95th (ft)	0	161	100	21	475	17	132	157
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		500	300	
Base Capacity (vph)	357	317	689	385	2573	1195	395	4052
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.31	0.08	0.45	0.11	0.47	0.20

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (vph)	18	0	20	106	0	195	29	1079	118	172	731	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1689			1770	1583	1770	3539	1583	1770	5056	
Flt Permitted		0.98			0.95	1.00	0.33	1.00	1.00	0.11	1.00	
Satd. Flow (perm)		1689			1770	1583	618	3539	1583	204	5056	
Peak-hour factor, PHF	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Adj. Flow (vph)	19	0	22	115	0	212	31	1160	128	187	786	31
RTOR Reduction (vph)	0	39	0	0	0	119	0	0	70	0	3	0
Lane Group Flow (vph)	0	2	0	0	115	93	31	1160	58	187	814	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Effective Green, g (s)		6.1			14.2	28.4	51.6	48.5	48.5	68.7	59.6	
Actuated g/C Ratio		0.06			0.13	0.27	0.48	0.45	0.45	0.64	0.56	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		96			234	508	331	1604	717	338	2816	
v/s Ratio Prot		c0.00			c0.06	0.02	0.00	c0.33		c0.07	0.16	
v/s Ratio Perm						0.03	0.04		0.04	0.28		
v/c Ratio		0.02			0.49	0.18	0.09	0.72	0.08	0.55	0.29	
Uniform Delay, d1		47.6			43.1	30.3	14.6	23.8	16.6	14.8	12.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			1.6	0.2	0.1	1.6	0.0	2.0	0.1	
Delay (s)		47.7			44.7	30.5	14.7	25.4	16.6	16.8	12.6	
Level of Service		D			D	C	B	C	B	B	B	
Approach Delay (s)		47.7			35.5			24.3			13.4	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



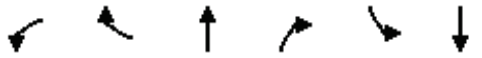
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Future Volume (veh/h)	18	0	20	106	0	195	29	1079	118	172	731	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	22	115	0	212	31	1160	128	187	786	31
Peak Hour Factor	0.93	0.92	0.93	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	0	73	257	0	353	405	1613	720	293	2506	99
Arrive On Green	0.08	0.00	0.08	0.14	0.00	0.14	0.03	0.45	0.45	0.08	0.50	0.50
Sat Flow, veh/h	774	0	896	1781	0	1585	1781	3554	1585	1781	5040	198
Grp Volume(v), veh/h	41	0	0	115	0	212	31	1160	128	187	530	287
Grp Sat Flow(s),veh/h/ln	1670	0	0	1781	0	1585	1781	1777	1585	1781	1702	1835
Q Serve(g_s), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	5.9	0.0	11.9	0.9	26.3	4.8	5.4	9.2	9.3
Prop In Lane	0.46		0.54	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	137	0	0	257	0	353	405	1613	720	293	1692	912
V/C Ratio(X)	0.30	0.00	0.00	0.45	0.00	0.60	0.08	0.72	0.18	0.64	0.31	0.31
Avail Cap(c_a), veh/h	202	0	0	305	0	395	450	2541	1133	441	2777	1497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	0.0	38.8	0.0	34.6	13.3	22.0	16.1	18.3	14.9	14.9
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.2	0.0	2.1	0.1	0.6	0.1	2.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.7	0.0	4.8	0.3	9.7	1.6	2.0	3.1	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	0.0	40.1	0.0	36.7	13.4	22.6	16.2	20.6	15.0	15.1
LnGrp LOS	D	A	A	D	A	D	B	C	B	C	B	B
Approach Vol, veh/h		41			327			1319			1004	
Approach Delay, s/veh		44.1			37.9			21.8			16.1	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	55.4		14.1	13.7	51.1		20.4				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	81.0		12.0	16.0	71.0		17.0				
Max Q Clear Time (g_c+I1), s	2.9	11.3		4.3	7.4	28.3		13.9				
Green Ext Time (p_c), s	0.0	9.7		0.0	0.4	16.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		21.9	
HCM 6th LOS		C	

Queues
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	391	396	1054	1045	198	677
v/c Ratio	0.60	0.50	0.57	0.79	0.44	0.27
Control Delay	42.0	26.8	53.7	18.3	25.3	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	26.8	53.7	18.3	25.3	23.2
Queue Length 50th (ft)	293	232	403	349	58	154
Queue Length 95th (ft)	399	304	458	600	84	186
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)	500	1000		800	800	
Base Capacity (vph)	729	838	1835	1381	546	2491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.47	0.57	0.76	0.36	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	360	364	970	961	182	623
Future Volume (vph)	360	364	970	961	182	623
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	0.97	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1583	4940	1568	3127	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.19	1.00
Satd. Flow (perm)	1719	1583	4940	1568	611	4893
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	396	1054	1045	198	677
RTOR Reduction (vph)	0	4	0	54	0	0
Lane Group Flow (vph)	391	392	1054	991	198	677
Heavy Vehicles (%)	5%	2%	5%	3%	12%	6%
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	58.7	69.8	57.6	116.3	68.7	78.9
Effective Green, g (s)	58.7	69.8	57.6	116.3	68.7	78.9
Actuated g/C Ratio	0.38	0.45	0.37	0.75	0.44	0.51
Clearance Time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	3.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	651	712	1835	1176	450	2490
v/s Ratio Prot	0.23	c0.04	0.21	c0.32	0.03	0.14
v/s Ratio Perm		0.21		0.31	0.16	
v/c Ratio	0.60	0.55	0.57	0.84	0.44	0.27
Uniform Delay, d1	38.7	31.1	38.9	13.1	26.8	21.7
Progression Factor	1.00	1.00	1.28	2.12	1.00	1.00
Incremental Delay, d2	2.8	0.9	1.1	5.7	0.7	0.3
Delay (s)	41.5	32.0	51.0	33.6	27.5	22.0
Level of Service	D	C	D	C	C	C
Approach Delay (s)	36.7		42.3			23.2
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	360	364	970	961	182	623
Future Volume (veh/h)	360	364	970	961	182	623
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1870	1826	1856	1722	1811
Adj Flow Rate, veh/h	391	396	1054	1045	198	677
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	5	3	12	6
Cap, veh/h	515	544	2386	1218	343	2925
Arrive On Green	0.30	0.30	0.16	0.16	0.05	0.59
Sat Flow, veh/h	1739	1585	5149	1572	3182	5107
Grp Volume(v), veh/h	391	396	1054	1045	198	677
Grp Sat Flow(s),veh/h/ln	1739	1585	1662	1572	1591	1648
Q Serve(g_s), s	31.7	33.9	29.7	52.3	4.9	10.0
Cycle Q Clear(g_c), s	31.7	33.9	29.7	52.3	4.9	10.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	515	544	2386	1218	343	2925
V/C Ratio(X)	0.76	0.73	0.44	0.86	0.58	0.23
Avail Cap(c_a), veh/h	738	748	2386	1218	517	2925
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	49.5	44.6	46.5	18.6	25.1	15.0
Incr Delay (d2), s/veh	8.2	6.7	0.5	6.7	1.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	13.8	13.4	23.3	1.8	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.7	51.3	47.0	25.3	26.7	15.2
LnGrp LOS	E	D	D	C	C	B
Approach Vol, veh/h	787		2099			875
Approach Delay, s/veh	54.5		36.2			17.8
Approach LOS	D		D			B

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		101.9			17.5	84.4	53.1
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		71.8			15.8	45.8	65.8
Max Q Clear Time (g_c+I1), s		12.0			6.9	54.3	35.9
Green Ext Time (p_c), s		7.5			0.4	0.0	10.0

Intersection Summary	
HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	138	414	421	424	348
v/c Ratio	0.46	0.47	0.76	0.76	0.46
Control Delay	19.9	18.1	37.5	36.4	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	18.1	37.5	36.4	4.6
Queue Length 50th (ft)	39	137	195	194	0
Queue Length 95th (ft)	98	293	380	381	59
Internal Link Dist (ft)		2439	275	2104	
Turn Bay Length (ft)	275				300
Base Capacity (vph)	301	1386	1043	1015	1108
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.30	0.40	0.42	0.31

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (vph)	131	393	0	0	400	0	403	0	331	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6	7.6			
Lane Util. Factor	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	1597	1827			1759			1671	1599			
Flt Permitted	0.25	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	428	1827			1759			1671	1599			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	138	414	0	0	421	0	424	0	348	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	231	0	0	0
Lane Group Flow (vph)	138	414	0	0	421	0	0	424	117	0	0	0
Heavy Vehicles (%)	13%	4%	0%	0%	8%	0%	8%	0%	1%	0%	0%	0%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)	41.8	41.8			27.5			28.7	28.7			
Effective Green, g (s)	41.8	41.8			27.5			28.7	28.7			
Actuated g/C Ratio	0.49	0.49			0.32			0.34	0.34			
Clearance Time (s)	7.4	7.4			7.4			7.6	7.6			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	303	893			565			560	536			
v/s Ratio Prot	0.04	c0.23			c0.24							
v/s Ratio Perm	0.19							0.25	0.07			
v/c Ratio	0.46	0.46			0.75			0.76	0.22			
Uniform Delay, d1	14.4	14.4			25.9			25.3	20.4			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	1.1	0.4			5.3			5.8	0.2			
Delay (s)	15.5	14.8			31.2			31.1	20.6			
Level of Service	B	B			C			C	C			
Approach Delay (s)		15.0			31.2			26.3			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	22.4
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Future Volume (veh/h)	131	393	0	0	400	0	403	0	331	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1781	0	1781	1900	1885			
Adj Flow Rate, veh/h	138	414	0	0	421	0	424	0	348			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	4	0	0	8	0	8	0	1			
Cap, veh/h	300	886	0	0	516	0	528	0	466			
Arrive On Green	0.08	0.48	0.00	0.00	0.29	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	1626	1841	0	0	1781	0	1810	0	1598			
Grp Volume(v), veh/h	138	414	0	0	421	0	424	0	348			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1781	0	1810	0	1598			
Q Serve(g_s), s	3.7	9.9	0.0	0.0	14.5	0.0	14.3	0.0	13.0			
Cycle Q Clear(g_c), s	3.7	9.9	0.0	0.0	14.5	0.0	14.3	0.0	13.0			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	300	886	0	0	516	0	528	0	466			
V/C Ratio(X)	0.46	0.47	0.00	0.00	0.82	0.00	0.80	0.00	0.75			
Avail Cap(c_a), veh/h	333	1746	0	0	1312	0	1365	0	1205			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	15.5	11.5	0.0	0.0	21.8	0.0	21.6	0.0	21.2			
Incr Delay (d2), s/veh	1.1	0.4	0.0	0.0	3.2	0.0	2.9	0.0	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	3.3	0.0	0.0	5.7	0.0	5.9	0.0	0.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	11.8	0.0	0.0	25.1	0.0	24.5	0.0	23.6			
LnGrp LOS	B	B	A	A	C	A	C	A	C			
Approach Vol, veh/h		552			421			772				
Approach Delay, s/veh		13.0			25.1			24.1				
Approach LOS		B			C			C				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		39.2		26.8	12.7	26.5			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 63		* 50	* 6.6	* 49			
Max Q Clear Time (g_c+I1), s		11.9		16.3	5.7	16.5			
Green Ext Time (p_c), s		2.6		2.9	0.0	2.6			

Intersection Summary		
HCM 6th Ctrl Delay		20.8
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	296	388	205	668	277
v/c Ratio	0.62	0.57	0.41	0.66	0.63
Control Delay	33.0	6.4	12.1	16.5	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	6.4	12.1	16.5	36.0
Queue Length 50th (ft)	126	0	46	208	121
Queue Length 95th (ft)	255	68	104	410	252
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	882	943	581	1535	1154
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.41	0.35	0.44	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (vph)	0	272	357	189	615	0	0	0	0	254	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1696	1455	1543	1810						1774	
Flt Permitted		1.00	1.00	0.37	1.00						0.95	
Satd. Flow (perm)		1696	1455	598	1810						1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	296	388	205	668	0	0	0	0	276	1	0
RTOR Reduction (vph)	0	0	277	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	296	111	205	668	0	0	0	0	0	277	0
Heavy Vehicles (%)	2%	12%	11%	17%	5%	2%	2%	2%	2%	2%	0%	2%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		22.9	22.9	45.2	45.2						19.9	
Effective Green, g (s)		22.9	22.9	45.2	45.2						19.9	
Actuated g/C Ratio		0.29	0.29	0.57	0.57						0.25	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		486	417	508	1023						441	
v/s Ratio Prot		0.17		0.07	c0.37							
v/s Ratio Perm			0.08	0.16							0.16	
v/c Ratio		0.61	0.27	0.40	0.65						0.63	
Uniform Delay, d1		24.6	22.0	9.7	11.9						26.7	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		2.5	0.5	0.5	1.7						3.2	
Delay (s)		27.1	22.5	10.2	13.6						29.9	
Level of Service		C	C	B	B						C	
Approach Delay (s)		24.5			12.8			0.0			29.9	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	22.7
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Future Volume (veh/h)	0	272	357	189	615	0	0	0	0	254	1	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1722	1737	1648	1826	0				1870	1900	1870
Adj Flow Rate, veh/h	0	296	0	205	668	0				276	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	12	11	17	5	0				2	0	2
Cap, veh/h	0	415		416	944	0				374	1	0
Arrive On Green	0.00	0.24	0.00	0.13	0.52	0.00				0.21	0.21	0.00
Sat Flow, veh/h	0	1722	1472	1570	1826	0				1803	7	0
Grp Volume(v), veh/h	0	296	0	205	668	0				277	0	0
Grp Sat Flow(s),veh/h/ln	0	1722	1472	1570	1826	0				1810	0	0
Q Serve(g_s), s	0.0	8.5	0.0	4.8	15.0	0.0				7.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.5	0.0	4.8	15.0	0.0				7.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h	0	415		416	944	0				375	0	0
V/C Ratio(X)	0.00	0.71		0.49	0.71	0.00				0.74	0.00	0.00
Avail Cap(c_a), veh/h	0	1282		798	2308	0				1685	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.7	0.0	12.1	9.9	0.0				19.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.3	0.0	0.9	1.4	0.0				4.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.0	1.3	4.2	0.0				3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.9	0.0	13.1	11.3	0.0				24.0	0.0	0.0
LnGrp LOS	A	C		B	B	A				C	A	A
Approach Vol, veh/h		296			873						277	
Approach Delay, s/veh		21.9			11.7						24.0	
Approach LOS		C			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		35.7		18.0	14.8	20.8						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		67.9		50.0	20.0	40.0						
Max Q Clear Time (g_c+I1), s		17.0		9.7	6.8	10.5						
Green Ext Time (p_c), s		7.7		1.6	0.5	2.5						

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Future Volume (Veh/h)	31	68	56	7	58	1	228	2	8	1	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	74	61	8	63	1	248	2	9	1	1	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked												
vC, conflicting volume	64			135			320	252	104	262	282	64
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			135			320	252	104	262	282	64
tC, single (s)	4.3			4.6			7.1	6.5	6.4	7.1	6.5	6.8
tC, 2 stage (s)												
tF (s)	2.4			2.7			3.5	4.0	3.5	3.5	4.0	3.8
p0 queue free %	98			99			56	100	99	100	100	92
cM capacity (veh/h)	1431			1201			563	634	911	671	611	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	169	72	259	70
Volume Left	34	8	248	1
Volume Right	61	1	9	68
cSH	1431	1201	571	852
Volume to Capacity	0.02	0.01	0.45	0.08
Queue Length 95th (ft)	2	1	59	7
Control Delay (s)	1.7	0.9	16.4	9.6
Lane LOS	A	A	C	A
Approach Delay (s)	1.7	0.9	16.4	9.6
Approach LOS			C	A

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Future Vol, veh/h	31	68	56	7	58	1	228	2	8	1	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	4	16	50	10	0	5	0	17	0	0	60
Mvmt Flow	34	74	61	8	63	1	248	2	9	1	1	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	64	0	0	135	0	0	287	253	105	258	283	64
Stage 1	-	-	-	-	-	-	173	173	-	80	80	-
Stage 2	-	-	-	-	-	-	114	80	-	178	203	-
Critical Hdwy	4.3	-	-	4.6	-	-	7.15	6.5	6.37	7.1	6.5	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.38	-	-	2.65	-	-	3.545	4	3.453	3.5	4	3.84
Pot Cap-1 Maneuver	1431	-	-	1201	-	-	659	654	910	699	629	859
Stage 1	-	-	-	-	-	-	822	760	-	934	832	-
Stage 2	-	-	-	-	-	-	884	832	-	828	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1431	-	-	1201	-	-	590	632	910	673	608	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	632	-	673	608	-
Stage 1	-	-	-	-	-	-	801	740	-	910	826	-
Stage 2	-	-	-	-	-	-	807	826	-	796	718	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.9	15.6	9.6
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1431	-	-	1201	-	-	850
HCM Lane V/C Ratio	0.433	0.024	-	-	0.006	-	-	0.083
HCM Control Delay (s)	15.6	7.6	0	-	8	0	-	9.6
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-	0.3

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Future Volume (Veh/h)	1	0	1	11	0	229	1	10	21	53	9	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	249	1	11	23	58	10	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	400	163	11	152	152	22	12			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	400	163	11	152	152	22	12			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	76	100			96		
cM capacity (veh/h)	418	702	1076	791	712	1054	1620			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	261	35	70
Volume Left	1	12	1	58
Volume Right	1	249	23	2
cSH	602	1039	1620	1578
Volume to Capacity	0.00	0.25	0.00	0.04
Queue Length 95th (ft)	0	25	0	3
Control Delay (s)	11.0	9.6	0.2	6.2
Lane LOS	B	A	A	A
Approach Delay (s)	11.0	9.6	0.2	6.2
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Future Vol, veh/h	1	0	1	11	0	229	1	10	21	53	9	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	25	2	2	0	0
Mvmt Flow	1	0	1	12	0	249	1	11	23	58	10	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	276	163	11	153	153	23	12	0	0	34	0	0
Stage 1	127	127	-	25	25	-	-	-	-	-	-	-
Stage 2	149	36	-	128	128	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	729	1076	814	739	1054	1620	-	-	1578	-	-
Stage 1	882	791	-	993	874	-	-	-	-	-	-	-
Stage 2	858	865	-	876	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	505	701	1076	790	711	1054	1620	-	-	1578	-	-
Mov Cap-2 Maneuver	505	701	-	790	711	-	-	-	-	-	-	-
Stage 1	881	762	-	992	873	-	-	-	-	-	-	-
Stage 2	655	864	-	843	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9.6	0.2	6.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	687	1038	1578	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.251	0.037	-	-
HCM Control Delay (s)	7.2	0	-	10.3	9.6	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0.1	-	-

HCM Unsignalized Intersection Capacity Analysis
9: West Campus 1/West Campus 2 & Connector Road

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Future Volume (Veh/h)	8	227	55	3	249	1	45	0	2	1	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	247	60	3	271	1	49	0	2	1	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	272			307			580	573	277	574	602	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272			307			580	573	277	574	602	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			88	100	100	100	100	99
cM capacity (veh/h)	1291			1254			418	426	762	425	409	767

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	316	275	51	9
Volume Left	9	3	49	1
Volume Right	60	1	2	8
cSH	1291	1254	425	704
Volume to Capacity	0.01	0.00	0.12	0.01
Queue Length 95th (ft)	1	0	10	1
Control Delay (s)	0.3	0.1	14.6	10.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	0.1	14.6	10.2
Approach LOS			B	B

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	36.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Future Vol, veh/h	8	227	55	3	249	1	45	0	2	1	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	247	60	3	271	1	49	0	2	1	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	272	0	0	307	0	0	577	573	277	574	603	272
Stage 1	-	-	-	-	-	-	295	295	-	278	278	-
Stage 2	-	-	-	-	-	-	282	278	-	296	325	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1291	-	-	1254	-	-	428	430	762	430	413	767
Stage 1	-	-	-	-	-	-	713	669	-	728	680	-
Stage 2	-	-	-	-	-	-	725	680	-	712	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1291	-	-	1254	-	-	420	425	762	425	408	767
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	425	-	425	408	-
Stage 1	-	-	-	-	-	-	707	664	-	722	678	-
Stage 2	-	-	-	-	-	-	716	678	-	704	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	14.5	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	428	1291	-	-	1254	-	-	697
HCM Lane V/C Ratio	0.119	0.007	-	-	0.003	-	-	0.012
HCM Control Delay (s)	14.5	7.8	0	-	7.9	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0

HCM Unsignalized Intersection Capacity Analysis
10: South Campus 1 & Connector Road

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	27	1	231	22	1
Future Volume (Veh/h)	203	27	1	231	22	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	29	1	251	24	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			250		488	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		488	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1316		538	804

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	250	252	25
Volume Left	0	1	24
Volume Right	29	0	1
cSH	1700	1316	545
Volume to Capacity	0.15	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.0	11.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	27	1	231	22	1
Future Vol, veh/h	203	27	1	231	22	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	221	29	1	251	24	1

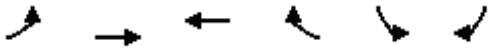
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	250	0	489	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1316	-	538	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1316	-	537	803
Mov Cap-2 Maneuver	-	-	-	-	537	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	1316	-
HCM Lane V/C Ratio	0.046	-	-	0.001	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
11: Connector Road & North Campus

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	160	196	2	1	36
Future Volume (Veh/h)	44	160	196	2	1	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	174	213	2	1	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	215				484	214
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215				484	214
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	95
cM capacity (veh/h)	1355				523	826

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	222	215	40
Volume Left	48	0	1
Volume Right	0	2	39
cSH	1355	1700	814
Volume to Capacity	0.04	0.13	0.05
Queue Length 95th (ft)	3	0	4
Control Delay (s)	1.9	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	1.9	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	160	196	2	1	36
Future Vol, veh/h	44	160	196	2	1	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	174	213	2	1	39

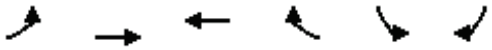
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	215	0	-	0	484	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1355	-	-	-	542	826
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1355	-	-	-	521	826
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	813
HCM Lane V/C Ratio	0.035	-	-	-	0.049
HCM Control Delay (s)	7.8	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	161	198	158	35	1
Future Volume (Veh/h)	1	161	198	158	35	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	175	215	172	38	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	387				392	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387				392	215
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	100
cM capacity (veh/h)	1171				612	825

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	176	215	172	39
Volume Left	1	0	0	38
Volume Right	0	0	172	1
cSH	1171	1700	1700	616
Volume to Capacity	0.00	0.13	0.10	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.1	0.0	0.0	11.2
Lane LOS	A			B
Approach Delay (s)	0.1	0.0		11.2
Approach LOS				B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	161	198	158	35	1
Future Vol, veh/h	1	161	198	158	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	300	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	175	215	172	38	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	387	0	-	0	392	215
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1171	-	-	-	612	825
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	854	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1171	-	-	-	611	825
Mov Cap-2 Maneuver	-	-	-	-	611	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	854	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1171	-	-	-	615
HCM Lane V/C Ratio	0.001	-	-	-	0.064
HCM Control Delay (s)	8.1	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
13: South Campus 2 & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	41	2	323	33	2
Future Volume (Veh/h)	155	41	2	323	33	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	168	45	2	351	36	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			213		546	190
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		546	190
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1357		498	851

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	353	38
Volume Left	0	2	36
Volume Right	45	0	2
cSH	1700	1357	509
Volume to Capacity	0.13	0.00	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.1	12.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	12.6
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

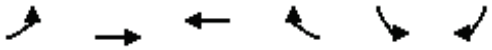
Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	155	41	2	323	33	2
Future Vol, veh/h	155	41	2	323	33	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	45	2	351	36	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	213	0	546	191
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	355	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1357	-	499	851
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1357	-	498	851
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	510	-	-	1357	-
HCM Lane V/C Ratio	0.075	-	-	0.002	-
HCM Control Delay (s)	12.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	67	252	5	4	73
Future Volume (Veh/h)	90	67	252	5	4	73
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	73	274	5	4	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	279				546	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				546	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				99	90
cM capacity (veh/h)	1284				461	762

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	171	279	83
Volume Left	98	0	4
Volume Right	0	5	79
cSH	1284	1700	739
Volume to Capacity	0.08	0.16	0.11
Queue Length 95th (ft)	6	0	9
Control Delay (s)	4.9	0.0	10.5
Lane LOS	A		B
Approach Delay (s)	4.9	0.0	10.5
Approach LOS			B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	67	252	5	4	73
Future Vol, veh/h	90	67	252	5	4	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	73	274	5	4	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	279	0	-	0	546	277
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1284	-	-	-	499	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	776	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	459	762
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	776	-

Approach	EB	WB	SB
HCM Control Delay, s	4.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	737
HCM Lane V/C Ratio	0.076	-	-	-	0.114
HCM Control Delay (s)	8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

HCM Unsignalized Intersection Capacity Analysis
15: Neighborhood Connector & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	8	1	250	7	1
Future Volume (Veh/h)	63	8	1	250	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	9	1	272	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			77		346	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		346	72
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1522		650	990

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	273	9
Volume Left	0	1	8
Volume Right	9	0	1
cSH	1700	1522	676
Volume to Capacity	0.05	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	10.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	8	1	250	7	1
Future Vol, veh/h	63	8	1	250	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	9	1	272	8	1

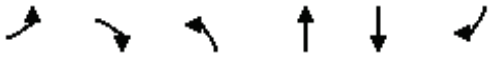
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	347	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1522	-	650	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1522	-	649	989
Mov Cap-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	678	-	-	1522	-
HCM Lane V/C Ratio	0.013	-	-	0.001	-
HCM Control Delay (s)	10.4	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
16: Neighborhood Connector & South Campus 3

Stafford Technology Campus
Total Future 2030 AM - MIT + LOS D



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	1	1	1	1	9
Future Volume (Veh/h)	8	1	1	1	1	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	1	1	1	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	9	6	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	9	6	11			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	1011	1077	1608			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	2	11
Volume Left	9	1	0
Volume Right	1	0	10
cSH	1017	1608	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	1	1	1	1	9
Future Vol, veh/h	8	1	1	1	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	1	1	1	1	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	9	6	11	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1011	1077	1608	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1010	1077	1608	-	-	-
Mov Cap-2 Maneuver	1010	-	-	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1017	-	-
HCM Lane V/C Ratio	0.001	-	0.01	-	-
HCM Control Delay (s)	7.2	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Queues
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Lane Group	EBT	EBR	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	364	1046	952	449	82	1475	74
v/c Ratio	0.46	0.88	0.64	0.24	0.10	0.82	0.09
Control Delay	37.4	54.6	41.1	25.0	4.8	41.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	54.6	41.1	25.0	4.8	41.4	4.9
Queue Length 50th (ft)	294	605	441	151	0	746	0
Queue Length 95th (ft)	366	674	484	203	33	909	31
Internal Link Dist (ft)	2772		953	7002		1803	
Turn Bay Length (ft)		500			700		500
Base Capacity (vph)	872	1295	1619	1833	844	1809	845
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.81	0.59	0.24	0.10	0.82	0.09

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	349	1004	0	757	156	0	431	79	0	1416	71
Future Volume (vph)	0	349	1004	0	757	156	0	431	79	0	1416	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8	5.8		6.2			5.3	5.3		5.6	5.6
Lane Util. Factor		1.00	0.88		0.95			0.95	1.00		0.95	1.00
Frt		1.00	0.85		0.97			1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Satd. Flow (prot)		1881	2760		3488			3574	1568		3539	1583
Flt Permitted		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Satd. Flow (perm)		1881	2760		3488			3574	1568		3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	364	1046	0	789	162	0	449	82	0	1475	74
RTOR Reduction (vph)	0	0	16	0	10	0	0	0	40	0	0	36
Lane Group Flow (vph)	0	364	1030	0	942	0	0	449	42	0	1475	38
Heavy Vehicles (%)	2%	1%	3%	2%	1%	0%	5%	1%	3%	4%	2%	2%
Turn Type		NA	Perm		NA			NA	Perm		NA	Perm
Protected Phases		8			4			2			6	
Permitted Phases			8						2			6
Actuated Green, G (s)		74.1	74.1		73.7			89.8	89.8		89.5	89.5
Effective Green, g (s)		74.1	74.1		73.7			89.8	89.8		89.5	89.5
Actuated g/C Ratio		0.42	0.42		0.42			0.51	0.51		0.51	0.51
Clearance Time (s)		5.8	5.8		6.2			5.3	5.3		5.6	5.6
Vehicle Extension (s)		3.0	3.0		3.0			5.0	5.0		5.0	5.0
Lane Grp Cap (vph)		796	1168		1468			1833	804		1809	809
v/s Ratio Prot		0.19			0.27			0.13			c0.42	
v/s Ratio Perm			c0.37						0.03			0.02
v/c Ratio		0.46	0.88		0.64			0.24	0.05		0.82	0.05
Uniform Delay, d1		36.1	46.4		40.2			23.7	21.3		35.8	21.4
Progression Factor		1.00	1.00		1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.4	8.1		1.0			0.3	0.1		4.2	0.1
Delay (s)		36.5	54.5		41.1			24.0	21.4		40.0	21.5
Level of Service		D	D		D			C	C		D	C
Approach Delay (s)		49.9			41.1			23.6			39.1	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	175.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
1: U.S. 1 & Hospital Center Boulevard

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	349	1004	0	757	156	0	431	79	0	1416	71
Future Volume (veh/h)	0	349	1004	0	757	156	0	431	79	0	1416	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1885	1856	0	1885	1900	0	1885	1856	0	1870	1870
Adj Flow Rate, veh/h	0	364	1046	0	789	162	0	449	82	0	1475	74
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	3	0	1	0	0	1	3	0	2	2
Cap, veh/h	0	771	1132	0	1211	249	0	1875	823	0	1860	830
Arrive On Green	0.00	0.41	0.41	0.00	0.41	0.41	0.00	0.52	0.52	0.00	0.52	0.52
Sat Flow, veh/h	0	1885	2768	0	3053	608	0	3676	1572	0	3647	1585
Grp Volume(v), veh/h	0	364	1046	0	478	473	0	449	82	0	1475	74
Grp Sat Flow(s),veh/h/ln	0	1885	1384	0	1791	1776	0	1791	1572	0	1777	1585
Q Serve(g_s), s	0.0	24.7	62.8	0.0	37.6	37.6	0.0	12.0	4.6	0.0	59.2	4.1
Cycle Q Clear(g_c), s	0.0	24.7	62.8	0.0	37.6	37.6	0.0	12.0	4.6	0.0	59.2	4.1
Prop In Lane	0.00		1.00	0.00		0.34	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	771	1132	0	733	727	0	1875	823	0	1860	830
V/C Ratio(X)	0.00	0.47	0.92	0.00	0.65	0.65	0.00	0.24	0.10	0.00	0.79	0.09
Avail Cap(c_a), veh/h	0	875	1284	0	827	820	0	1875	823	0	1860	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	37.9	49.1	0.0	41.7	41.7	0.0	22.7	21.0	0.0	34.0	20.8
Incr Delay (d2), s/veh	0.0	0.4	10.5	0.0	1.5	1.5	0.0	0.3	0.2	0.0	3.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.5	23.0	0.0	17.0	16.9	0.0	5.2	1.8	0.0	26.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.3	59.6	0.0	43.2	43.2	0.0	23.0	21.2	0.0	37.5	21.1
LnGrp LOS	A	D	E	A	D	D	A	C	C	A	D	C
Approach Vol, veh/h		1410			951			531			1549	
Approach Delay, s/veh		54.1			43.2			22.7			36.8	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	97.2	77.8	97.2	77.8
Change Period (Y+Rc), s	* 5.6	* 6.2	* 5.6	* 6.2
Max Green Setting (Gmax), s	* 83	* 81	* 82	* 81
Max Q Clear Time (g_c+I1), s	14.0	39.6	61.2	64.8
Green Ext Time (p_c), s	22.6	4.4	20.9	6.8

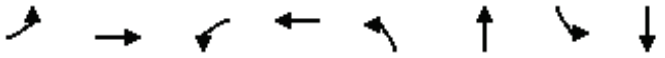
Intersection Summary	
HCM 6th Ctrl Delay	42.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	259	69	177	91	927	235	2302
v/c Ratio	0.28	0.78	0.34	0.54	0.51	0.40	0.59	0.90
Control Delay	34.1	55.0	36.0	32.1	30.7	24.5	18.0	35.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	55.0	36.0	32.1	30.7	24.5	18.0	35.4
Queue Length 50th (ft)	48	159	40	69	29	179	81	621
Queue Length 95th (ft)	87	257	78	148	90	270	148	#874
Internal Link Dist (ft)		2965		420		3738		1572
Turn Bay Length (ft)	500		300		300		200	
Base Capacity (vph)	387	541	216	405	198	2300	501	2544
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.48	0.32	0.44	0.46	0.40	0.47	0.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (vph)	77	94	152	66	47	122	86	832	48	223	2105	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1686		1583	1622		1770	4981		1752	5048	
Flt Permitted	0.49	1.00		0.33	1.00		0.07	1.00		0.23	1.00	
Satd. Flow (perm)	857	1686		557	1622		134	4981		424	5048	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	99	160	69	49	128	91	876	51	235	2216	86
RTOR Reduction (vph)	0	47	0	0	69	0	0	4	0	0	2	0
Lane Group Flow (vph)	81	212	0	69	108	0	91	923	0	235	2300	0
Heavy Vehicles (%)	8%	1%	3%	14%	3%	5%	2%	3%	8%	3%	2%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	28.5	20.3		26.1	19.1		63.8	55.8		74.0	60.9	
Effective Green, g (s)	28.5	20.3		26.1	19.1		63.8	55.8		74.0	60.9	
Actuated g/C Ratio	0.23	0.17		0.21	0.16		0.52	0.46		0.61	0.50	
Clearance Time (s)	4.5	7.4		4.5	7.4		6.8	6.8		6.8	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	255	281		178	254		177	2283		400	2526	
v/s Ratio Prot	0.02	c0.13		c0.02	0.07		0.03	0.19		c0.06	c0.46	
v/s Ratio Perm	0.05			0.06			0.24			0.29		
v/c Ratio	0.32	0.76		0.39	0.42		0.51	0.40		0.59	0.91	
Uniform Delay, d1	37.6	48.3		39.6	46.3		23.1	21.9		12.1	27.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	11.0		1.4	1.1		2.5	0.2		2.2	5.8	
Delay (s)	38.3	59.3		41.0	47.5		25.7	22.1		14.3	33.7	
Level of Service	D	E		D	D		C	C		B	C	
Approach Delay (s)		54.3			45.7			22.5			31.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	121.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
2: US-1 & American Legion Rd/Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Future Volume (veh/h)	77	94	152	66	47	122	86	832	48	223	2105	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1885	1856	1693	1856	1826	1870	1856	1781	1856	1870	1796
Adj Flow Rate, veh/h	81	99	160	69	49	128	91	876	51	235	2216	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	3	14	3	5	2	3	8	3	2	7
Cap, veh/h	229	112	181	163	76	198	159	2300	134	431	2606	101
Arrive On Green	0.05	0.17	0.17	0.05	0.17	0.17	0.04	0.47	0.47	0.09	0.52	0.52
Sat Flow, veh/h	1697	648	1048	1612	455	1187	1781	4897	284	1767	5044	195
Grp Volume(v), veh/h	81	0	259	69	0	177	91	603	324	235	1492	810
Grp Sat Flow(s),veh/h/ln	1697	0	1697	1612	0	1642	1781	1689	1804	1767	1702	1835
Q Serve(g_s), s	4.5	0.0	17.2	4.1	0.0	11.6	3.0	13.3	13.4	7.7	43.5	44.0
Cycle Q Clear(g_c), s	4.5	0.0	17.2	4.1	0.0	11.6	3.0	13.3	13.4	7.7	43.5	44.0
Prop In Lane	1.00		0.62	1.00		0.72	1.00		0.16	1.00		0.11
Lane Grp Cap(c), veh/h	229	0	294	163	0	274	159	1586	847	431	1759	948
V/C Ratio(X)	0.35	0.00	0.88	0.42	0.00	0.65	0.57	0.38	0.38	0.54	0.85	0.85
Avail Cap(c_a), veh/h	438	0	524	220	0	353	226	1586	847	599	1779	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	46.5	38.4	0.0	44.8	25.3	19.7	19.7	14.0	24.0	24.1
Incr Delay (d2), s/veh	0.9	0.0	8.5	1.7	0.0	2.6	3.2	0.3	0.6	1.1	4.4	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	7.8	1.7	0.0	5.0	1.3	4.8	5.2	2.9	16.6	19.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	0.0	55.0	40.2	0.0	47.4	28.6	20.0	20.3	15.1	28.4	32.3
LnGrp LOS	D	A	D	D	A	D	C	C	C	B	C	C
Approach Vol, veh/h		340			246			1018			2537	
Approach Delay, s/veh		51.0			45.4			20.9			28.4	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	66.3	9.9	27.3	17.0	60.9	10.6	26.6
Change Period (Y+Rc), s	* 6.8	* 6.8	4.5	7.4	* 6.8	* 6.8	4.5	7.4
Max Green Setting (Gmax), s	* 9.2	* 60	9.5	35.6	* 21	* 48	20.3	24.8
Max Q Clear Time (g_c+I1), s	5.0	46.0	6.1	19.2	9.7	15.4	6.5	13.6
Green Ext Time (p_c), s	0.1	13.6	0.0	0.8	0.5	12.2	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	65	57	100	29	909	35	104	2367
v/c Ratio	0.21	0.26	0.28	0.17	0.44	0.04	0.26	0.69
Control Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	57.7	11.0	9.5	15.0	0.1	9.3	18.4
Queue Length 50th (ft)	0	45	0	7	214	0	28	541
Queue Length 95th (ft)	4	91	49	18	263	0	48	606
Internal Link Dist (ft)	569	955			685			3738
Turn Bay Length (ft)			300	415		500	300	
Base Capacity (vph)	479	216	360	172	2396	1109	396	3436
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.26	0.28	0.17	0.38	0.03	0.26	0.69

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (vph)	18	0	43	54	0	94	27	854	33	98	2200	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.91	
Frt		0.90			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1661			1770	1583	1770	3539	1583	1770	5077	
Flt Permitted		0.99			0.95	1.00	0.06	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1661			1770	1583	108	3539	1583	464	5077	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	19	0	46	57	0	100	29	909	35	104	2340	27
RTOR Reduction (vph)	0	60	0	0	0	87	0	0	14	0	1	0
Lane Group Flow (vph)	0	5	0	0	57	13	29	909	21	104	2366	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	4	4		8	8	5	1	6		5	2	
Permitted Phases						8	6		6	2		
Actuated Green, G (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Effective Green, g (s)		8.5			8.5	15.3	72.1	69.0	69.0	79.5	72.7	
Actuated g/C Ratio		0.07			0.07	0.13	0.62	0.59	0.59	0.68	0.62	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		120			128	288	110	2090	935	391	3160	
v/s Ratio Prot		c0.00			c0.03	0.00	0.01	0.26		c0.02	c0.47	
v/s Ratio Perm						0.01	0.15		0.01	0.17		
v/c Ratio		0.04			0.45	0.05	0.26	0.43	0.02	0.27	0.75	
Uniform Delay, d1		50.4			51.9	44.4	13.6	13.2	9.9	7.5	15.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			2.5	0.1	1.3	0.1	0.0	0.4	1.0	
Delay (s)		50.5			54.4	44.4	14.9	13.3	9.9	7.9	16.6	
Level of Service		D			D	D	B	B	A	A	B	
Approach Delay (s)		50.5			48.0			13.2			16.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
3: US-1 & Sage Lane /Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



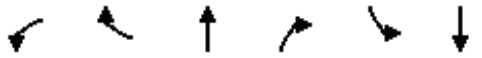
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Future Volume (veh/h)	18	0	43	54	0	94	27	854	33	98	2200	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	46	57	0	100	29	909	35	104	2340	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	0	102	175	0	232	151	2017	900	402	3043	35
Arrive On Green	0.09	0.00	0.09	0.10	0.00	0.10	0.03	0.57	0.57	0.05	0.58	0.58
Sat Flow, veh/h	479	0	1159	1781	0	1585	1781	3554	1585	1781	5204	60
Grp Volume(v), veh/h	65	0	0	57	0	100	29	909	35	104	1530	837
Grp Sat Flow(s),veh/h/ln	1638	0	0	1781	0	1585	1781	1777	1585	1781	1702	1860
Q Serve(g_s), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Cycle Q Clear(g_c), s	4.6	0.0	0.0	3.6	0.0	7.0	0.8	18.0	1.2	2.9	41.1	41.2
Prop In Lane	0.29		0.71	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	144	0	0	175	0	232	151	2017	900	402	1991	1088
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.43	0.19	0.45	0.04	0.26	0.77	0.77
Avail Cap(c_a), veh/h	311	0	0	176	0	233	184	2198	981	405	2106	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	0.0	50.9	0.0	47.1	17.8	15.2	11.6	11.1	19.0	19.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	1.3	0.6	0.2	0.0	0.3	1.7	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	1.7	0.0	2.9	0.3	6.5	0.4	1.0	14.3	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	0.0	52.0	0.0	48.4	18.4	15.4	11.6	11.5	20.7	22.1
LnGrp LOS	D	A	A	D	A	D	B	B	B	B	C	C
Approach Vol, veh/h		65			157			973			2471	
Approach Delay, s/veh		54.7			49.7			15.3			20.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	76.9		16.7	11.8	74.8		17.9				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	75.0		23.0	6.0	75.0		12.0				
Max Q Clear Time (g_c+I1), s	2.8	43.2		6.6	4.9	20.0		9.0				
Green Ext Time (p_c), s	0.0	27.7		0.2	0.0	12.2		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

Queues
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	608	174	729	680	378	2117
v/c Ratio	0.85	0.21	0.46	0.53	0.55	0.88
Control Delay	54.6	14.2	61.1	7.6	29.1	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.6
Total Delay	54.6	14.2	61.1	7.6	29.1	44.6
Queue Length 50th (ft)	550	68	231	118	123	754
Queue Length 95th (ft)	725	105	344	267	160	825
Internal Link Dist (ft)	1017		1047			2892
Turn Bay Length (ft)	500	1000		800	800	
Base Capacity (vph)	749	846	1597	1319	757	2395
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	69
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.21	0.46	0.52	0.50	0.91

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	584	167	700	653	363	2032
Future Volume (vph)	584	167	700	653	363	2032
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Lane Util. Factor	1.00	1.00	0.91	1.00	0.97	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	1442	5085	1599	3502	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.30	1.00
Satd. Flow (perm)	1719	1442	5085	1599	1101	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	608	174	729	680	378	2117
RTOR Reduction (vph)	0	15	0	25	0	0
Lane Group Flow (vph)	608	159	729	655	378	2117
Heavy Vehicles (%)	5%	12%	2%	1%	0%	3%
Turn Type	Prot	pm+ov	NA	pm+ov	D.P+P	NA
Protected Phases	3	5	6	3	5	2
Permitted Phases		3		6	6	
Actuated Green, G (s)	66.5	82.1	50.3	116.8	65.9	76.1
Effective Green, g (s)	66.5	82.1	50.3	116.8	65.9	76.1
Actuated g/C Ratio	0.42	0.51	0.31	0.73	0.41	0.48
Clearance Time (s)	7.2	10.2	10.2	7.2	10.2	10.2
Vehicle Extension (s)	6.0	3.0	4.0	6.0	3.0	4.0
Lane Grp Cap (vph)	714	739	1598	1167	687	2395
v/s Ratio Prot	c0.35	0.02	0.14	0.23	0.05	c0.42
v/s Ratio Perm		0.09		0.18	0.17	
v/c Ratio	0.85	0.22	0.46	0.56	0.55	0.88
Uniform Delay, d1	42.3	21.3	43.9	9.9	31.4	38.0
Progression Factor	1.00	1.00	1.33	1.18	1.00	1.00
Incremental Delay, d2	10.9	0.1	0.9	1.2	1.0	5.2
Delay (s)	53.2	21.5	59.3	12.8	32.3	43.2
Level of Service	D	C	E	B	C	D
Approach Delay (s)	46.2		36.9			41.5
Approach LOS	D		D			D

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	27.6
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
4: US-1 & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	584	167	700	653	363	2032
Future Volume (veh/h)	584	167	700	653	363	2032
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1826	1722	1870	1885	1900	1856
Adj Flow Rate, veh/h	608	174	729	680	378	2117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	12	2	1	0	3
Cap, veh/h	672	688	1818	1187	556	2556
Arrive On Green	0.39	0.39	0.12	0.12	0.08	0.50
Sat Flow, veh/h	1739	1459	5274	1598	3510	5233
Grp Volume(v), veh/h	608	174	729	680	378	2117
Grp Sat Flow(s),veh/h/ln	1739	1459	1702	1598	1755	1689
Q Serve(g_s), s	52.8	11.4	21.2	27.9	10.8	56.9
Cycle Q Clear(g_c), s	52.8	11.4	21.2	27.9	10.8	56.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	672	688	1818	1187	556	2556
V/C Ratio(X)	0.90	0.25	0.40	0.57	0.68	0.83
Avail Cap(c_a), veh/h	759	760	1818	1187	671	2556
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	46.3	25.4	54.8	12.2	30.8	33.7
Incr Delay (d2), s/veh	16.7	0.7	0.6	1.9	2.1	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.9	4.0	9.8	12.0	4.7	23.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.9	26.1	55.4	14.1	33.0	37.0
LnGrp LOS	E	C	E	B	C	D
Approach Vol, veh/h	782		1409			2495
Approach Delay, s/veh	54.7		35.5			36.4
Approach LOS	D		D			D

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		90.9			23.8	67.2	69.1
Change Period (Y+Rc), s		10.2			10.2	10.2	7.2
Max Green Setting (Gmax), s		72.8			18.8	43.8	69.8
Max Q Clear Time (g_c+I1), s		58.9			12.8	29.9	54.8
Green Ext Time (p_c), s		12.3			0.8	8.6	7.1

Intersection Summary							
HCM 6th Ctrl Delay			39.2				
HCM 6th LOS			D				

Queues
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	190	632	575	328	175
v/c Ratio	0.54	0.58	0.88	0.82	0.35
Control Delay	17.7	16.3	47.9	55.4	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	16.3	47.9	55.4	7.1
Queue Length 50th (ft)	56	249	355	215	0
Queue Length 95th (ft)	119	405	#651	#364	55
Internal Link Dist (ft)		2439	275	2104	
Turn Bay Length (ft)	275				300
Base Capacity (vph)	483	1393	815	547	628
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.45	0.71	0.60	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (vph)	177	588	0	0	535	0	304	1	163	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4			7.6	7.6			
Lane Util. Factor	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	1597	1827			1810			1561	1468			
Flt Permitted	0.15	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	245	1827			1810			1561	1468			
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	190	632	0	0	575	0	327	1	175	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	130	0	0	0
Lane Group Flow (vph)	190	632	0	0	575	0	0	328	45	0	0	0
Heavy Vehicles (%)	13%	4%	2%	2%	5%	2%	16%	0%	10%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)	61.6	61.6			38.0			26.7	26.7			
Effective Green, g (s)	61.6	61.6			38.0			26.7	26.7			
Actuated g/C Ratio	0.60	0.60			0.37			0.26	0.26			
Clearance Time (s)	7.4	7.4			7.4			7.6	7.6			
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)	358	1089			665			403	379			
v/s Ratio Prot	0.08	c0.35			c0.32							
v/s Ratio Perm	0.23							0.21	0.03			
v/c Ratio	0.53	0.58			0.86			0.81	0.12			
Uniform Delay, d1	15.6	12.9			30.3			36.0	29.3			
Progression Factor	1.00	1.00			1.00			1.00	1.00			
Incremental Delay, d2	1.5	0.8			11.3			11.9	0.1			
Delay (s)	17.1	13.7			41.6			47.9	29.4			
Level of Service	B	B			D			D	C			
Approach Delay (s)		14.5			41.6			41.5			0.0	
Approach LOS		B			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	22.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Future Volume (veh/h)	177	588	0	0	535	0	304	1	163	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1707	1841	0	0	1826	0	1663	1900	1752			
Adj Flow Rate, veh/h	190	632	0	0	575	0	327	1	175			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	13	4	0	0	5	0	16	0	10			
Cap, veh/h	320	1048	0	0	671	0	403	1	331			
Arrive On Green	0.10	0.57	0.00	0.00	0.37	0.00	0.22	0.22	0.22			
Sat Flow, veh/h	1626	1841	0	0	1826	0	1804	6	1485			
Grp Volume(v), veh/h	190	632	0	0	575	0	328	0	175			
Grp Sat Flow(s),veh/h/ln	1626	1841	0	0	1826	0	1810	0	1485			
Q Serve(g_s), s	4.8	16.3	0.0	0.0	21.0	0.0	12.4	0.0	7.5			
Cycle Q Clear(g_c), s	4.8	16.3	0.0	0.0	21.0	0.0	12.4	0.0	7.5			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	320	1048	0	0	671	0	404	0	331			
V/C Ratio(X)	0.59	0.60	0.00	0.00	0.86	0.00	0.81	0.00	0.53			
Avail Cap(c_a), veh/h	721	1971	0	0	1136	0	876	0	719			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	15.2	10.2	0.0	0.0	21.1	0.0	26.6	0.0	24.7			
Incr Delay (d2), s/veh	1.8	0.6	0.0	0.0	3.4	0.0	4.0	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	5.1	0.0	0.0	8.3	0.0	5.4	0.0	0.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	10.8	0.0	0.0	24.5	0.0	30.6	0.0	26.0			
LnGrp LOS	B	B	A	A	C	A	C	A	C			
Approach Vol, veh/h		822			575			503				
Approach Delay, s/veh		12.2			24.5			29.0				
Approach LOS		B			C			C				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		48.6		23.7	14.6	34.0			
Change Period (Y+Rc), s		* 7.4		* 7.6	* 7.4	* 7.4			
Max Green Setting (Gmax), s		* 77		* 35	* 25	* 45			
Max Q Clear Time (g_c+I1), s		18.3		14.4	6.8	23.0			
Green Ext Time (p_c), s		4.6		1.7	0.5	3.6			

Intersection Summary		
HCM 6th Ctrl Delay		20.4
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	519	683	380	595	382
v/c Ratio	0.78	0.67	0.89	0.59	0.82
Control Delay	41.2	5.6	40.1	17.8	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	5.6	40.1	17.8	54.8
Queue Length 50th (ft)	329	0	141	254	258
Queue Length 95th (ft)	477	53	#338	394	390
Internal Link Dist (ft)	468			2439	203
Turn Bay Length (ft)		500	500		
Base Capacity (vph)	865	1117	429	1236	633
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.61	0.89	0.48	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (vph)	0	446	587	327	512	0	0	0	0	318	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.9	7.9	7.9	7.9						6.9	
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						1.00	
Flt Protected		1.00	1.00	0.95	1.00						0.95	
Satd. Flow (prot)		1792	1583	1719	1696						1748	
Flt Permitted		1.00	1.00	0.20	1.00						0.95	
Satd. Flow (perm)		1792	1583	367	1696						1748	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	519	683	380	595	0	0	0	0	370	12	0
RTOR Reduction (vph)	0	0	427	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	519	256	380	595	0	0	0	0	0	382	0
Heavy Vehicles (%)	2%	6%	2%	5%	12%	2%	2%	2%	2%	3%	25%	29%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		6		5	2						4	
Permitted Phases			6	2						4		
Actuated Green, G (s)		42.1	42.1	67.5	67.5						30.1	
Effective Green, g (s)		42.1	42.1	67.5	67.5						30.1	
Actuated g/C Ratio		0.37	0.37	0.60	0.60						0.27	
Clearance Time (s)		7.9	7.9	7.9	7.9						6.9	
Vehicle Extension (s)		4.0	4.0	3.0	4.0						4.0	
Lane Grp Cap (vph)		671	592	430	1018						468	
v/s Ratio Prot		0.29		c0.14	0.35							
v/s Ratio Perm			0.16	c0.39							0.22	
v/c Ratio		0.77	0.43	0.88	0.58						0.82	
Uniform Delay, d1		31.0	26.2	18.9	13.8						38.6	
Progression Factor		1.00	1.00	1.00	1.00						1.00	
Incremental Delay, d2		5.9	0.7	18.9	1.0						11.1	
Delay (s)		36.8	26.9	37.7	14.8						49.6	
Level of Service		D	C	D	B						D	
Approach Delay (s)		31.2			23.8			0.0			49.6	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	112.4	Sum of lost time (s)	22.7
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Future Volume (veh/h)	0	446	587	327	512	0	0	0	0	318	10	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1870	1826	1722	0				1856	1530	1470
Adj Flow Rate, veh/h	0	519	0	380	595	0				370	12	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86				0.86	0.86	0.86
Percent Heavy Veh, %	0	6	2	5	12	0				3	25	29
Cap, veh/h	0	600		406	982	0				407	13	0
Arrive On Green	0.00	0.33	0.00	0.16	0.57	0.00				0.29	0.29	0.00
Sat Flow, veh/h	0	1811	1585	1739	1722	0				1413	46	0
Grp Volume(v), veh/h	0	519	0	380	595	0				382	0	0
Grp Sat Flow(s),veh/h/ln	0	1811	1585	1739	1722	0				1459	0	0
Q Serve(g_s), s	0.0	28.0	0.0	14.9	23.7	0.0				26.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	28.0	0.0	14.9	23.7	0.0				26.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		0.00
Lane Grp Cap(c), veh/h	0	600		406	982	0				420	0	0
V/C Ratio(X)	0.00	0.86		0.94	0.61	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	922		409	1290	0				557	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.6	0.0	23.4	14.7	0.0				35.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.8	0.0	28.7	0.9	0.0				17.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.6	0.0	8.7	8.3	0.0				11.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	39.4	0.0	52.1	15.6	0.0				52.9	0.0	0.0
LnGrp LOS	A	D		D	B	A				D	A	A
Approach Vol, veh/h		519			975						382	
Approach Delay, s/veh		39.4			29.8						52.9	
Approach LOS		D			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		67.3		36.9	24.9	42.5						
Change Period (Y+Rc), s		7.9		6.9	7.9	7.9						
Max Green Setting (Gmax), s		78.1		39.8	17.1	53.1						
Max Q Clear Time (g_c+I1), s		25.7		28.3	16.9	30.0						
Green Ext Time (p_c), s		6.5		1.7	0.0	4.6						

Intersection Summary												
HCM 6th Ctrl Delay			37.2									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Future Volume (Veh/h)	63	73	229	2	94	1	98	4	2	1	2	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	79	249	2	102	1	107	4	2	1	2	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		500										
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	
vC, conflicting volume	103			328			494	446	204	450	570	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	103			245			422	372	111	375	504	102
tC, single (s)	5.1			5.1			7.1	6.5	6.2	8.1	6.5	6.9
tC, 2 stage (s)												
tF (s)	3.1			3.1			3.5	4.0	3.3	4.4	4.0	3.9
p0 queue free %	94			100			76	99	100	100	100	94
cM capacity (veh/h)	1049			850			446	489	884	385	412	801

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	396	105	113	50
Volume Left	68	2	107	1
Volume Right	249	1	2	47
cSH	1049	850	451	756
Volume to Capacity	0.06	0.00	0.25	0.07
Queue Length 95th (ft)	5	0	25	5
Control Delay (s)	2.1	0.2	15.6	10.1
Lane LOS	A	A	C	B
Approach Delay (s)	2.1	0.2	15.6	10.1
Approach LOS			C	B

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Future Vol, veh/h	63	73	229	2	94	1	98	4	2	1	2	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	12	2	100	0	0	5	0	0	100	0	67
Mvmt Flow	68	79	249	2	102	1	107	4	2	1	2	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	328	0	0	471	447	204	450	571	103
Stage 1	-	-	-	-	-	-	340	340	-	107	107	-
Stage 2	-	-	-	-	-	-	131	107	-	343	464	-
Critical Hdwy	5.1	-	-	5.1	-	-	7.15	6.5	6.2	8.1	6.5	6.87
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	7.1	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.545	4	3.3	4.4	4	3.903
Pot Cap-1 Maneuver	1049	-	-	838	-	-	498	509	842	386	434	801
Stage 1	-	-	-	-	-	-	669	643	-	707	811	-
Stage 2	-	-	-	-	-	-	865	811	-	509	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	838	-	-	437	466	842	357	397	801
Mov Cap-2 Maneuver	-	-	-	-	-	-	437	466	-	357	397	-
Stage 1	-	-	-	-	-	-	614	590	-	649	809	-
Stage 2	-	-	-	-	-	-	810	809	-	463	521	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.2	15.9	10.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	442	1049	-	-	838	-	-	748
HCM Lane V/C Ratio	0.256	0.065	-	-	0.003	-	-	0.067
HCM Control Delay (s)	15.9	8.7	0	-	9.3	0	-	10.2
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	0.2

HCM Unsignalized Intersection Capacity Analysis
8: State Shop Rd & Driveway & Eskimo Hill Rd

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Future Volume (Veh/h)	1	0	1	11	0	100	1	4	29	226	7	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	12	0	109	1	4	32	246	8	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	632	538	8	524	523	20	9			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	632	538	8	524	523	20	9			36		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	90	100			84		
cM capacity (veh/h)	313	379	1079	408	387	1058	1624			1575		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	121	37	255
Volume Left	1	12	1	246
Volume Right	1	109	32	1
cSH	485	914	1624	1575
Volume to Capacity	0.00	0.13	0.00	0.16
Queue Length 95th (ft)	0	11	0	14
Control Delay (s)	12.5	9.5	0.2	7.5
Lane LOS	B	A	A	A
Approach Delay (s)	12.5	9.5	0.2	7.5
Approach LOS	B	A		

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Future Vol, veh/h	1	0	1	11	0	100	1	4	29	226	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	33	0
Mvmt Flow	1	0	1	12	0	109	1	4	32	246	8	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	578	539	9	523	523	20	9	0	0	36	0	0
Stage 1	501	501	-	22	22	-	-	-	-	-	-	-
Stage 2	77	38	-	501	501	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	430	449	1079	465	459	1058	1624	-	-	1575	-	-
Stage 1	556	543	-	996	877	-	-	-	-	-	-	-
Stage 2	937	863	-	552	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	378	1079	408	386	1058	1624	-	-	1575	-	-
Mov Cap-2 Maneuver	339	378	-	408	386	-	-	-	-	-	-	-
Stage 1	555	458	-	995	876	-	-	-	-	-	-	-
Stage 2	840	862	-	465	458	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	9.5	0.2	7.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1624	-	-	516	914	1575	-	-
HCM Lane V/C Ratio	0.001	-	-	0.004	0.132	0.156	-	-
HCM Control Delay (s)	7.2	0	-	12	9.5	7.7	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.6	-	-

HCM Unsignalized Intersection Capacity Analysis
9: West Campus 1/West Campus 2 & Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Future Volume (Veh/h)	2	120	10	1	121	1	23	0	1	1	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	130	11	1	132	1	25	0	1	1	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		1035										
pX, platoon unblocked												
vC, conflicting volume	133			141			278	274	136	275	280	132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	133			141			278	274	136	275	280	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	100	100	100	100
cM capacity (veh/h)	1452			1442			670	631	913	676	627	917

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	143	134	26	5
Volume Left	2	1	25	1
Volume Right	11	1	1	4
cSH	1452	1442	677	856
Volume to Capacity	0.00	0.00	0.04	0.01
Queue Length 95th (ft)	0	0	3	0
Control Delay (s)	0.1	0.1	10.5	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	0.1	0.1	10.5	9.2
Approach LOS			B	A

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	19.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Future Vol, veh/h	2	120	10	1	121	1	23	0	1	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	130	11	1	132	1	25	0	1	1	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	141	0	0	277	275	136	275	280	133
Stage 1	-	-	-	-	-	-	140	140	-	135	135	-
Stage 2	-	-	-	-	-	-	137	135	-	140	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1442	-	-	675	632	913	677	628	916
Stage 1	-	-	-	-	-	-	863	781	-	868	785	-
Stage 2	-	-	-	-	-	-	866	785	-	863	777	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1442	-	-	671	631	913	675	627	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	671	631	-	675	627	-
Stage 1	-	-	-	-	-	-	862	780	-	867	784	-
Stage 2	-	-	-	-	-	-	861	784	-	861	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.5	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	678	1452	-	-	1442	-	-	855
HCM Lane V/C Ratio	0.038	0.001	-	-	0.001	-	-	0.006
HCM Control Delay (s)	10.5	7.5	0	-	7.5	0	-	9.2
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

HCM Unsignalized Intersection Capacity Analysis
10: South Campus 1 & Connector Road

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	115	5	1	110	12	1
Future Volume (Veh/h)	115	5	1	110	12	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	125	5	1	120	13	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			130		250	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		250	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1455		738	923

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	130	121	14
Volume Left	0	1	13
Volume Right	5	0	1
cSH	1700	1455	749
Volume to Capacity	0.08	0.00	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.1	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.9
Approach LOS			A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	5	1	110	12	1
Future Vol, veh/h	115	5	1	110	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	5	1	120	13	1

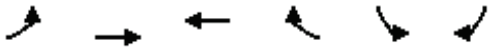
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	250	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	739	922
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	738	922
Mov Cap-2 Maneuver	-	-	-	-	738	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	750	-	-	1455	-
HCM Lane V/C Ratio	0.019	-	-	0.001	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
11: Connector Road & North Campus

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	108	91	1	1	19
Future Volume (Veh/h)	8	108	91	1	1	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	117	99	1	1	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	100				234	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				234	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	98
cM capacity (veh/h)	1493				749	956

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	126	100	22
Volume Left	9	0	1
Volume Right	0	1	21
cSH	1493	1700	944
Volume to Capacity	0.01	0.06	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.6	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	108	91	1	1	19
Future Vol, veh/h	8	108	91	1	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	117	99	1	1	21

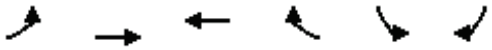
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	235	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1493	-	-	-	753	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	748	956
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	943
HCM Lane V/C Ratio	0.006	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM Unsignalized Intersection Capacity Analysis
12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	109	92	65	165	1
Future Volume (Veh/h)	1	109	92	65	165	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	118	100	71	179	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	171				220	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171				220	100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				77	100
cM capacity (veh/h)	1406				768	956

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	119	100	71	180
Volume Left	1	0	0	179
Volume Right	0	0	71	1
cSH	1406	1700	1700	768
Volume to Capacity	0.00	0.06	0.04	0.23
Queue Length 95th (ft)	0	0	0	23
Control Delay (s)	0.1	0.0	0.0	11.1
Lane LOS	A			B
Approach Delay (s)	0.1	0.0		11.1
Approach LOS				B

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	109	92	65	165	1
Future Vol, veh/h	1	109	92	65	165	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	300	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	118	100	71	179	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	171	0	-	0	220	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1406	-	-	-	768	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1406	-	-	-	767	956
Mov Cap-2 Maneuver	-	-	-	-	767	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	768
HCM Lane V/C Ratio	0.001	-	-	-	0.235
HCM Control Delay (s)	7.6	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9

HCM Unsignalized Intersection Capacity Analysis
13: South Campus 2 & Eskimo Hill Road

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	267	7	1	140	17	1
Future Volume (Veh/h)	267	7	1	140	17	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	290	8	1	152	18	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			298		448	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		448	294
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1263		568	745

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	298	153	19
Volume Left	0	1	18
Volume Right	8	0	1
cSH	1700	1263	575
Volume to Capacity	0.18	0.00	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.1	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

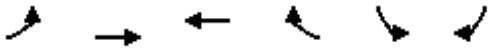
Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	267	7	1	140	17	1
Future Vol, veh/h	267	7	1	140	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	290	8	1	152	18	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	298	0	448	294
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1263	-	568	745
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1263	-	567	745
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	873	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	1263	-
HCM Lane V/C Ratio	0.034	-	-	0.001	-
HCM Control Delay (s)	11.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	251	102	1	2	38
Future Volume (Veh/h)	17	251	102	1	2	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	273	111	1	2	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	112				420	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				420	112
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	96
cM capacity (veh/h)	1478				582	942

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	291	112	43
Volume Left	18	0	2
Volume Right	0	1	41
cSH	1478	1700	915
Volume to Capacity	0.01	0.07	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		30.8%	ICU Level of Service
Analysis Period (min)		15	

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	251	102	1	2	38
Future Vol, veh/h	17	251	102	1	2	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	273	111	1	2	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	421	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	309	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1478	-	-	-	589	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1478	-	-	-	581	941
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1478	-	-	-	913
HCM Lane V/C Ratio	0.013	-	-	-	0.048
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	252	1	1	100	3	1
Future Volume (Veh/h)	252	1	1	100	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	274	1	1	109	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		386	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		386	274
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1288		617	764

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	275	110	4
Volume Left	0	1	3
Volume Right	1	0	1
cSH	1700	1288	648
Volume to Capacity	0.16	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	10.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.6
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	252	1	1	100	3	1
Future Vol, veh/h	252	1	1	100	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	1	1	109	3	1

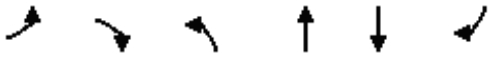
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	386	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	617	764
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1288	-	616	764
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	647	-	-	1288	-
HCM Lane V/C Ratio	0.007	-	-	0.001	-
HCM Control Delay (s)	10.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

HCM Unsignalized Intersection Capacity Analysis
16: Neighborhood Connector & South Campus 3

Stafford Technology Campus
Total Future 2030 PM - MIT + LOS D



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	1	1	1	1	1
Future Volume (Veh/h)	3	1	1	1	1	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	1	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1017	1083	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	2	2
Volume Left	3	1	0
Volume Right	1	0	1
cSH	1033	1620	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	3.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	3.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	1	1	1	1
Future Vol, veh/h	3	1	1	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	1	1	1	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	5	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	1017	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1016	1082	1620	-	-	-
Mov Cap-2 Maneuver	1016	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1032	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

L. 2030 Future Conditions with Development – Simulation Analysis Worksheets

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	94	119	158	166	318	138	190	158	393	399	729	480
Average Queue (ft)	36	56	84	84	133	60	109	77	243	264	153	103
95th Queue (ft)	77	97	137	142	252	114	167	142	401	411	493	279
Link Distance (ft)			2775	2775	2775		966	966			8601	8601
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)									0	2	1	0
Queuing Penalty (veh)									1	6	7	0

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	43	45	155	162	70
Average Queue (ft)	6	9	79	79	19
95th Queue (ft)	27	30	133	137	51
Link Distance (ft)			2908	2908	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			700
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	141	176	179	276	120	406	400	89	238	268
Average Queue (ft)	51	75	59	134	37	174	182	25	111	121
95th Queue (ft)	110	142	130	240	90	351	365	67	215	233
Link Distance (ft)		1286		390		3720	3720		8601	8601
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)			0	0		0				
Queuing Penalty (veh)			0	0		0				

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	82	143	171	55	351	362	299	184	196	203	136
Average Queue (ft)	31	67	69	14	149	151	44	78	57	66	17
95th Queue (ft)	65	120	135	42	298	306	162	148	147	156	77
Link Distance (ft)	591	941			709	709			3720	3720	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			300	300			290
Storage Blk Time (%)						1	0	0	0	0	
Queuing Penalty (veh)						1	0	0	0	0	

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B41	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	610	329	2	306	308	468	639	762	910	843	134
Average Queue (ft)	384	99	0	191	204	189	279	460	313	172	49
95th Queue (ft)	634	222	2	285	294	371	521	898	1015	653	108
Link Distance (ft)	964		704	1012	1012	1012			2882	2882	2882
Upstream Blk Time (%)	0	0									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)		1000					800	800			
Storage Blk Time (%)	0	0				0	0	19	15		
Queuing Penalty (veh)	0	0				2	1	38	26		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	183	243	263	2014
Average Queue (ft)	67	126	181	1332
95th Queue (ft)	138	219	272	2479
Link Distance (ft)		2475	252	2141
Upstream Blk Time (%)			2	22
Queuing Penalty (veh)			7	0
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	241	166	169	298	222
Average Queue (ft)	108	74	76	132	129
95th Queue (ft)	195	134	137	237	206
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)					1
Queuing Penalty (veh)					2
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	34	115	104
Average Queue (ft)	3	2	54	44
95th Queue (ft)	24	18	92	84
Link Distance (ft)	390	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	24	85	23
Average Queue (ft)	2	50	1
95th Queue (ft)	13	75	12
Link Distance (ft)	150	1579	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	39	3	64	32
Average Queue (ft)	2	0	28	6
95th Queue (ft)	21	0	54	25
Link Distance (ft)	941	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	25
Average Queue (ft)	0	13
95th Queue (ft)	5	33
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	62	57
Average Queue (ft)	7	24
95th Queue (ft)	36	49
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	5	54
Average Queue (ft)	0	19
95th Queue (ft)	5	42
Link Distance (ft)	618	1561
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	2	8	58
Average Queue (ft)	0	0	22
95th Queue (ft)	2	4	50
Link Distance (ft)	618	496	728
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	71	2	53
Average Queue (ft)	20	0	27
95th Queue (ft)	55	2	46
Link Distance (ft)	496	717	526
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	26
Average Queue (ft)	4
95th Queue (ft)	19
Link Distance (ft)	196
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	7
95th Queue (ft)	27
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 91

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	97	121	2804	2817	2818	288	518	473	395	400	5197	5069
Average Queue (ft)	30	49	2272	2423	2596	222	254	214	350	364	2461	1899
95th Queue (ft)	76	103	3780	3652	3325	344	585	520	496	505	5269	4755
Link Distance (ft)			2775	2775	2775		966	966			8601	8601
Upstream Blk Time (%)			35	71	78							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)						21	14		4	59	63	0
Queuing Penalty (veh)						25	21		9	127	328	0

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	98	140	507	515	118
Average Queue (ft)	5	30	287	306	12
95th Queue (ft)	75	96	453	467	83
Link Distance (ft)			2908	2908	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			700
Storage Blk Time (%)			0	0	0
Queuing Penalty (veh)			0	0	0

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	305	467	184	284	127	366	399	373	556	579
Average Queue (ft)	78	240	49	115	43	136	146	75	329	341
95th Queue (ft)	238	457	126	234	103	299	317	235	528	542
Link Distance (ft)		1286		390		3720	3720		8601	8601
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)	0	2	0	1		0		0	1	
Queuing Penalty (veh)	0	2	0	0		0		0	2	

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	93	95	93	117	326	326	137	195	365	372	277
Average Queue (ft)	38	41	33	21	93	101	11	38	138	150	69
95th Queue (ft)	73	83	67	56	229	239	78	120	305	309	217
Link Distance (ft)	591	941			709	709			3720	3720	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			300	300			290
Storage Blk Time (%)					0	1	0	0	1	1	0
Queuing Penalty (veh)					0	0	0	0	1	7	1

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	660	109	351	360	345	462	636	660	599	448
Average Queue (ft)	429	41	175	180	157	151	372	340	321	256
95th Queue (ft)	641	86	299	309	287	345	731	689	579	425
Link Distance (ft)	964		1012	1012	1012			2882	2882	2882
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		1000				800	800			
Storage Blk Time (%)							4	2		
Queuing Penalty (veh)							24	9		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	259	397	267	592
Average Queue (ft)	98	183	205	318
95th Queue (ft)	204	343	301	614
Link Distance (ft)		2475	252	2141
Upstream Blk Time (%)			5	
Queuing Penalty (veh)			27	
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	2		
Queuing Penalty (veh)	0	4		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	444	409	331	315	230
Average Queue (ft)	248	182	156	141	178
95th Queue (ft)	435	371	279	267	259
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)	2	0			6
Queuing Penalty (veh)	19	0			21
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)	2	0			
Queuing Penalty (veh)	11	2			

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	91	43	88	96
Average Queue (ft)	15	2	39	40
95th Queue (ft)	59	20	68	84
Link Distance (ft)	390	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	25	70	4	58
Average Queue (ft)	2	37	0	8
95th Queue (ft)	15	58	2	34
Link Distance (ft)	150	1579	998	213
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	7	5	39	32
Average Queue (ft)	0	0	17	5
95th Queue (ft)	4	6	43	24
Link Distance (ft)	941	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	36
Average Queue (ft)	9
95th Queue (ft)	30
Link Distance (ft)	472
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	14	34
Average Queue (ft)	1	13
95th Queue (ft)	8	38
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	3	79
Average Queue (ft)	0	38
95th Queue (ft)	3	64
Link Distance (ft)	849	1561
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	36
Average Queue (ft)	0	15
95th Queue (ft)	3	40
Link Distance (ft)	496	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	32	50
Average Queue (ft)	2	20
95th Queue (ft)	14	41
Link Distance (ft)	496	526
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	20
Average Queue (ft)	0	3
95th Queue (ft)	3	16
Link Distance (ft)	1268	196
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	4
95th Queue (ft)	21
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 640

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	81	104	294	97	116	136	174	151	383	387	483	237
Average Queue (ft)	33	52	164	46	57	61	99	66	214	232	99	83
95th Queue (ft)	71	90	261	82	98	115	161	136	360	373	295	181
Link Distance (ft)			2757	2757	2757		969	969			8606	8606
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)									0	0	0	
Queuing Penalty (veh)									0	1	2	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	55	56	152	160	84
Average Queue (ft)	9	13	80	84	27
95th Queue (ft)	33	40	136	143	61
Link Distance (ft)			2909	2909	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			700
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	138	210	166	275	136	425	424	80	249	266
Average Queue (ft)	52	76	58	127	38	167	173	25	103	115
95th Queue (ft)	111	157	125	231	92	340	345	65	204	217
Link Distance (ft)		2712		390		3720	3720		8606	8606
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)				0		0				
Queuing Penalty (veh)				0		0				

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	70	145	179	48	327	329	60	169	191	194	121
Average Queue (ft)	25	64	69	14	138	141	22	73	52	62	15
95th Queue (ft)	57	119	136	39	269	273	49	136	133	144	70
Link Distance (ft)	591	941			709	709			3720	3720	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			500	300			290
Storage Blk Time (%)									0	0	0
Queuing Penalty (veh)									0	0	0

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	B41	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	T	R	L	T	T	T
Maximum Queue (ft)	748	399	16	319	391	569	764	707	458	360	136
Average Queue (ft)	454	118	1	197	215	224	378	433	173	110	48
95th Queue (ft)	772	377	20	287	333	526	678	827	700	444	112
Link Distance (ft)	964		704	1012	1012	1012			2882	2882	2882
Upstream Blk Time (%)	0	0				0					
Queuing Penalty (veh)	3	0				0					
Storage Bay Dist (ft)		1000					800	800			
Storage Blk Time (%)	0	0				1	1	7	5		
Queuing Penalty (veh)	1	0				6	3	13	10		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	238	310	266	1253
Average Queue (ft)	85	163	205	748
95th Queue (ft)	179	272	288	1545
Link Distance (ft)		2475	252	2141
Upstream Blk Time (%)			4	1
Queuing Penalty (veh)			16	0
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	1		
Queuing Penalty (veh)	0	1		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	250	205	190	266	218
Average Queue (ft)	111	55	76	133	118
95th Queue (ft)	202	142	142	229	194
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)					1
Queuing Penalty (veh)					2
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	33	26	125	95
Average Queue (ft)	2	1	56	45
95th Queue (ft)	16	14	95	82
Link Distance (ft)	390	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	19	86	26
Average Queue (ft)	1	50	2
95th Queue (ft)	9	74	13
Link Distance (ft)	150	1579	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	39	13	57	30
Average Queue (ft)	2	0	28	8
95th Queue (ft)	17	8	52	29
Link Distance (ft)	941	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	36
Average Queue (ft)	0	13
95th Queue (ft)	0	34
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	54	50
Average Queue (ft)	8	23
95th Queue (ft)	35	49
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	EB	WB	SB
Directions Served	LT	T	LR
Maximum Queue (ft)	6	4	50
Average Queue (ft)	0	0	18
95th Queue (ft)	6	4	39
Link Distance (ft)	849	615	1548
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	55
Average Queue (ft)	0	24
95th Queue (ft)	3	50
Link Distance (ft)	496	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	73	3	64
Average Queue (ft)	18	0	28
95th Queue (ft)	53	3	47
Link Distance (ft)	496	717	526
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	24
Average Queue (ft)	4
95th Queue (ft)	20
Link Distance (ft)	196
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	7
95th Queue (ft)	27
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 59

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	L	T	R	R	L	T	TR	L	L	T	T
Maximum Queue (ft)	126	500	2524	2401	1976	293	418	387	389	395	564	202
Average Queue (ft)	47	338	1469	988	689	212	177	142	244	259	117	67
95th Queue (ft)	101	683	2767	2586	1851	332	379	326	405	415	399	146
Link Distance (ft)			2757	2757	2757		969	969			8606	8606
Upstream Blk Time (%)			7	3	0							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	500	500				300			400	400		
Storage Blk Time (%)		0	67			12	4		0	2	1	
Queuing Penalty (veh)		1	85			14	5		1	4	4	

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	44	320	696	702	252
Average Queue (ft)	6	43	459	477	30
95th Queue (ft)	27	173	651	666	166
Link Distance (ft)			2909	2909	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	700	550			700
Storage Blk Time (%)		0	3	1	0
Queuing Penalty (veh)		0	1	1	0

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	282	584	159	262	150	353	377	500	3626	3665
Average Queue (ft)	105	322	52	109	54	143	153	324	1918	1943
95th Queue (ft)	342	675	115	219	123	296	317	674	4143	4187
Link Distance (ft)		2712		390		3720	3720		8606	8606
Upstream Blk Time (%)				0						
Queuing Penalty (veh)				0						
Storage Bay Dist (ft)	500		300		500			500		
Storage Blk Time (%)	0	10	0	0				0	30	
Queuing Penalty (veh)	0	7	0	0				4	67	

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	103	96	101	71	344	359	81	216	432	426	289
Average Queue (ft)	38	41	34	21	99	108	9	38	165	177	84
95th Queue (ft)	78	83	71	55	256	268	61	116	343	347	241
Link Distance (ft)	591	941			709	709			3720	3720	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			500	300			290
Storage Blk Time (%)					0	0	0	0	1	2	0
Queuing Penalty (veh)					0	0	0	0	1	14	1

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	T	T	T
Maximum Queue (ft)	766	158	340	352	327	496	659	546	504	474
Average Queue (ft)	460	40	181	187	166	152	313	316	331	286
95th Queue (ft)	718	109	298	307	288	358	583	487	495	457
Link Distance (ft)	964		1012	1012	1012			2882	2882	2882
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		1000				800	800			
Storage Blk Time (%)							0	0		
Queuing Penalty (veh)							1	0		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB
Directions Served	L	T	T	LTR
Maximum Queue (ft)	274	414	266	625
Average Queue (ft)	108	185	207	333
95th Queue (ft)	223	335	300	597
Link Distance (ft)		2475	252	2141
Upstream Blk Time (%)			6	
Queuing Penalty (veh)			33	
Storage Bay Dist (ft)	275			
Storage Blk Time (%)	0	2		
Queuing Penalty (veh)	0	4		

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	429	396	269	300	230
Average Queue (ft)	225	152	137	135	171
95th Queue (ft)	383	319	240	252	254
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)	1	0			5
Queuing Penalty (veh)	6	0			17
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)	1	0			
Queuing Penalty (veh)	4	0			

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	116	37	82	90
Average Queue (ft)	16	2	39	43
95th Queue (ft)	70	18	64	82
Link Distance (ft)	390	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	28	73	60
Average Queue (ft)	3	36	8
95th Queue (ft)	16	59	35
Link Distance (ft)	150	1579	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	6	42	32
Average Queue (ft)	0	17	5
95th Queue (ft)	4	43	24
Link Distance (ft)	1310	553	572
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	5	27
Average Queue (ft)	0	10
95th Queue (ft)	6	30
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	19	31
Average Queue (ft)	1	15
95th Queue (ft)	11	40
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	82
Average Queue (ft)	38
95th Queue (ft)	66
Link Distance (ft)	1548
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	41
Average Queue (ft)	0	15
95th Queue (ft)	3	41
Link Distance (ft)	496	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	28	50
Average Queue (ft)	2	20
95th Queue (ft)	14	42
Link Distance (ft)	496	526
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	20
Average Queue (ft)	0	3
95th Queue (ft)	3	16
Link Distance (ft)	1268	196
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	27
Average Queue (ft)	4
95th Queue (ft)	20
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 276

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	WB	WB	NB	NB	NB	B25	B25	SB	SB
Directions Served	T	R	R	T	TR	T	T	R	T		T	T
Maximum Queue (ft)	257	137	173	542	513	238	244	65	4	5	152	143
Average Queue (ft)	124	67	82	282	261	99	109	19	0	0	70	52
95th Queue (ft)	219	111	135	440	428	199	212	46	4	5	129	115
Link Distance (ft)	2799	2799	2799	985	985	6976	6976		1557	1557	1828	1828
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)								700				
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	SB
Directions Served	R
Maximum Queue (ft)	84
Average Queue (ft)	25
95th Queue (ft)	63
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	500
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	136	173	166	246	132	277	322	261	101	144	163	180
Average Queue (ft)	43	69	57	106	35	101	122	78	28	52	58	65
95th Queue (ft)	102	136	122	194	91	224	259	195	72	113	127	147
Link Distance (ft)		2968		386		3715	3715	3715		1557	1557	1557
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500		300		300				200			
Storage Blk Time (%)				0		0				0		
Queuing Penalty (veh)				0		0				0		

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	79	152	128	47	356	395	60	180	186	184	139
Average Queue (ft)	29	75	57	16	137	153	23	71	57	71	18
95th Queue (ft)	65	136	99	42	272	297	53	139	144	153	74
Link Distance (ft)	591	940			709	709			3715	3715	3715
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			500	300			
Storage Blk Time (%)					0			0	0		
Queuing Penalty (veh)					0			0	0		

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	L	T	T	T
Maximum Queue (ft)	414	222	392	406	382	576	192	160	214	231	204
Average Queue (ft)	204	86	269	278	253	322	98	55	110	124	96
95th Queue (ft)	334	170	361	373	351	560	170	131	193	200	177
Link Distance (ft)	966		1000	1000	1000				2882	2882	2882
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		1000				800	800	800			
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB	NB
Directions Served	L	T	T	LT	R
Maximum Queue (ft)	215	276	251	388	288
Average Queue (ft)	65	122	163	181	96
95th Queue (ft)	138	219	259	313	205
Link Distance (ft)		2475	239	2140	
Upstream Blk Time (%)			3		
Queuing Penalty (veh)			10		
Storage Bay Dist (ft)	275				300
Storage Blk Time (%)	0	0		1	0
Queuing Penalty (veh)	0	0		3	0

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	224	195	164	283	212
Average Queue (ft)	102	51	73	134	115
95th Queue (ft)	184	137	132	244	186
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)					0
Queuing Penalty (veh)					1
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	25	123	99
Average Queue (ft)	3	1	54	46
95th Queue (ft)	22	13	94	83
Link Distance (ft)	386	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	24	81	26
Average Queue (ft)	1	49	2
95th Queue (ft)	11	72	13
Link Distance (ft)	150	1579	213
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	28	20	60	30
Average Queue (ft)	2	1	27	8
95th Queue (ft)	16	9	53	29
Link Distance (ft)	940	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	38
Average Queue (ft)	0	14
95th Queue (ft)	4	36
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	59	53
Average Queue (ft)	8	22
95th Queue (ft)	37	49
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	54
Average Queue (ft)	0	19
95th Queue (ft)	5	42
Link Distance (ft)	849	1548
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	56
Average Queue (ft)	0	23
95th Queue (ft)	3	49
Link Distance (ft)	496	728
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	60	53
Average Queue (ft)	16	28
95th Queue (ft)	48	46
Link Distance (ft)	496	526
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	27
Average Queue (ft)	5
95th Queue (ft)	21
Link Distance (ft)	196
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	7
95th Queue (ft)	27
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 15

Intersection: 1: U.S. 1 & Hospital Center Boulevard

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	T	R	R	T	TR	T	T	R	T	T	R
Maximum Queue (ft)	372	466	483	487	486	208	217	61	677	671	500
Average Queue (ft)	209	302	319	298	275	85	95	15	429	424	64
95th Queue (ft)	338	436	456	434	418	175	186	42	646	638	286
Link Distance (ft)	2799	2799	2799	985	985	6976	6976		1828	1828	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)								700			500
Storage Blk Time (%)										5	0
Queuing Penalty (veh)										3	1

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	117	284	147	224	122	236	261	221	200	438	449	467
Average Queue (ft)	43	143	45	91	43	80	97	74	118	251	276	298
95th Queue (ft)	93	240	106	177	97	185	210	176	235	416	439	460
Link Distance (ft)		2968		386		3715	3715	3715		1557	1557	1557
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	500		300		300				200			
Storage Blk Time (%)				0		0			1	12		
Queuing Penalty (veh)				0		0			5	27		

Intersection: 2: US-1 & American Legion Rd/Eskimo Hill Rd

Movement	B25
Directions Served	T
Maximum Queue (ft)	338
Average Queue (ft)	12
95th Queue (ft)	335
Link Distance (ft)	6976
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: US-1 & Sage Lane /Connector Road

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	TR
Maximum Queue (ft)	102	103	81	76	348	360	41	299	540	610	514
Average Queue (ft)	41	46	36	21	92	108	6	53	242	273	175
95th Queue (ft)	85	90	68	55	241	261	27	179	483	531	443
Link Distance (ft)	591	940			709	709			3715	3715	3715
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	415			500	300			
Storage Blk Time (%)					0			0	5		
Queuing Penalty (veh)					0			0	5		

Intersection: 4: US-1 & Centreport Pkwy

Movement	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	R	T	T	T	R	L	L	T	T	T
Maximum Queue (ft)	668	101	315	321	314	350	238	523	752	750	694
Average Queue (ft)	365	33	175	180	159	100	137	167	454	473	426
95th Queue (ft)	569	77	279	286	268	249	223	497	775	794	734
Link Distance (ft)	966		1000	1000	1000				2882	2882	2882
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		1000				800	800	800			
Storage Blk Time (%)								0	1		
Queuing Penalty (veh)								0	2		

Intersection: 5: 95 NB Off Ramp/95 NB & Centreport Pkwy

Movement	EB	EB	WB	NB	NB
Directions Served	L	T	T	LT	R
Maximum Queue (ft)	245	374	250	374	269
Average Queue (ft)	86	161	182	173	75
95th Queue (ft)	178	299	275	300	175
Link Distance (ft)		2475	239	2140	
Upstream Blk Time (%)			4		
Queuing Penalty (veh)			23		
Storage Bay Dist (ft)	275				300
Storage Blk Time (%)	0	1		1	0
Queuing Penalty (veh)	0	2		1	0

Intersection: 6: 95 SB On Ramp/95 SB Off Ramp & Centreport Pkwy

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	417	386	300	332	230
Average Queue (ft)	212	151	141	142	167
95th Queue (ft)	367	307	267	272	252
Link Distance (ft)	441			2475	221
Upstream Blk Time (%)	0	0			5
Queuing Penalty (veh)	2	0			17
Storage Bay Dist (ft)		500	500		
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	1	0			

Intersection: 7: Eskimo Hill Rd & Big Spring Ln & Greenstead Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	101	31	84	99
Average Queue (ft)	13	1	39	39
95th Queue (ft)	61	14	66	83
Link Distance (ft)	386	609	213	438
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: State Shop Rd & Driveway & Eskimo Hill Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	64	10	58
Average Queue (ft)	2	36	0	10
95th Queue (ft)	16	55	6	38
Link Distance (ft)	150	1579	998	213
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: West Campus 1/West Campus 2 & Connector Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	2	6	51	30
Average Queue (ft)	0	0	18	5
95th Queue (ft)	2	6	46	22
Link Distance (ft)	940	1310	553	572
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: South Campus 1 & Connector Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	3	25
Average Queue (ft)	0	8
95th Queue (ft)	3	27
Link Distance (ft)	297	472
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Connector Road & North Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	15	36
Average Queue (ft)	1	15
95th Queue (ft)	7	41
Link Distance (ft)	297	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: Connector Road /Eskimo Hill Road & Eskimo Hill Road

Movement	EB	WB	SB
Directions Served	LT	T	LR
Maximum Queue (ft)	6	2	80
Average Queue (ft)	0	0	38
95th Queue (ft)	5	0	65
Link Distance (ft)	849	615	1548
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: South Campus 2 & Eskimo Hill Road

Movement	NB
Directions Served	LR
Maximum Queue (ft)	39
Average Queue (ft)	14
95th Queue (ft)	40
Link Distance (ft)	728
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Eskimo Hill Road & East Campus

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	36	49
Average Queue (ft)	3	21
95th Queue (ft)	20	42
Link Distance (ft)	496	526
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Neighborhood Connector & Eskimo Hill Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	9	27
Average Queue (ft)	0	3
95th Queue (ft)	5	17
Link Distance (ft)	1268	196
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Neighborhood Connector & South Campus 3

Movement	EB
Directions Served	LR
Maximum Queue (ft)	33
Average Queue (ft)	4
95th Queue (ft)	21
Link Distance (ft)	417
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 91

M. Turn Lane Warrant Tables and Graphics

Left Turn Lane Warrant Assessment

Two-Lane Highways

Based on AASHTO / VDOT RDM Appendix F

Background:

Warrants for left-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-4 to Figure 3-21 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figures provide a graphical representation for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes and are differentiated by design speed and percent left turning volume.

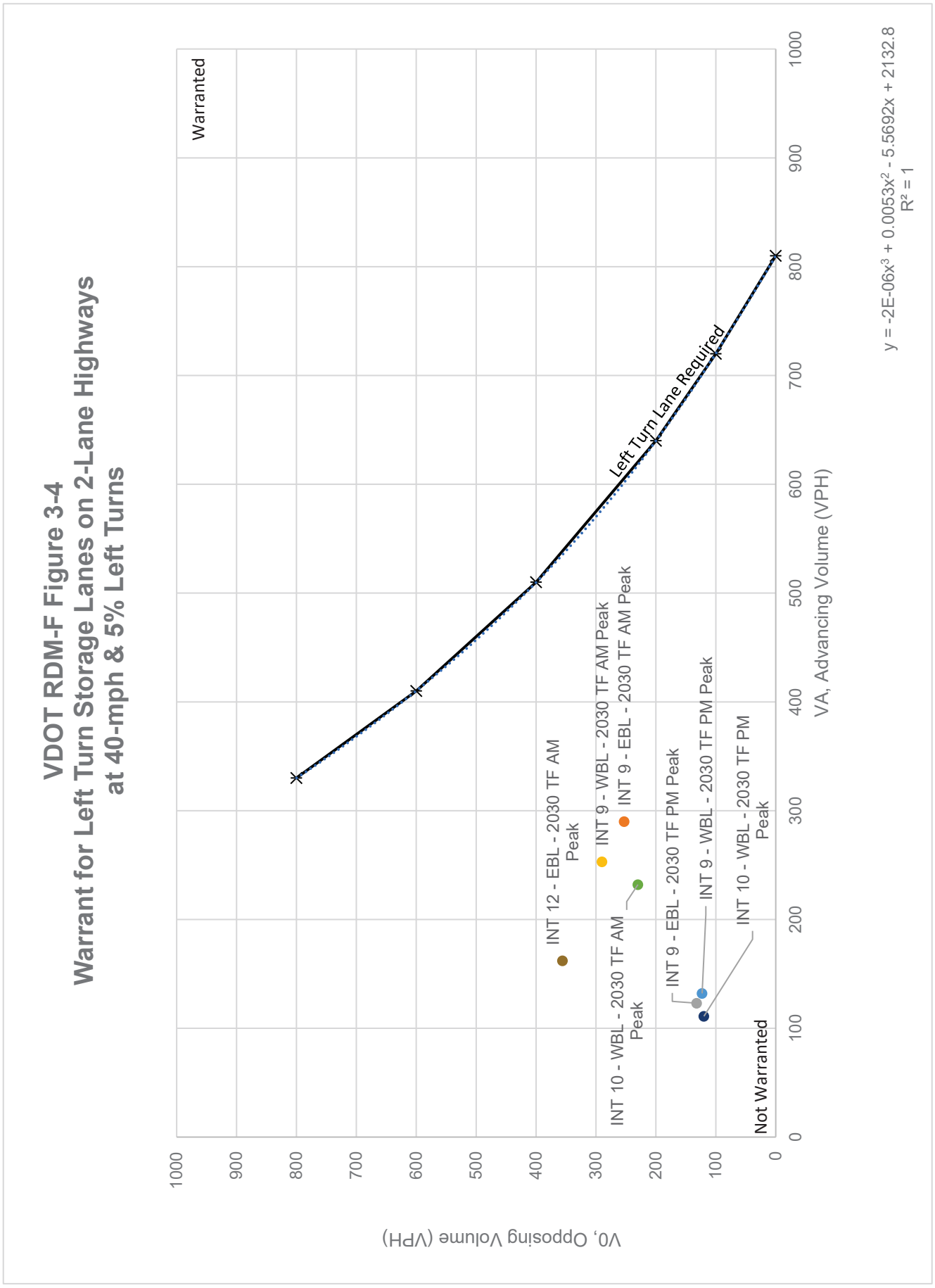
Project Information:

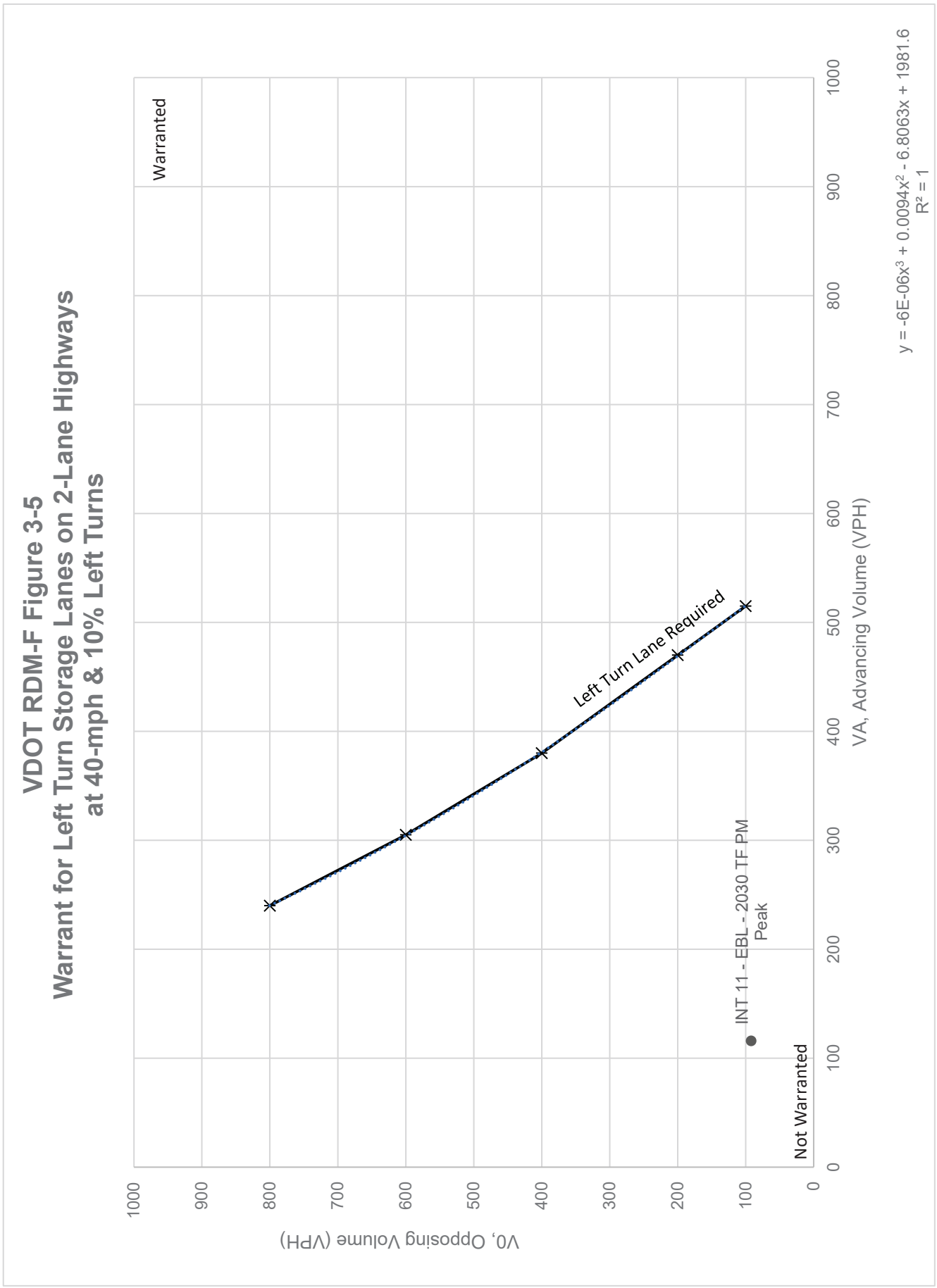
Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	Part 1
Scenario:	2030 Total Future
Analysis:	Gorove Slade

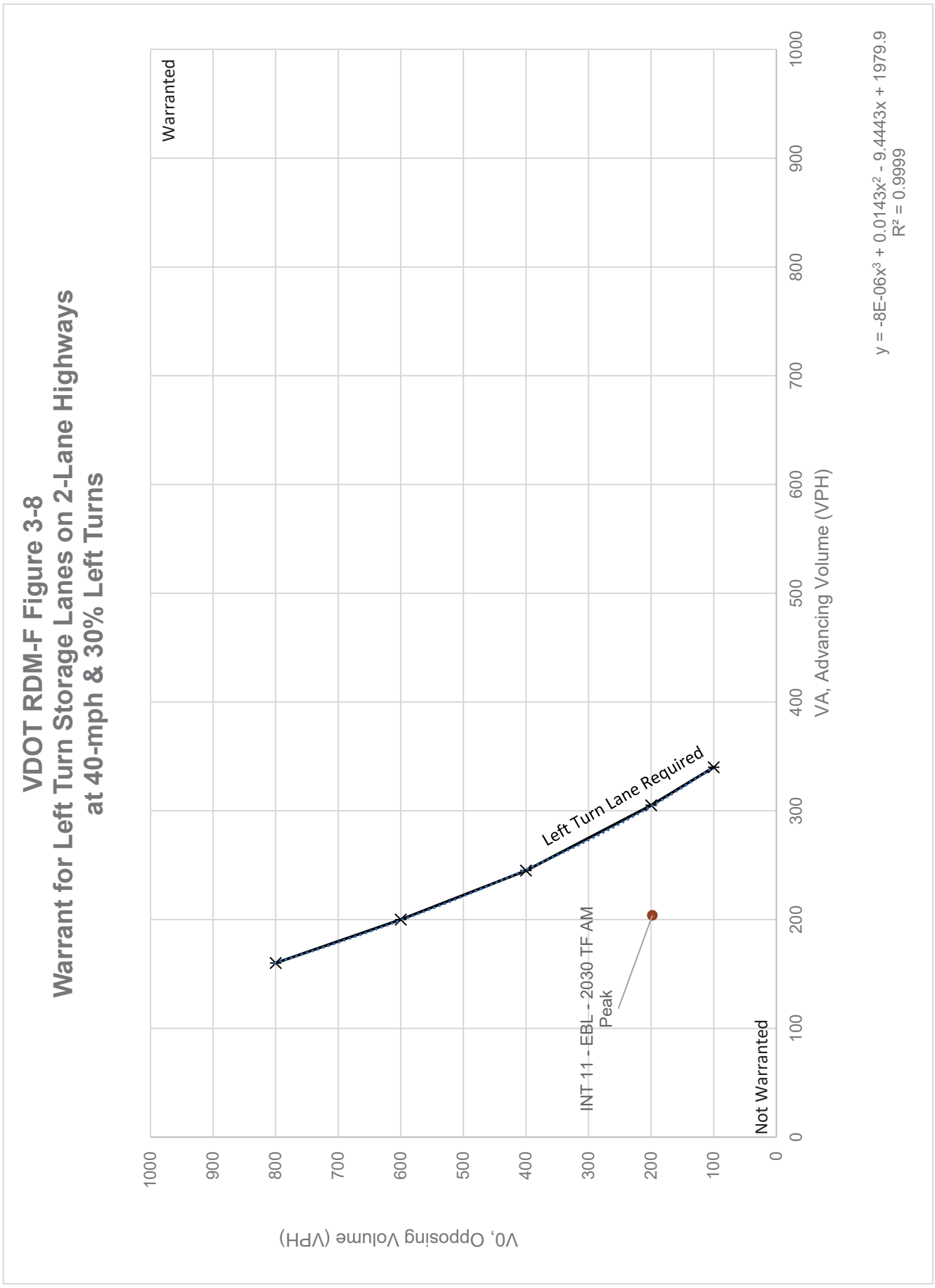
Design Speed (mph):	**40**	**(40, 50, or 60?)**

Assessment Summary:

Input				VDOT Calculated Thesholds			
Study Scenario	**Opposing Vol. (VPH)**	**Advancing Vol. (VPH)**	**Left Turn Vol. (VPH)**	**Left Turn %**	**Minimum Opposing Threshold (VPH)**	**VDOT RDM F Figure**	**Treatment**
INT 9 - EBL - 2030 TF AM Peak	253	290	8	2.76%	914	Fig. 3-4	Not Warranted
INT 9 - EBL - 2030 TF PM Peak	132	123	1	0.81%	1,524	Fig. 3-4	Not Warranted
INT 9 - WBL - 2030 TF AM Peak	290	253	3	1.19%	1,031	Fig. 3-4	Not Warranted
INT 9 - WBL - 2030 TF PM Peak	123	132	1	0.76%	1,485	Fig. 3-4	Not Warranted
INT 10 - WBL - 2030 TF AM Peak	230	232	1	0.43%	1,101	Fig. 3-4	Not Warranted
INT 10 - WBL - 2030 TF PM Peak	120	111	1	0.90%	1,577	Fig. 3-4	Not Warranted
INT 11 - EBL - 2030 TF AM Peak	198	204	44	21.57%	578	Fig. 3-8	Not Warranted
INT 11 - EBL - 2030 TF PM Peak	92	116	8	6.90%	1,308	Fig. 3-5	Not Warranted
INT 12 - EBL - 2030 TF AM Peak	356	162	1	0.62%	1,361	Fig. 3-4	Not Warranted


VDOT RDM-F Figure 3-4
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 5% Left Turns
Warranted
Not Warranted
Left Turn Lane Required
INT 12 - EBL - 2030 TF AM Peak
INT 9 - WBL - 2030 TF AM Peak
INT 9 - EBL - 2030 TF AM Peak
INT 10 - WBL - 2030 TF AM Peak
INT 9 - EBL - 2030 TF PM Peak
INT 9 - WBL - 2030 TF PM Peak
INT 10 - WBL - 2030 TF PM Peak
VA, Advancing Volume (VPH)
Vo, Opposing Volume (VPH)
y = -2E-06x³ + 0.0053x² - 5.5692x + 2132.8
R² = 1
0
100
200
300
400
500
600
700
800
900
1000


VDOT RDM-F Figure 3-5
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 10% Left Turns
Warranted
Left Turn Lane Required
INT 11 - EBL - 2030 TF PM Peak
Not Warranted
VA, Advancing Volume (VPH)
VO, Opposing Volume (VPH)
y = -6E-06x³ + 0.0094x² - 6.8063x + 1981.6
R² = 1
0
100
200
300
400
500
600
700
800
900
1000


VDOT RDM-F Figure 3-8
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 30% Left Turns
Warranted
Not Warranted
Left Turn Lane Required
INT 11 - EBL - 2030 TF AM Peak
y = -8E-06x³ + 0.0143x² - 9.4443x + 1979.9
R² = 0.9999
VA, Advancing Volume (VPH)
VO, Opposing Volume (VPH)
0
100
200
300
400
500
600
700
800
900
1000

Left Turn Lane Warrant Assessment

Two-Lane Highways

Based on AASHTO / VDOT RDM Appendix F

Background:

Warrants for left-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-4 to Figure 3-21 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figures provide a graphical representation for determining the necessity of a left turn lane by comparing the advancing volumes of a given approach and the respective opposing volumes and are differentiated by design speed and percent left turning volume.

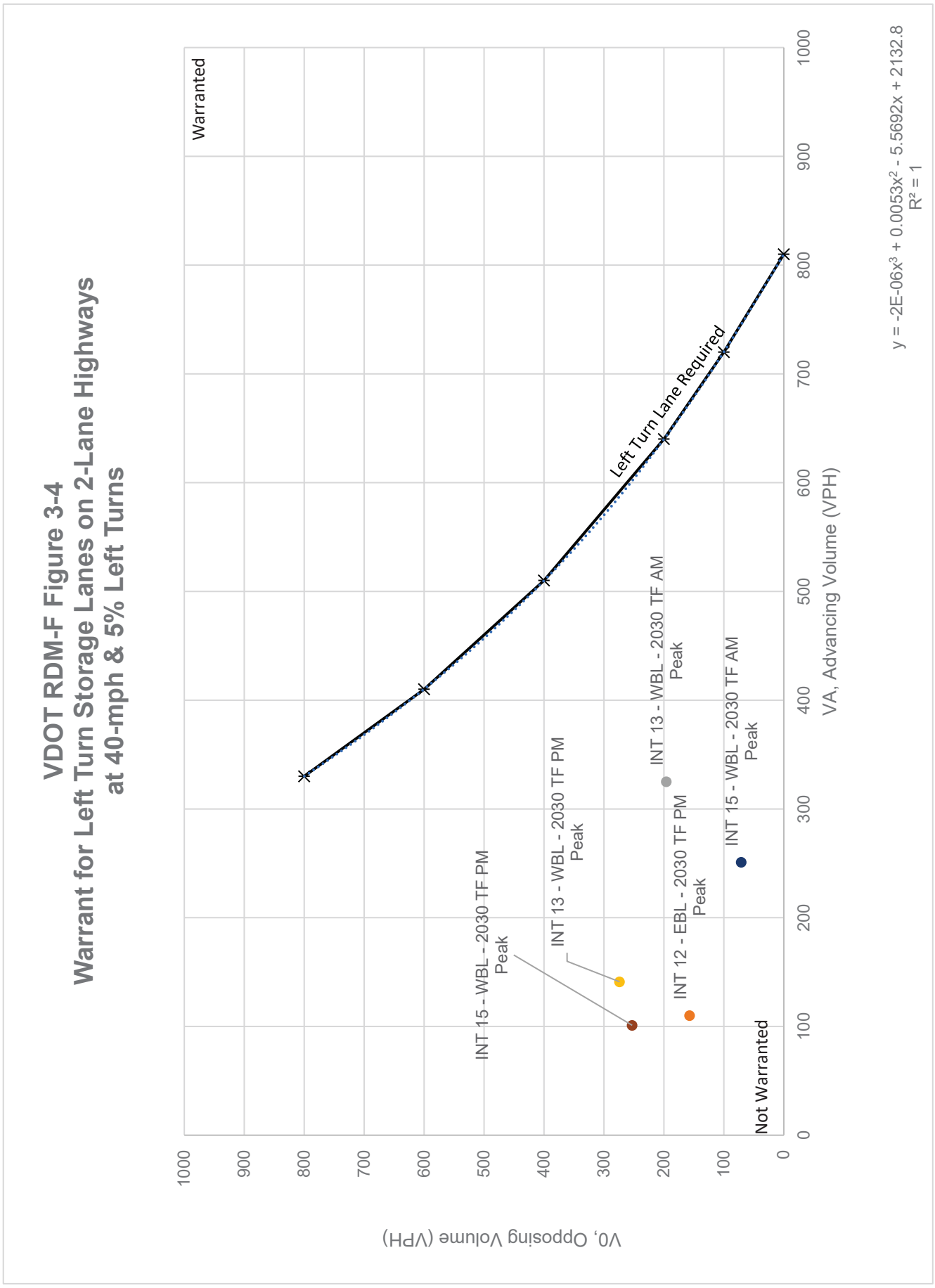
Project Information:

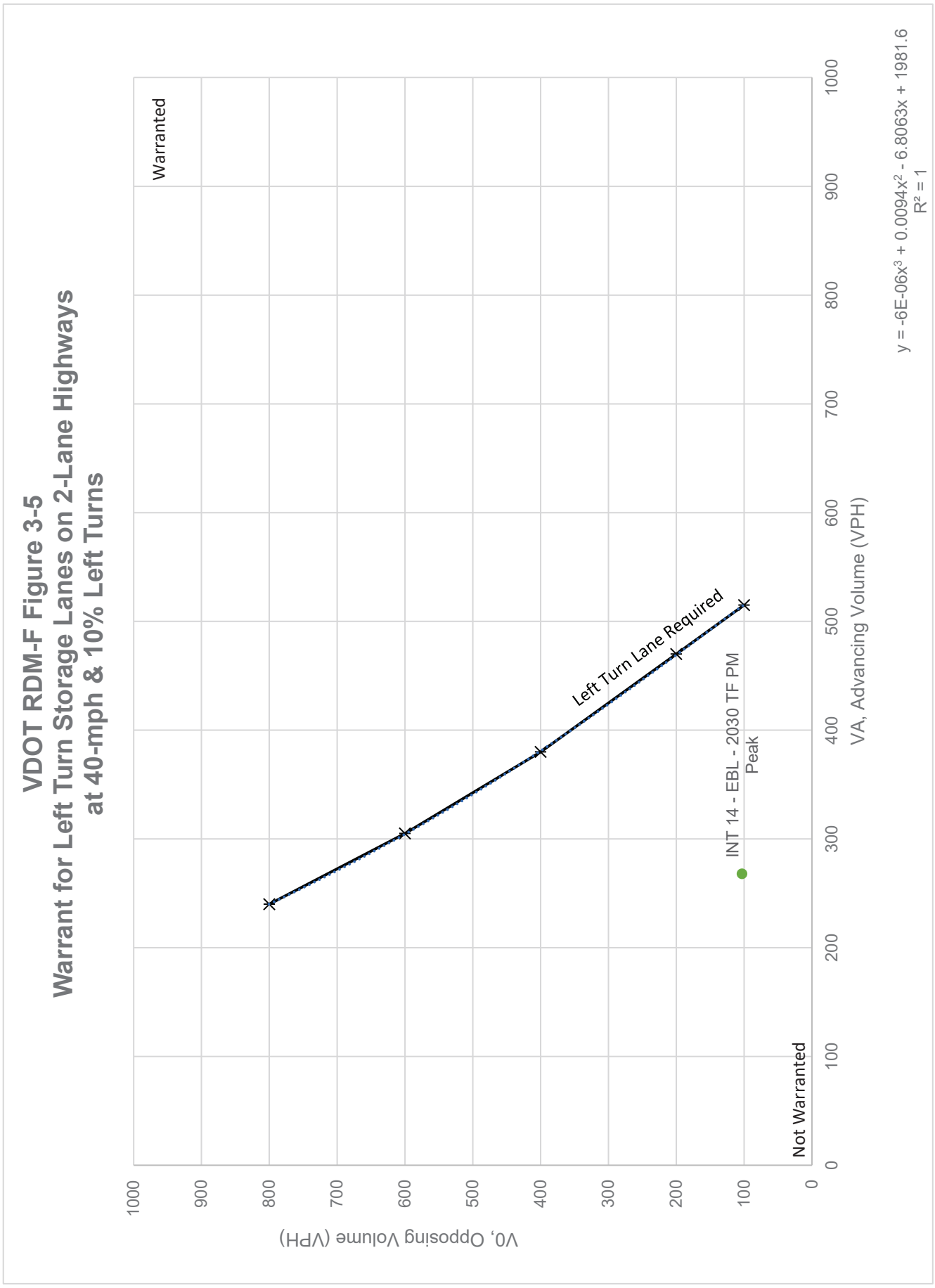
Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	Part 2
Scenario:	2030 Total Future
Analysis:	Gorove Slade

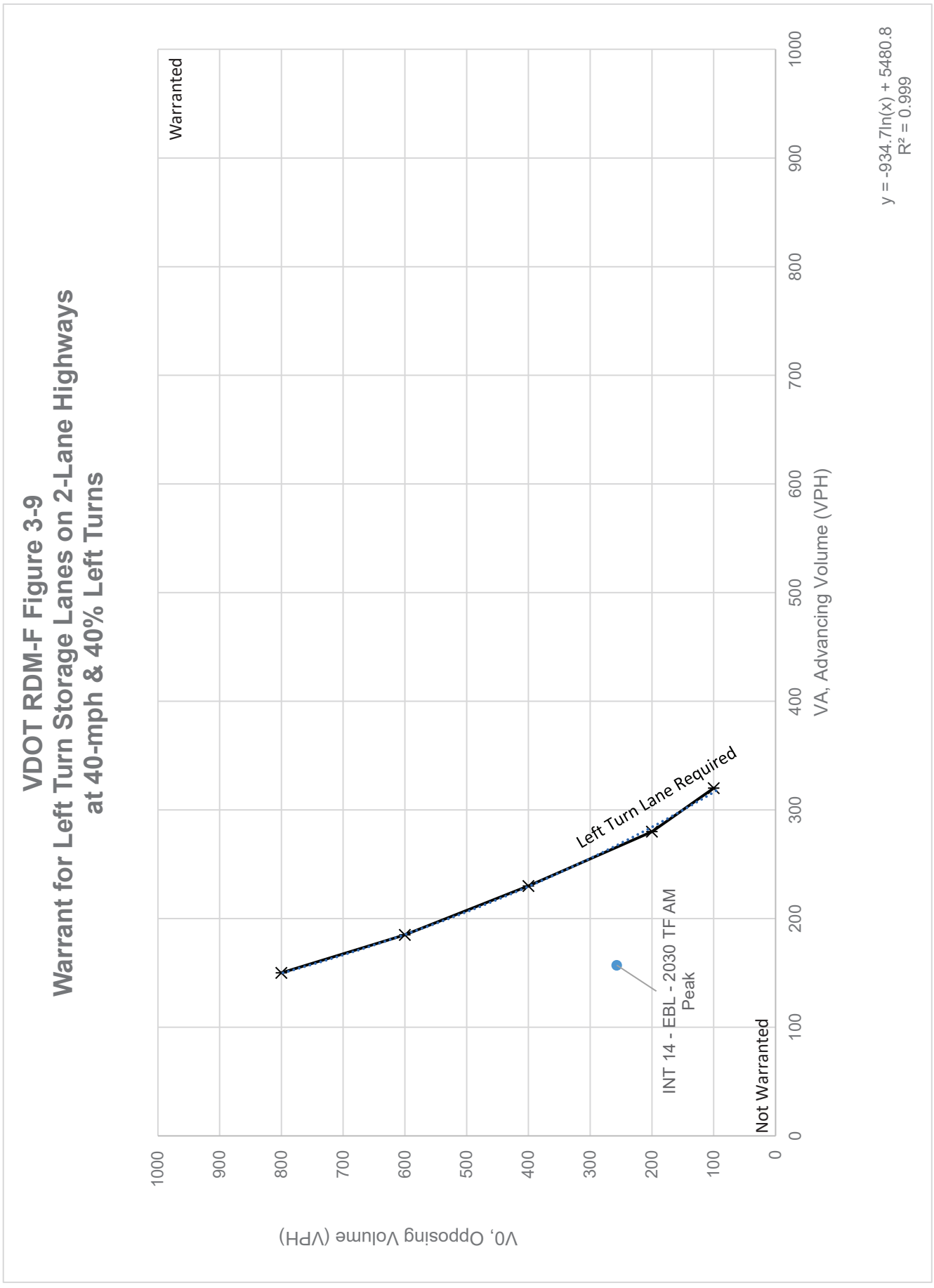
Design Speed (mph):	**40**	**(40, 50, or 60?)**

Assessment Summary:

Input				VDOT Calculated Thesholds			
Study Scenario	**Opposing Vol. (VPH)**	**Advancing Vol. (VPH)**	**Left Turn Vol. (VPH)**	**Left Turn %**	**Minimum Opposing Threshold (VPH)**	**VDOT RDM F Figure**	**Treatment**
INT 12 - EBL - 2030 TF PM Peak	157	110	1	0.91%	1,581	Fig. 3-4	Not Warranted
INT 13 - WBL - 2030 TF AM Peak	196	325	2	0.62%	813	Fig. 3-4	Not Warranted
INT 13 - WBL - 2030 TF PM Peak	274	141	1	0.71%	1,447	Fig. 3-4	Not Warranted
INT 14 - EBL - 2030 TF AM Peak	257	157	90	57.32%	754	Fig. 3-9	Not Warranted
INT 14 - EBL - 2030 TF PM Peak	103	268	17	6.34%	708	Fig. 3-5	Not Warranted
INT 15 - WBL - 2030 TF AM Peak	71	251	1	0.40%	1,037	Fig. 3-4	Not Warranted
INT 15 - WBL - 2030 TF PM Peak	253	101	1	0.99%	1,622	Fig. 3-4	Not Warranted


VDOT RDM-F Figure 3-4
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 5% Left Turns
Warranted
Not Warranted
Left Turn Lane Required
INT 15 - WBL - 2030 TF PM Peak
INT 13 - WBL - 2030 TF PM Peak
INT 13 - WBL - 2030 TF AM Peak
INT 12 - EBL - 2030 TF PM Peak
INT 15 - WBL - 2030 TF AM Peak
y = -2E-06x³ + 0.0053x² - 5.5692x + 2132.8
R² = 1
VA, Advancing Volume (VPH)
Vo, Opposing Volume (VPH)
0
100
200
300
400
500
600
700
800
900
1000


VDOT RDM-F Figure 3-5
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 10% Left Turns
Warranted
Not Warranted
Left Turn Lane Required
INT 14 - EBL - 2030 TF PM Peak
y = -6E-06x³ + 0.0094x² - 6.8063x + 1981.6
R² = 1
VA, Advancing Volume (VPH)
VO, Opposing Volume (VPH)
0
100
200
300
400
500
600
700
800
900
1000


VDOT RDM-F Figure 3-9
Warrant for Left Turn Storage Lanes on 2-Lane Highways
at 40-mph & 40% Left Turns
Warranted
Not Warranted
Left Turn Lane Required
INT 14 - EBL - 2030 TF AM Peak
y = -934.7ln(x) + 5480.8
R² = 0.999
VA, Advancing Volume (VPH)
VO, Opposing Volume (VPH)
0
100
200
300
400
500
600
700
800
900
1000

RDM Left Turn Lane Warrant Assessment
Four-Lane Roadway

Left Turn Lane Warrant Assessment
Four-Lane Highways

Background:

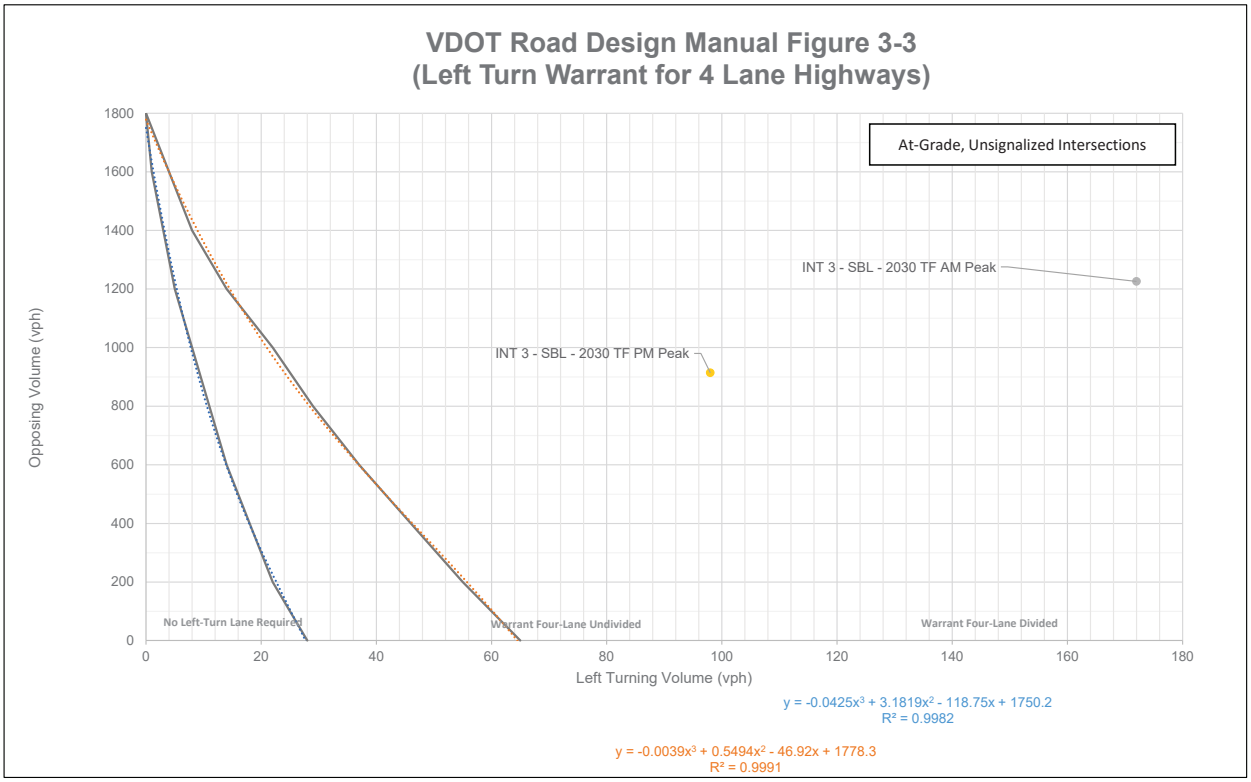
Warrants for left-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-3 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). The figure provides a graphical representation for determining the necessity of a left turn lane for divided and undivided roadway conditions by comparing the left turning volumes of a given approach and the respective opposing traffic volume.

Project Information:

Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	
Scenario:	2030 Total Future
Analysis:	Gorove Slade

Assessment Summary:

Input				Result	
Study Scenario	**Opposing Vol. (VPH)**	**Advancing Vol. (VPH)**	**Left Turning Vol. (VPH)**	**Left Turn %**	**Treatment**
INT 3 - SBL - 2030 TF AM Peak	1,226	932	172	18.5%	Full-width Turn Lane and Taper Warranted (for Undivided and Divided)
INT 3 - SBL - 2030 TF PM Peak	914	2,323	98	4.2%	Full-width Turn Lane and Taper Warranted (for Undivided and Divided)



RDM Right Turn Lane Warrant Assessment
Two-Lane Highway

Right Turn Lane Warrant Assessment

Two-Lane Highways

Based on NCHRP Report 279 / VDOT RDM Appendix F
"Intersection Channelization Guide"

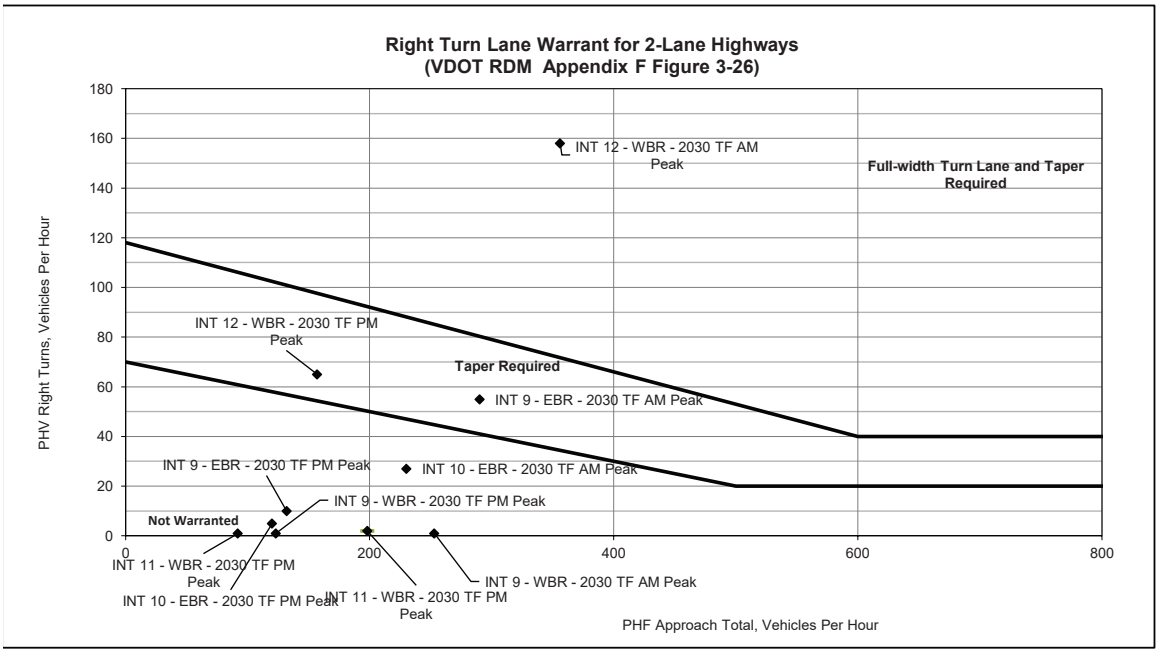
Background:

Warrants for right-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-26 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). This figure provides a graphical representation for determining the necessity of a right turn lane and / or taper by comparing the total volumes of a given approach with their respective right turn volumes.

Project Information:

Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	
Scenario:	2030 Total Future
Analyst:	Gorove Slade

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 9 - WBR - 2030 TF AM Peak	253	1	45	85	Not Warranted
INT 9 - WBR - 2030 TF PM Peak	123	1	58	102	Not Warranted
INT 9 - EBR - 2030 TF AM Peak	290	55	41	80	Taper Required
INT 9 - EBR - 2030 TF PM Peak	132	10	57	101	Not Warranted
INT 10 - EBR - 2030 TF AM Peak	230	27	47	88	Not Warranted
INT 10 - EBR - 2030 TF PM Peak	120	5	58	102	Not Warranted
INT 11 - WBR - 2030 TF AM Peak	198	2	50	92	Not Warranted
INT 11 - WBR - 2030 TF PM Peak	92	1	61	106	Not Warranted
INT 12 - WBR - 2030 TF AM Peak	356	158	34	72	Full-width Lane and Taper Required
INT 12 - WBR - 2030 TF PM Peak	157	65	54	98	Taper Required



RDM Right Turn Lane Warrant Assessment
Two-Lane Highway

Right Turn Lane Warrant Assessment

Two-Lane Highways

Based on NCHRP Report 279 / VDOT RDM Appendix F
"Intersection Channelization Guide"

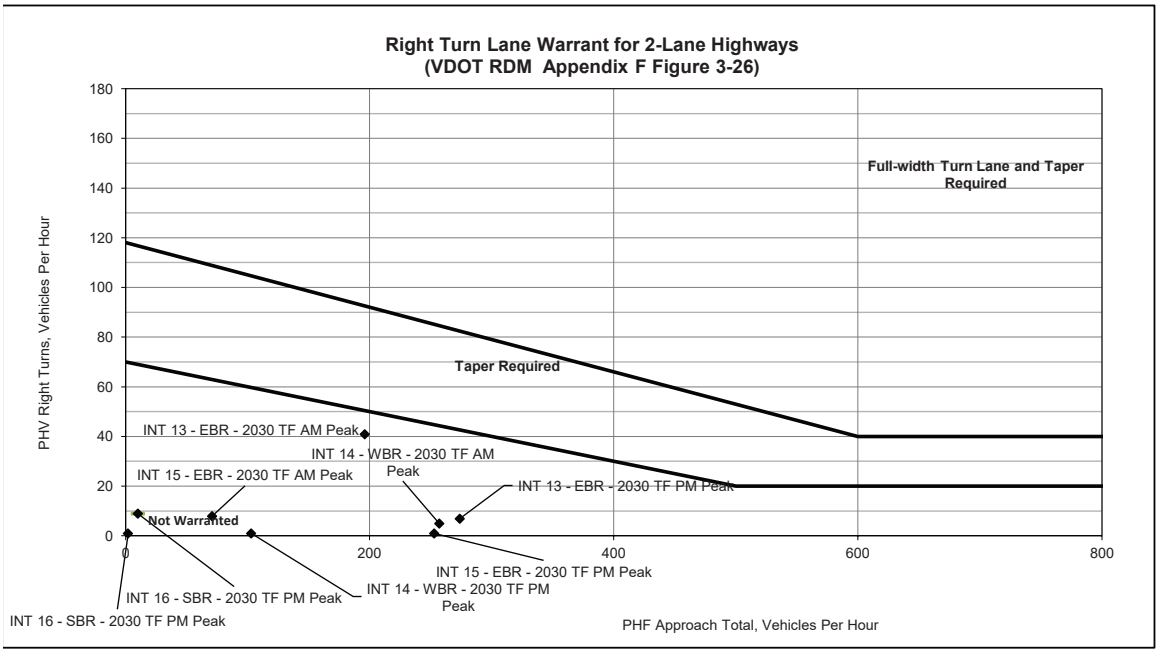
Background:

Warrants for right-turn storage lanes on two-lane highways at unsignalized intersections are based on Figure 3-26 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). This figure provides a graphical representation for determining the necessity of a right turn lane and / or taper by comparing the total volumes of a given approach with their respective right turn volumes.

Project Information:

Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	
Scenario:	2030 Total Future
Analyst:	Gorove Slade

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 13 - EBR - 2030 TF AM Peak	196	41	50	93	Not Warranted
INT 13 - EBR - 2030 TF PM Peak	274	7	43	82	Not Warranted
INT 14 - WBR - 2030 TF AM Peak	257	5	44	85	Not Warranted
INT 14 - WBR - 2030 TF PM Peak	103	1	60	105	Not Warranted
INT 15 - EBR - 2030 TF AM Peak	71	8	63	109	Not Warranted
INT 15 - EBR - 2030 TF PM Peak	253	1	45	85	Not Warranted
INT 16 - SBR - 2030 TF AM Peak	10	9	69	117	Not Warranted
INT 16 - SBR - 2030 TF PM Peak	2	1	70	118	Not Warranted



RDM Right Turn Lane Warrant Assessment
Four-Lane Highway

Right Turn Lane Warrant Assessment

Four-Lane Highways

Based on NCHRP Report 279 / VDOT RDM Appendix F
"Intersection Channelization Guide"

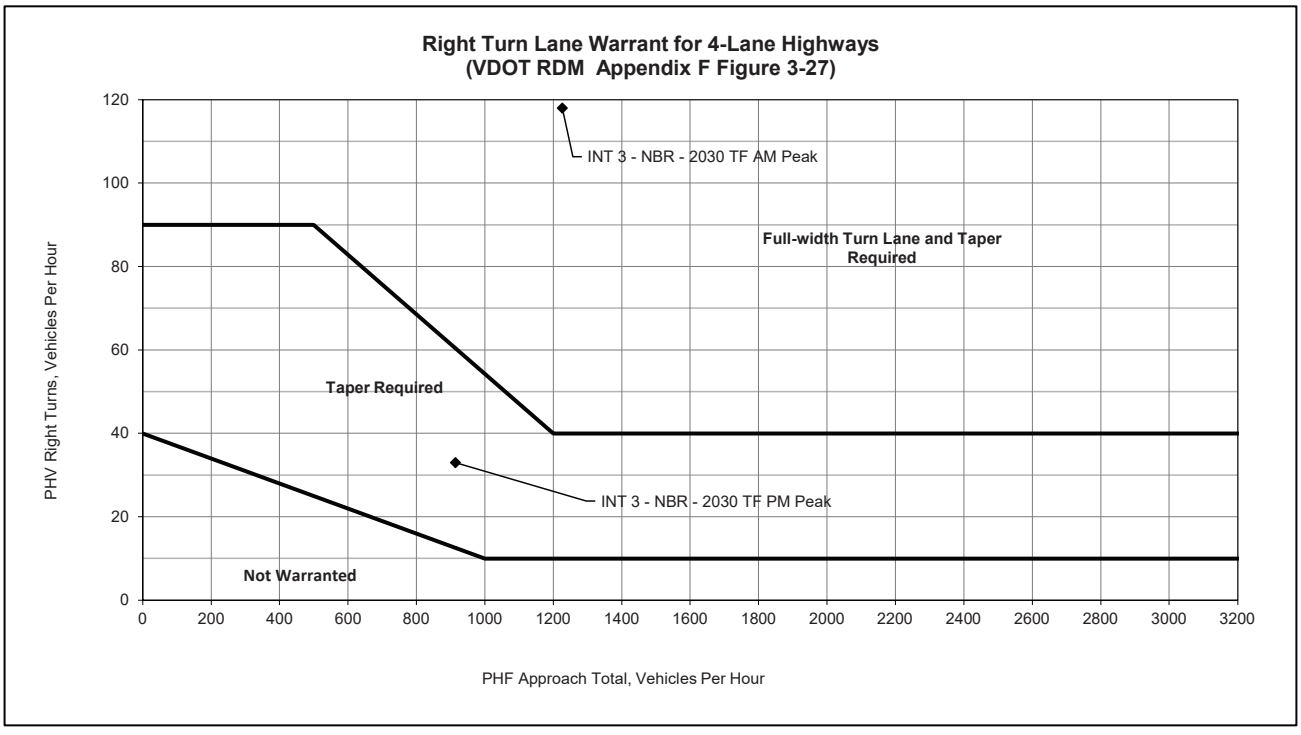
Background:

Warrants for right-turn storage lanes on four-lane highways at unsignalized intersections are based on Figure 3-27 in Appendix F of the Virginia Department of Transportation's (VDOT) ***Road Design Manual*** (RDM). This figure provides a graphical representation for determining the necessity of a right turn lane and / or taper by comparing the total volumes of a given approach with their respective right turn volumes.

Project Information:

Project:	Stafford Technology Campus
Project ID:	1944-111
Intersection(s) and Movement(s):	
Scenario:	2030 Total Future
Analyst:	Gorove Slade

Study Scenario	Approach Volume	Right Turn Volume	Minimum Right Turn Taper Threshold	Minimum Right Turn Full Lane Threshold	Treatment
INT 3 - NBR - 2030 TF AM Peak	1,226	118	10	40	Full-width Lane and Taper Required
INT 3 - NBR - 2030 TF PM Peak	914	33	13	60	Taper Required



STAFFORD COUNTY, VIRGINIA
COMPREHENSIVE PLAN AMENDMENT
UTILITY IMPACT ASSESSMENT (UIA)

Applicant:	Stafford Technology LC
Owner:	Stafford Technology LC
Amendment Request:	Revisions to Urban Services Area and Future Land Use Maps to extend the USA to fully encompass Tax Map 38-124 ("Property") and include it as part of the Suburban district
Project Name:	Stafford Technology Campus
Date:	September 8, 2023
File No.	_____

As noted in the Zoning Reclassification Impact Statement, this Parcel is partially located outside of the County's USA and does not entirely have access to public water and sewer. In accordance with County policy, water and sewer upgrades will be done as necessary to fully serve the parcel and provide adequate capacity to the site.

Public Water: This project is split between the Central and Falmouth Pressure Zones. The anticipated daily demand for water for the Stafford Technology Campus is not yet known at this time, as the buildings have not been fully designed. It is anticipated that upgrades to the existing water infrastructure will need to be made to account for this development. A hydraulic analysis will be performed at the time of final engineering to determine the exact water pressures and velocities. Continued coordination with the Stafford Utilities Department will take place as demands are determined.

Sewer: This project is currently split by the USA, with the area within the USA being within the Potomac Creek sewershed. The anticipated daily demand for sewer discharge from the Stafford Technology Campus is not yet known at this time, as the buildings have not been fully designed. Based on preliminary calculations, upgrades to the existing infrastructure may be required to support the development of this campus, including the existing sewer line connecting to Parcel 38-124. A sewer study will be performed at the time of final engineering to determine the exact water discharge rates and what upgrades are required as a result of the proposed development.

WALSH COLUCCI
LUBELEY & WALSH PC

Jessica L. Pfeiffer
(703) 680-4664 Ext. 5119
jpfeiffer@thelandlawyers.com
Fax: (703) 680-6067

February 27, 2023

Via Hand Delivery and E-mail

Jeffrey Harvey,
Director of Planning and Community Development
1300 Courthouse Road
2nd Floor
Stafford, VA 22554

Re: Zoning Reclassification Application Submission
Stafford Technology Campus

Dear Mr. Harvey:

Enclosed please find the following items in connection with an application for a zoning reclassification for the properties identified as Tax Map Numbers 38 124 and 38 29A (collectively the "Property"). The Property is comprised of approximately ± 523.94 acres and is located on the east side of Richmond Highway and on either side of Eskimo Hill Road. The Property is currently zoned A-1, Agricultural and located in the Falmouth Election District.

1. A completed Application Submittal Checklist;
2. A completed Project Information & Primary Contacts form;
3. An executed Statements of Understanding form signed by STAFFORD TECHNOLOGY LC;
4. An executed Statements of Understanding form signed by Susanne Bradley Geslois, Trustee of the Susanne Bradley Geslois Revocable Trust, dated December 18, 2017;
5. An executed Owners Consent Statement signed by Susanne Bradley Geslois, Trustee of the Susanne Bradley Geslois Revocable Trust, dated December 18, 2017;
6. A completed General Information form;
7. A check made payable to Stafford County in the amount of $80,694.00, which represents the filing fee;
8. A completed Review Fee Calculations sheet;

9. A completed List of Adjoining Property Owners form;
10. A completed Application Affidavit;
11. Proof that real estate taxes have been paid for Tax Map Numbers 38 124;
12. Proof that real estate taxes have been paid for Tax Map Numbers 38 29A;
13. A legal description of Tax Map Numbers 38 124;
14. A legal description of Tax Map Numbers 38 29A;
15. An Impact Statement, dated February 22, 2023;
16. A copy of the Proffer Statement, dated February 24, 2023;
17. A completed Checklist of Generalized Development Plans;
18. Twelve (12) full size copies and one (1) 8 ½" x 11" copy of the plans entitled "Generalized Development Plan (GDP) – Stafford Technology Campus" prepared by Bohler Engineering, dated February 24, 2023 and consisting of the following sheets:
    a. Cover Sheet
    b. Existing Conditions Plan
    c. Generalized Development Plan
    d. Overall Illustrative Plan

Please note that a Traffic Impact Study for the Property will be provided as soon as it is available.

Once you have had an opportunity to review the application, together with the supporting documents, please contact me immediately if any additional information is required for acceptance. Thank you for your assistance in connection with this application.

Very truly yours,

WALSH, COLUCCI, LUBELEY & WALSH, P.C.

Jessica L. Pfeiffer

Jessica L. Pfeiffer
Planner

JLP

Enclosures

cc: Taylor Chess/Kevin McHugh (*via email only*)
Michael O'Shaughnessy/Nick Georgas (*via email only*)
Kevin Sitzman (*via email only*)

P1283048.DOCX

Application Submittal Checklist

- ☒ Completed **"Project Information & Primary Contacts"** form (Page 6)
- ☒ Signed **"Statements of Understanding"** from the owner(s) and applicant (Page 7)
- ☒ Signed and Notarized **Owner's Consent Statement** (if applicant/agent is not the owner)
- ☒ Completed **"General Information"** sheet (Page 8)
- ☒ Completed **"Review Fee Calculation"** sheet and appropriate fees payable to "County of Stafford" and "Virginia Department of Transportation" (if applicable) (Pages 9 – 11)
- ☒ Completed **"List of Adjoining Property Owners"** (Pages 12 & 13)
- ☒ Completed **"Application Affidavit"** (Pages 14 – 17)
- ☒ Completed **"Checklist for Generalized Development Plans"** (Pages 19 & 20)
- ☒ Completed **"Transportation Impact Analysis Determination Form"** (Page 21)
- ☒ Proof that **Real Estate Taxes** have been paid
- ☒ Complete **Legal Description** of the area to be reclassified (Acreage must match Boundary Survey Plat)
- ☒ Completed **Impact Statements** (See **"Checklist for Impact Statements"** (Page 18)
- ☒ Completed **Transportation Impact Analysis (TIA)**, if required (Five (5) paper copies with electronic copies or ftp site) (See "**VDOT Rezoning Package Checklist"**, Page 23)

PLATS AND PLANS

- ☒ **Boundary Survey Plat** of area subject to rezoning (with 3 copies at 8½" x 11" size) (Acreage must match Legal Description)
- ☒ **Generalized Development Plan** (12 full-size copies at 24"x 36" size)

  * See **"Checklist for Generalized Development Plans"** (Pages 19 & 20)

Applications for reclassification to the P-TND zoning district shall also include:

- ☐ Twenty (20) copies of the Regulating Plan
- ☐ Twenty (20) copies of the Neighborhood Design Standards

PROFFER STATEMENT – OPTIONAL

- ☒ **Proffer Statement** (It is preferred for the proffer statement to be properly executed upon initial submittal, or as soon thereafter as possible. Prior to advertisement of any public hearing, the latest version of the proffer statement must be properly executed – see Notice to Applicants Regarding Proffers – Pages 24 & 25)

If Proffer Statement is for new residential developments and residential components of mixed-use properties:

☐ Completed **Election of Code Provisions for Residential Proffers Worksheet** (Page 26)

PROFFER REASONABLENESS ANALYSIS

☐ **Proffer Reasonableness Analysis**

Note: if electing to proceed under legislation requiring an evaluation of reasonableness, the Proffer Reasonableness Analysis is required. See Table on Page 26.

RECEIVED	OFFICIALLY SUBMITTED
DATE:_____ INITIALS _____	DATE:_____ INITIALS_____

Other Optional Application Materials

Although not required, the following additional materials are requested to be included with the initial application submission, if available. These items are often requested during the review process. Providing the information in advance can assist in accelerating the review:

1. Site Illustrations or Building Elevations
2. Electronic Version of generalized development plans, boundary survey, and any illustrations (a pdf on a CD, DVD, sent via email, or through ftp site is acceptable)
3. Additional Fiscal Impact Information for Commercial Rezonings, including:

   a) Direct jobs expected to be created from the rezoning (years 1-5)

   b) Estimated average wage

   c) North American Industry Classification System (NAICS) business sector code

   d) Projected investment in real property - broken down by land and building (years 1-5)

   e) Projected investment in machinery & tools/equipment (years 1-5)

   f) Projected investment in business tangible personal property (years 1-5)

   g) Other revenues projected such as Sales, Meals, Lodging Taxes (years 1-5)

Project Information & Primary Contacts

PROJECT INFORMATION **PROJECT #** RC23154931

Stafford Technology Campus
PROJECT NAME

SECTION

ADDRESS (IF AVAILABLE)

±503.84 acres
TOTAL SITE ACREAGE

38 124 & 38 29A
TAX MAP /PARCEL(S)

A-1 to M-2
ZONING DISTRICT

East side of Richmond Highway and the east and west side of Eskimo Hill Road
LOCATION OF PROJECT

APPLICANT / AGENT (Provide attachment if Applicant and Agent differ) Primary Contact Person ☐

James J. Vecchiarelli
NAME

Stafford Technology LC
COMPANY

12500 Fair Lakes Circle, Suite 400 Faifrax VA 22033
ADDRESS CITY STATE ZIP

PHONE NUMBER FAX NUMBER EMAIL ADDRESS

APPLICANT / **AGENT** (Provide attachment if Applicant and Agent differ) Primary Contact Person ☑

Jonelle Cameron | Jessica Pfeiffer
NAME

Walsh, Colucci, Lubeley & Walsh PC
COMPANY

4310 Prince William Pkwy Suite 300 Prince William VA 22192
ADDRESS CITY STATE ZIP

(703) 680-4664 jcameron@thelandlawyers.com | jpfeiffer @thelandlawyers.com
PHONE NUMBER FAX NUMBER EMAIL ADDRESS

OWNER (Provide attachments if multiple owners) Primary Contact Person ☐

Stafford Technology LC
NAME COMPANY

12500 Fair Lakes Circle, Suite 400 Fairfax VA 22033
ADDRESS CITY STATE ZIP

PHONE NUMBER FAX NUMBER EMAIL ADDRESS

PROFESSIONAL (Engineer, Surveyor, etc.)			Primary Contact Person ☐
Michael O' Shaughnessy | Nick Georgas			Bohler Engineering
NAME			COMPANY
12825 Worldgate Drive, Suite 700	Herndon	VA	20170
ADDRESS	CITY	STATE	ZIP
(571) 366-6832			
PHONE NUMBER	FAX NUMBER		EMAIL ADDRESS

P1330719.DOCX

STAFFORD COUNTY
Department of Planning and Zoning

Statements of Understanding

I, as owner/co-owner of the property subject to this application, do hereby certify that I have read and understand the requirements for the submission of a reclassification as outlined in this application and as provided under the Stafford County Code, and further, that this submittal is in compliance with the requirements of this application and applicable provisions of the Stafford County Zoning Ordinance, Chapter 28 of the Stafford County Code.

Date: 2/23/23

Stafford Technology LC
a Virginia limited liability company

By: MVP Management, LLC
a Virginia limited liability company
its Manager

By: _____
Name: John M. Peterson
Its: Manager

STAFFORD COUNTY
Department of Planning and Zoning

Statements of Understanding

I, as owner/co-owner of the property subject to this application, do hereby certify that I have read and understand the requirements for the submission of a reclassification as outlined in this application and as provided under the Stafford County Code, and further, that this submittal is in compliance with the requirements of this application and applicable provisions of the Stafford County Zoning Ordinance, Chapter 28 of the Stafford County Code.

Date: 2-27-23

Susanne Bradley Geslois, Trustee of the Susanne Bradley Geslois Revocable Living Trust Dated December 18, 2017

STAFFORD COUNTY ZONING CONDITIONAL USE PERMIT
OWNER'S CONSENT STATEMENT

COMMONWEALTH OF VIRGINIA

COUNTY OF: Henrico

This 27th of February, 2023

I, Susanne Bradley Geslois, Trustee of the Susanne Bradley Geslois Revocable Trust, dated December 18, 2017, (owner) do hereby authorize the Applicant, Stafford Technology LC, or its successors and assigns (collectively, the "Applicant"), to file on my behalf all zoning conditional use permit or other land use or permitting applications necessary to develop Tax ID 38 29A as the Applicant may reasonably determine. I further authorize the Applicant, at its sole cost and expense, to procure, file and provide all necessary studies, application documents, any draft conditional use permit conditions, plans and other application materials, and to undertake all other actions necessary to obtain approval of the aforementioned use.

Susanne Bradley Geslois, Trustee of the
Susanne Bradley Geslois Revocable Trust,
dated December 18, 2017

COMMONWEALTH OF VIRGINIA

COUNTY OF: Henrico

Subscribed and sworn to before me this 27th day of February, 2023, in my county and state aforesaid, by the aforenamed principal.

NOTARY PUBLIC

My Commission Expires: 5/31/26

DONNA S. REESE NOTARY PUBLIC REG #7062770 COMMONWEALTH OF VIRGINIA

General Information

Clearly indicate all information that applies to this project:

DETAILED DESCRIPTION OF PROJECT

The applicant, Stafford Technology LC (the "Applicant") is the owner of the properties identified as Tax Map Numbers 38 124 and 38 29A, which is comprised of approximately 503.84. The proposal is to reclassify the Property from A-1, Agricultural, to M-2, Heavy Industrial. The Applicant's proposal includes a phased data center campus which will contain approximately 5.8 million square feet of data center uses at full buildout.

INFORMATION FOR FEE CALCULATIONS

± 503.84 # of Acres

Type of Conditional Use Permit:

☐ Standard Conditional Use Permit (including amendments)

☐ Minor Conditional Use Permit Amendment *

☐ Minor Conditional Use Permit Amendment (submitted simultaneously with a Minor Proffer Amendment Application) *

* See Background Information on page 3 to determine if the request qualifies as a minor amendment.

INFORMATIONAL

Previous Resolution # A-1

Zoning District M-2

Proposed Use(s) The Applicant's proposal includes a phased data center campus which will contain approximately 5.8 million square feet of data center uses at full buildout. Other M-2 uses may be permitted on the Property.

P1330751.DOCX

Review Fee Calculations

STAFFORD COUNTY FEES:

The County review fee calculations are divided into four sections. Each section is based on a different type of reclassification. Determine the application fee by filling out the one section that applies.

Section I. Standard Rezoning:

A. Base Fee: (Required - Enter the dollar amount that applies)
If less than 5.0 acres …….. .$4,375.00
If 5.0 acres or greater …….$12,500.00……..…….. $ 12,500.00

B. General Fee: (If greater than 5 acres)

(523.94 Acres – 5) X $125 ……..…….. $ 64,867.50

C. Fire & Rescue Review Fee (required)……..…. $ 125.00

D. Utilities Department Review Fee (required)……..... $ 215.00

E. Public Works Review Fee (required)…….……..... $ 200.00

F. Traffic Impact Analysis Review Fee: (If TIA required)
Volume <1,000 VPD ……$200.00
Volume >1,000 VPD ……$400.00...…….…… $ 400.00

G. Adjacent Property Notification (required):

(35 Adjacent properties) X $6.48 ……..... $ 226.80

Sub-total (Add appropriate amounts from lines A thru G above)..... **$** 78,534.30

H. Technology Fee (sub-total x 2.75% or 0.0275)…… $ 2,159.70

TOTAL (Sub-total + H. Technology Fee)…….…… $ 80,694.00

Section II. Planned Development:
(For requests to the PD-1, PD-2, or P-TND zoning districts)

A. Base Fee …….…. $ 15,000.00

B. General Fee:

(_____Acres – 75) X $25 ……..…. $_____

C. Fire & Rescue Review Fee (required) …… $ 125.00

D. Utilities Department Review Fee (required) …… $ 215.00

E. Public Works Review Fee (required)…….…….. $ 200.00

F. Traffic Impact Analysis Review Fee: (If TIA required)
Volume <1,000 VPD ……$200.00
Volume >1,000 VPD ……$400.00……..… $_____

G. Adjacent Property Notification (required):

(_____Adjacent properties) X $6.48 …….. $_____

Sub-total (Add lines A through G) ……..…….…… **$_____**

H. Technology Fee (sub-total x 2.75% or 0.0275)…… $_____

TOTAL (Sub-total + H. Technology Fee)……..…… $_____

Section III. Proffer Amendment:

A. General Fee:
$10,000 + If Acres>5 ((Acres – 5) X $25) ……..…… $_____

B. If Planned Development:
$10,000 + ((_____ Acres – 75) X $25) ……...… $_____

C. Adjacent Property Notification (required):

(_____Adjacent properties) X $6.48 ……..…. $_____

Sub-total (Add lines A and C) or
(Add lines B and C) ……...….. $_____

D. Technology Fee (sub-total x 2.75% or 0.0275)…… $_____

TOTAL (Sub-total + D. Technology Fee)……..…… $_____

Section IV. Minor Proffer Amendment:

A. General Fee: ……... ……. $ 6,190.00

B. Adjacent Property Notification (required):

(_____Adjacent properties) X $6.48 ……..…….. $_____

Sub-total (Add lines A and B) ……..…… $_____

C. Technology Fee (sub-total x 2.75% or 0.0275)…… $_____

TOTAL (Sub-total + C. Technology Fee)……..…… $_____

Section V. Minor Proffer Amendment (when submitted simultaneously with minor Conditional Use Permit Application):

A. General Fee: ……... ……. $ 3,095.00

B. Adjacent Property Notification (required):

(_____Adjacent properties) X $6.48 ……..…….. $_____

Sub-total (Add lines A and B) ……..…… $_____

C. Technology Fee (sub-total x 2.75% or 0.0275)…… $_____

TOTAL (Sub-total + C. Technology Fee)……..…… $_____

Sections I, II, III, IV and V: MAKE CHECK PAYABLE TO "STAFFORD COUNTY".

- **If an application is withdrawn prior to the first public hearing, fifty (50) percent of the amount of the application fee may be refunded to the applicant.**
- **If an application is withdrawn after the first public hearing, the application fee is non-refundable.**

VIRGINIA DEPARTMENT OF TRANSPORTATION FEES:

Transportation Impact Analysis Fee:
(For applications that meet VDOT Traffic Impact Analysis thresholds)

A. Subject to low volume road criteria (see 24 VAC 30-155-40 A 3) $ 250.00

B. All other submissions $ 1000.00

MAKE CHECK PAYABLE TO "VIRGINIA DEPARTMENT OF TRANSPORTATION"

For a third or subsequent submission of a rezoning proposal that is requested by VDOT on the basis of the failure of the applicant to address deficiencies previously identified by VDOT, the fee is equal to the initial fee paid. (per 24 VAC 30-155, §15.2-2222.1 of the Code of Virginia)

List of Adjoining Property Owners

The applicant is required to provide a list of the owners as shown on the current real estate tax assessment books of all abutting properties and properties immediately across the street or road from the property to be rezoned or issued a Conditional Use Permit. If the application requests a rezoning of only a portion of the parcel or a Conditional Use Permit on only a portion of the parcel, the entire parcel must be the basis for the below listing.

Provide additional pages if needed.

TAX MAP / PARCEL	NAME
38 30	PORTILLO ALEXANDER

690 FITZPATRICK CT
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-6583

TAX MAP / PARCEL	NAME
38 32	MORROW CHARLES R & BRENDA H TRUSTEES MORROW RONALD A

10524 COURTHOUSE RD
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-1612

TAX MAP / PARCEL	NAME
38A 3	SOUTHEASTERN FREIGHT LINES INC

420 DAVEGA DR
MAILING ADDRESS

CITY	STATE	ZIP
LEXINGTON	SC	29073-7485

38A 5	15 SAGE LLC
TAX MAP / PARCEL	NAME

15129 WETHERBURN DR
MAILING ADDRESS

CENTREVILLE	VA	20120
CITY	STATE	ZIP

38A 6A	DEGEN-UTAH LLC
TAX MAP / PARCEL	NAME

PO BOX 7103
MAILING ADDRESS

FREDERICKSBURG	VA	22404-7103
CITY	STATE	ZIP

38 29	FERNANDEZ JULIO EDGAR MONTANO
TAX MAP / PARCEL	NAME

34 STALLINGS LN
MAILING ADDRESS

STAFFORD	VA	22554-5455
CITY	STATE	ZIP

38 25K	FREDWOOD L C
TAX MAP / PARCEL	NAME

PO BOX 600
MAILING ADDRESS

CHANTILLY	VA	20153-0600
CITY	STATE	ZIP

38 25L	DEVITO FREDERICK W & MARY T TRSTEES
TAX MAP / PARCEL	NAME

5 ALY SHEBA LN
MAILING ADDRESS

STAFFORD	VA	22556-6679
CITY	STATE	ZIP

38 25M	CRANES CORNER LLC
TAX MAP / PARCEL	NAME

170 W SHIRLEY AVE STE 201
MAILING ADDRESS

WARRENTON	VA	20186-3083
CITY	STATE	ZIP

38 24X	FLYNN PROPERTIES & JEFFREY FLYNN HOL
TAX MAP / PARCEL	NAME

PO BOX 429
MAILING ADDRESS

LOCUST GROVE	VA	22508-0429
CITY	STATE	ZIP

38 24Y	J-SEA II LLC
TAX MAP / PARCEL	NAME

22638 MORNING GLORY CIR
MAILING ADDRESS

BRADENTON	FL	34202-6356
CITY	STATE	ZIP

TAX MAP / PARCEL	NAME
38 24M	POTOMAC CREEK INDUSTRIAL LLC

2603 MORSE LN
MAILING ADDRESS

CITY	STATE	ZIP
WOODBRIDGE	VA	22192-4628

TAX MAP / PARCEL	NAME
38 22A	PERDOMO REALTY LLC

20801 BISCAYNE BLVD STE 501
MAILING ADDRESS

CITY	STATE	ZIP
MIAMI	FL	33180-1400

TAX MAP / PARCEL	NAME
38 22	LEXON ENTERPRISES INC

275 W 231 STREET STE 1030
MAILING ADDRESS

CITY	STATE	ZIP
BRONX	NY	10463-3903

TAX MAP / PARCEL	NAME
38 126	METTS LC

1355 BEVERLY RD STE 240
MAILING ADDRESS

CITY	STATE	ZIP
MC LEAN	VA	22101-3649

TAX MAP / PARCEL	NAME
38 125	SHANNON MATTHEW F

3332 M STREET SE
MAILING ADDRESS

CITY	STATE	ZIP
WASHINGTON	DC	20019-2931

TAX MAP / PARCEL	NAME
38 130	FRANKS BETTY A

368 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7308

TAX MAP / PARCEL	NAME
38 131, 38 132	COMMONWEALTH OF VIRGINIA DEPARTMENT OF CORRECTIONS

384 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7308

TAX MAP / PARCEL	NAME
38 132A	COMMONWEALTH OF VA DEPT OF HWYS

1111 E BROAD ST 2ND FLOOR
MAILING ADDRESS

CITY	STATE	ZIP
RICHMOND	VA	23219-1936

TAX MAP / PARCEL	NAME
39 26D, 39 26, 39 22	BOARD OF SUPERVISORS OF STAFFORD COUNTY

MAILING ADDRESS		
PO BOX 339		
CITY	**STATE**	**ZIP**
STAFFORD	VA	22555-0339

TAX MAP / PARCEL	NAME
38 104	TRIDEX ASSOCIATES INC

MAILING ADDRESS		
200 BIG SPRING LN		
CITY	**STATE**	**ZIP**
STAFFORD	VA	22554-7316

TAX MAP / PARCEL	NAME
38G D, 38G B	KENDALL HILLS HOMEOWNERS ASSOCIATION

MAILING ADDRESS		
PO BOX 1866		
CITY	**STATE**	**ZIP**
FREDERICKSBURG	VA	22402

TAX MAP / PARCEL	NAME
38 105B	TOLBERT CARL R

MAILING ADDRESS		
8061 CHANCELLOR RD		
CITY	**STATE**	**ZIP**
FREDERICKSBURG	VA	22407-7301

TAX MAP / PARCEL	NAME
38 105A	ATCHINSON PRICILLA

108 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7304

TAX MAP / PARCEL	NAME
38 107B	LLOYD MELODY

100 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-7304

TAX MAP / PARCEL	NAME
38 107	ESCOBAR MELVIN O MARTINEZ

76 ESKIMO HILL RD
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	2554-7302

TAX MAP / PARCEL	NAME
38 116	KELLY CROCKETT & DREAMA J

1351 OSBORNES GAP RD
MAILING ADDRESS

CITY	STATE	ZIP
CLINTWOOD	VA	24228-5853

TAX MAP / PARCEL	NAME
38 117	HUSSAIN SAKHAWAT & ASHRAF MOHAMMAD SABIR

134 JIB DR
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-5322

TAX MAP / PARCEL	NAME
38 118	DOSA INCORPORATED

13416 CLASSIC CT
MAILING ADDRESS

CITY	STATE	ZIP
WOODBRIDGE	VA	22192-4502

TAX MAP / PARCEL	NAME
38 119	COMMONWEALTH OF VA DEPT OF HWYS

1111 E BROAD ST 2ND FLOOR
MAILING ADDRESS

CITY	STATE	ZIP
RICHMOND	VA	23219-1936

TAX MAP / PARCEL	NAME
38 122A, 38 122	26 & 30 STATE SHOP ROAD LLC

8449 MARY JANE DR
MAILING ADDRESS

CITY	STATE	ZIP
MANASSAS	VA	20112-4710

TAX MAP / PARCEL	NAME
38 121A	7K INVESTMENTS LLC

818 18TH ST NW STE 400
MAILING ADDRESS

CITY	STATE	ZIP
WASHINGTON	DC	20006-3504

TAX MAP / PARCEL	NAME
38 31	KIM ANTHONY

3999 RICHMOND HWY
MAILING ADDRESS

CITY	STATE	ZIP
STAFFORD	VA	22554-4826

TAX MAP / PARCEL	NAME
38 38	MORROW CHARLES R & BRENDA H TRUSTEES MORROW RONALD A

10524 COURTHOUSE RD
MAILING ADDRESS

CITY	STATE	ZIP
FREDERICKSBURG	VA	22407-1612

TAX MAP / PARCEL	NAME
38 123A	VEPCO

MAILING ADDRESS

CITY	STATE	ZIP

STAFFORD COUNTY
Department of Planning and Zoning

Application Affidavit

This form to be filed with:

STAFFORD COUNTY
BOARD OF SUPERVISORS

1300 COURTHOUSE ROAD
STAFFORD, VIRGINIA 22555

Internal Use Only	
Project Name:	
A/P #:	
Date:	

All applicants for a special exception, a special use permit, conditional use permit, amendment to the zoning ordinance or variance shall make complete disclosure of the equitable ownership of the real estate involved in the application, including in the case of corporate ownership, limited liability company ownership or similar business ownership, the name of stockholders, officers, managing partners, general partners, owners and members, and in any case the names and addresses of all of the real parties in interest. The requirement of listing names of stockholders, officers and directors shall not apply to a corporation whose stock is traded on a national or local stock exchange and having more than 500 shareholders. In the event the ownership of the involved real estate changes in any respect during the time the application is pending, the applicant shall make complete disclosure of the new equitable ownership of the real estate involved in the application as required herein. If the applicant is a contract purchaser, the ownership information required herein shall be provided for the contract purchaser in addition to the owner of the real estate involved in the application. This section applies to applications before the board of supervisors, planning commission and board of zoning appeals.

See Section 15.2-2289 for State Enabling Authority

1. Applicant information

Name of Applicant: James J. Vecchiarelli
Name of Company: Stafford Technology LC

Applicant Address 12500 Fair Lakes Circle, Suite 400
Fairfax, VA 22033

Applicant's Signature:

Name of Agent Jonelle Cameron | Jessica Pfeiffer
Walsh, Colucci, Lubeley & Walsh P.C.

Address of Agent 4310 Prince William Parkway, Suite 300
Prince William, VA 22192

2. Type of Application

- ☐ **Conditional Use Permit**
- ☑ **Rezoning**
- ☐ **Variance**
- ☐ **Special Exception**

STAFFORD COUNTY
Department of Planning and Zoning

Project Name: _____
A/P #: _____
Date: _____

Application Affidavit
Page 2
Applicant: Stafford Technology LC

3. Property Information

Assessor's Parcel(s) 38 124 and 38 29A

Address _____
_____

4. Unless the equitable ownership is a corporation, limited liability company or similar business ownership, list all equitable owners of the property.

Name of owners	Address

5. If the equitable ownership of the property is a corporation, limited liability company or similar business ownership, list all officers, managing partners, general partners, shareholders, owners and members. This provision shall not apply if the corporation is listed on a national or local stock exchange and has more than 500 shareholders.

Name of Members	Address
The ownership is family trusts that do not have members.	

6. Unless the applicant is a contract purchaser and is a corporation, limited liability company or similar business ownership, list all individuals involved with the purchase of the property.

Name of Members	Address

STAFFORD COUNTY
Department of Planning and Zoning

Application Affidavit
Page 3
Applicant: Stafford Technology LC

Project Name: _____
A/P #: _____
Date: _____

7. If the applicant is a contract purchaser and is a corporation, limited liability company or similar business ownership, list all officers, managing partners, general partners, shareholders, owners and members. This provision shall not apply if the corporation is listed on a national or local stock exchange and has more than 500 share holders

Name of Members	Address
_____	_____
_____	_____
_____	_____
_____	_____

8. Have all individuals listed on this affidavit been notified of the purpose of the application?

☐ **Yes** ☐ **No**

9. If #8 is No, list all individuals who have not been notified about this application plus submit the cost required for the Department of Planning and Zoning or Code Administration to send certified letters notifying those listed below of this application prior to the public hearing.

Name	Address, including zip code, no P.O. Box please
_____	_____
_____	_____
_____	_____
_____	_____

Number of owners to be notified: _____X
Cost for certified letters $ _____ (cost as of the day of submittal)
Total due: $_____ (Make checks payable to County of Stafford)

Please submit a check in the amount due with this application to cover the cost of serving the individuals listed in this section.

STAFFORD COUNTY
Department of Planning and Zoning

Application Affidavit
Page 4
Applicant: Stafford Technology LC

Project Name: _____
A/P #: _____
Date: _____

10. Affirmation & Witness

I hereby make oath or affirmation that the contents of this affidavit are true and correct to the best of my knowledge, information and belief. In the event the ownership of the involved real estate changes during the time the application is pending, I shall make complete disclosure of the new equitable ownership of the real estate involved in the application as required herein.

Printed name of Signer James J Vecchiarelli

Corporate Office of Signer Manager

Signature James J Vecchiarelli

Date 02/22/2024

~~STATE~~ OF: Commonwealth of Virginia
COUNTY: Fairfax

The forgoing affidavit was acknowledged before me this 22nd day of February, 2024 by James J Vecchiarelli owner/applicant.

My commission expires: January 31, 2026

Notary Public

STACEY ADAIR NOTARY PUBLIC REG # 7653768 MY COMMISSION EXPIRES 01/31/2026 COMMONWEALTH OF VIRGINIA

Checklist for Generalized Development Plans (GDP)

In accordance with Section 28-224 of the Stafford County Code, when a GDP involves engineering, architecture, urban land use planning or design, landscape architecture, or surveying, such work shall be performed by persons qualified and authorized to perform such professional work, in accordance with applicable provisions of the Code of Virginia.

The following items must be shown on a GDP:

N/A	COMPLETE	
		Sec 28-225(1)
☐	☑	Date of drawing,
☐	☑	true north arrow,
☐	☑	scale,
☐	☑	legend for all symbols used,
☐	☑	name of the applicant,
☐	☑	name of the owner,
☐	☑	name of the development,
☐	☑	person preparing the drawing,
☑	☐	match lines if applicable;
		Sec 28-225(2)
☐	☑	Boundaries of the area covered by the application,
☐	☑	vicinity map showing the general location of the proposed development, major roads and existing subdivisions at a scale of one inch equals two thousand (2,000) feet;
		Sec 28-225(3)
☐	☑	Approximate locations and identification of any easements and rights-of-way on or abutting the site;
		Sec 28-225(4)
☐	☑	Approximate location of each existing and proposed structure on the site
☐	☑	the number of stories,
☐	☑	height,
☑	☐	roof line,
☐	☑	gross floor areas and
☑	☐	location of building entrances and exits;
		Sec 28-225(5)
☐	☑	Identification and location of uses and structures on all abutting properties;
		Sec 28-225(6)
☐	☑	Approximate location of all existing and proposed parking and loading areas,
☐	☑	outdoor trash storage,
☑	☐	lighting facilities, and
☐	☑	pedestrian walkways;

Checklist for Generalized Development Plans (continued)

N/A	COMPLETE	
		Sec 28-225(7)
☐	☑	Approximate location, height and type of each existing and proposed wall, fence, and other types of screening;
		Sec 28-225(8)
☐	☑	Approximate location and description of all proposed landscaping;
		Sec 28-225(9)
☑	☐	Approximate location, height and dimensions of all proposed signage on site;
		Sec 28-225(10)
☐	☑	Approximate location of all existing drainage ways, floodplains and wetlands on site;
		Sec 28-225(11)
☐	☑	Approximate location of all common open space, recreational areas and bufferyards;
		Sec 28-225(12)
☑	☐	Where the site abuts any tidal water body or impoundments, the approximate high water line, low water line, top of bank and toe of slope;
		Sec 28-225(13)
☐	☑	Approximate location and identification of all significant natural or noteworthy features including, but not limited to, historic and archeological sites, cemeteries, existing trees with a trunk diameter greater than six (6) inches DBH.

Waiver of GDP Requirements

In accordance with Section 28-223 of the Stafford County Code, the Director of Planning and Zoning may waive the requirement for the submission of a GDP or one of the above required components if the application meets one of the following standards:

(1) There will be less than two thousand five hundred (2,500) square feet of total land disturbance on lots or parcels of less than ten thousand (10,000) square feet.

(2) For single-family dwellings intended for the occupancy of the applicant and where there will be less than five thousand (5,000) square feet of land disturbance.

(3) For specific items of information when, in the opinion of the director of planning, their application to the subject property does not serve the purpose and intent of this article.

A request for a waiver shall be made in writing to the Director of Planning and Zoning identifying the sections in which you are requesting a waiver and the reason for the request.

STAFFORD COUNTY
Department of Planning and Zoning

RECLASSIFICATION TRANSPORTATION IMPACT ANALYSIS DETERMINATION

RECEIVED BUT NOT OFFICIALLY SUBMITTED

DATE:_____ INITIALS:

OFFICIALLY SUBMITTED

DATE:_____INITIALS:_____

Name of development: Stafford Technology Campus
Type of development: Data Center
Parcel #: Parcels 38-124 and 38-29A

Traffic Volume Calculations

This site generates:

523 VPH (highest VPH)

4,356 VPD on state-controlled highways (highest)

523 VPH Peak AM

175 VPH Peak PM

N/A VPH Peak Saturday

1,411 VPD highest intensity*

Attach a page showing the calculations and the ITE trip generation codes to this form.

Minimum Thresholds to submit a TIA
County: Any proposals generating 1,000 or more VPD.
VDOT: See "VDOT Traffic Impact Analysis Requirements" table on next page.

Trip Generation Calculation Guidelines

- Traffic volumes shall be based on the rates or equations published in the latest edition of the Institute of Transportation Engineers Trip Generation.
- If a site has multiple entrances to highways, volumes on all entrances shall be combined for the purposes of this determination.
- If the site does not have direct access to a state-maintained road, the site's connection is where the site connects to the state highway system.
- Traffic volumes shall NOT be reduced through internal capture rates, pass by rates, or any other reduction methods.
- For redevelopment sites only: when the existing use is to be redeveloped as a higher intensity use, trips currently generated by the existing development that will be removed may be deducted from the total trips that will be generated by the proposed land use.
- When rezoning, use the highest possible traffic generating use unless development is limited by proffer to less than the possible highest traffic generation.

For development proposals that generation 1,000 or more vehicle trips per peak hour the applicant shall request a scope of work meeting with VDOT and Stafford County Office of Transportation to discuss the required elements of a traffic impact analysis.

*The highest intensity use is the highest possible allowable under the zoning requirements for the entire property should it be developed to its fullest extent possible under the current building guidelines. The trip generation for the highest intensity used shall be analyzed in the study. The only exception is if proffers limit the area and type of uses.

VDOT Traffic Impact Analysis Requirements

Process		Threshold	Review Process*	Fee**
Comprehensive Plan and Plan Amendments (including small area plans)		5,000 VPD on state-controlled highways, or Major change to infrastructure / transportation facilities	Application submitted to VDOT for review and comment VDOT may request a meeting with the locality within 30 days Review to be completed in 90 days or later if mutually agreed	$1000 covers first and second review. No fee if initiated by locality or public agency. No fee for citizens' organization or neighborhood association proposing plan amendments.
Rezoning	Residential Low Volume Road Submission	400 VPD AND exceeds the current traffic volume on a state controlled highway	VDOT or local TIA (certified by VDOT) and Application submitted to VDOT for review and comment VDOT may request a meeting with the locality & applicant within 45 days Review to be completed in 120 days if VDOT requests a meeting Otherwise review to be completed in 45 days NOTE: When a related comprehensive plan revision and rezoning proposal are being considered concurrently for the same geographical area, then only a rezoning TIA package is required.	For first and second review: $250 - Low Volume Rd $1000 – All other submissions No fee if initiated by locality or public agency No fee if using a VDOT TIA prepared for a small area plan
	All Other Land Uses including residential	5,000 VPD on state controlled highways, or 5,000 VPD on locality maintained streets AND within 3000 feet of a state controlled highway		

* For proposals generating less than 1000VPH the locality and/or applicant may request a Scope of Work Meeting with VDOT. For proposals generating 1000 VPH or more the locality and/or applicant shall hold a Scope of Work Meeting with VDOT.

** Third or subsequent submissions require additional fee as though they were an initial submission.

Traffic Volume Calculations:

The Development is proposed to be located along both sides of Eskimo Hill Road (Route 628), east of US Route 1 (Richmond Highway), and south of State Shop Road. The Site is currently undeveloped and consists of two parcels of land, fronting Eskimo Hill Road and fronting the east side of US Route 1. The two parcels, totaling approximately 503.94-acres, can be identified on the Stafford County GIS with the following Property IDs: 38-124 and 38-29A. The parcels are currently zoned as A-1 Agricultural. For the future land use, a portion of the Property is located in the Central Stafford Targeted Development Area (TDA) and a portion is located outside of the Urban Service Area. The Applicant is proposing to rezone the Property to M-1 and include the entire Property in the Urban Service Area.

The Applicant is proposing to rezone the parcels from A-1 to M-1 (Light Industrial) in order to construct up to 5.808 million square feet of data center uses. The Site is anticipated to be complete and in operation by 2030. The highest VPH, VPD on state-controlled highways, VPH Peak AM, VPH Peak PM, and VPH Peak Saturday were calculated based using VDOT approved rates of 0.09 for the AM peak hour, 0.03 for the PM peak hour, and 0.75 for the weekday daily trips per 1,000 sf of data center land use based on recent data collection in a study by Bowman Engineering. The trips generated by the proposed development are illustrated in **Table 1**.

Table 1: Site Trip Generation

Land Use	ITE Code	Size	------ Weekday ------						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Stafford Technology Campus									
Data Center [1]	160	5,808.0 kSF	288	235	523	52	123	175	4,356

[1] VDOT approved rates of 0.09 for AM, 0.03 for PM and 0.75 for Daily trips per 1,000 SF for Data Center land use.

As shown in **Table 1**, the proposed development would generate 523 trips during the morning peak hour, 175 trips during the afternoon peak hour, and approximately 4,536 weekday daily trips.

Based on Stafford County's Ordinance, the trip generation, permissible by A-1, was calculated. Using ITE's Trip Generation Manual, 11th Edition, the VPD Highest intensity was calculated as illustrated in **Table 2**. Of note, for the purposes of this assessment the portion of the site under A-1 zoning was assessed based on one residential dwelling unit (DU) per three acres.

Table 2: Site Trip Generation (VPD Highest Intensity)

Land Use	ITE Code	Size	------ Weekday ------						
			AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Single-Family Detached Housing	210	144 DU	27	77	104	88	52	140	1,411

Stafford County
Revenue Collection System

Real Estate Inquiry

Map Number: 38 124 PAGINDCBKLOT S
PIN: 23999
District: AQ

Property Description
LOT 6A 496.711 AC
(LOTS 1,2,3,4,5,PT6 CLIFT)
RESIDUE
No Situs Address

Responsible Name and Addresses
STAFFORD TECHNOLOGY LC
12500 FAIR LAKES CIR STE 400
FAIRFAX VA 22033-3813

Real Estate Descriptions and Values

Land Value	$24,100,600.00
Building Value	$0.00
Land Use Value	$0.00

Outstanding Balance Information

Total Due:	$0.00
Levy:	$0.00
Penalty:	$0.00
Interest:	$0.00
P&I Calculated as of:	2/22/2024

Bill Year	Bill Number	Installment Number	Cat	Bill Amount Due	Total Paid	Last Payment Date	Levy Due	Penalty Due	Interest Due	Total Due
2023	23477	2	2	$1,056.51	$1,056.51	12/06/2023	$0.00	$0.00	$0.00	$0.00
2023	23477	1	1	$1,056.51	$1,056.51	06/05/2023	$0.00	$0.00	$0.00	$0.00
2022	23482	2	2	$950.30	$950.30	12/06/2022	$0.00	$0.00	$0.00	$0.00
2022	23482	1	1	$950.30	$950.30	06/01/2022	$0.00	$0.00	$0.00	$0.00
2021	23505	2	2	$1,084.46	$1,084.46	11/30/2021	$0.00	$0.00	$0.00	$0.00
2021	23505	1	1	$1,084.46	$1,084.46	06/07/2021	$0.00	$0.00	$0.00	$0.00
2020	23514	2	2	$1,084.46	$1,084.46	12/08/2020	$0.00	$0.00	$0.00	$0.00
2020	23514	1	1	$1,084.46	$1,084.46	06/03/2020	$0.00	$0.00	$0.00	$0.00
2019	23530	2	2	$1,129.18	$1,129.18	11/19/2019	$0.00	$0.00	$0.00	$0.00
2019	23530	1	1	$1,129.18	$1,129.18	05/28/2019	$0.00	$0.00	$0.00	$0.00
2018	23557	2	2	$1,106.82	$1,106.82	11/27/2018	$0.00	$0.00	$0.00	$0.00
2018	23557	1	1	$1,217.50	$1,217.50	06/25/2018	$0.00	$0.00	$0.00	$0.00
2017	23584	2	2	$1,268.23	$1,268.23	05/22/2018	$0.00	$0.00	$0.00	$0.00

Stafford Technology Campus

RC23154931; Reclassification

COM24155687; Comp Plan Compliance Review

Stafford County Planning Commission

July 24, 2024

Background

- Requests:
  - REZONING: Rezone from the A-1, Agricultural to M-2, Heavy Industrial Zoning District, with proffers.
  - COMP PLAN COMPLIANCE REVIEW: Review compliance with the Comprehensive Plan, for the placement of up to 6 electric substations.
- All to permit a data center, public facility/utility, and related accessory uses.

- On June 12th, the PC took the following actions:
  - COMPREHENSIVE PLAN AMENDMENT: Recommended **APPROVAL**
  - REZONING: Recommended **DEFERRAL** to July 24
  - COMP PLAN COMPLIANCE REVIEW: Recommended **DEFERRAL** to July 24

2

Background

- Tax Map Parcel Nos.: 38-124 & 38-29A
- Area: 503.84 Acres
- District: Falmouth
- Applicant/Owner: Stafford Technology, LC
- Agents: Jonelle Cameron & Jessica Pfeiffer, Walsh, Colucci, Lubeley, & Walsh PC

3

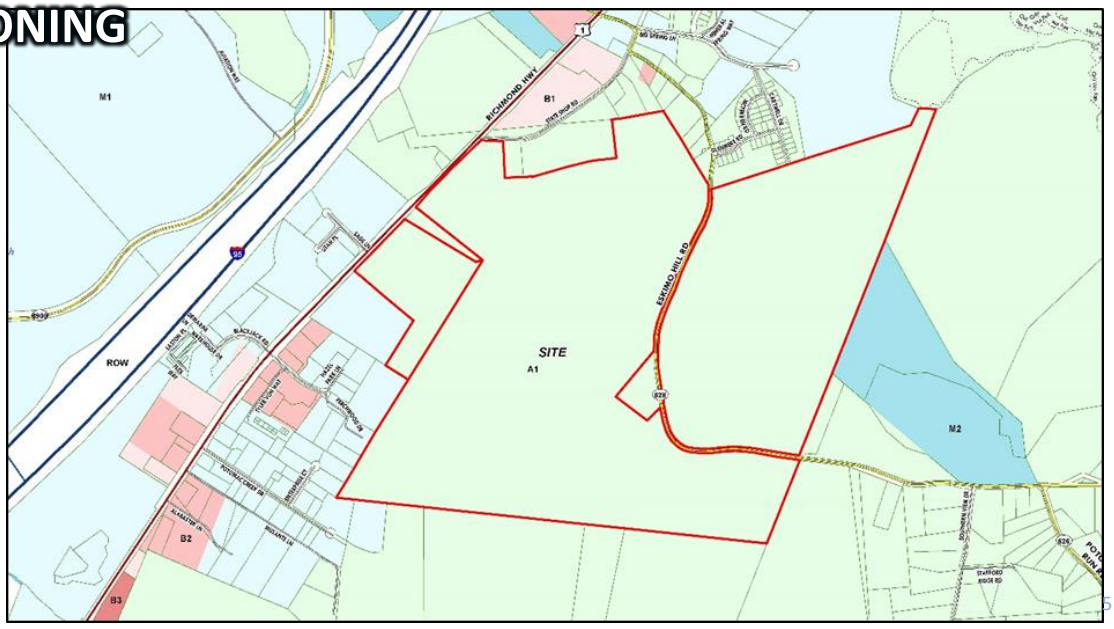
LOCATION



4

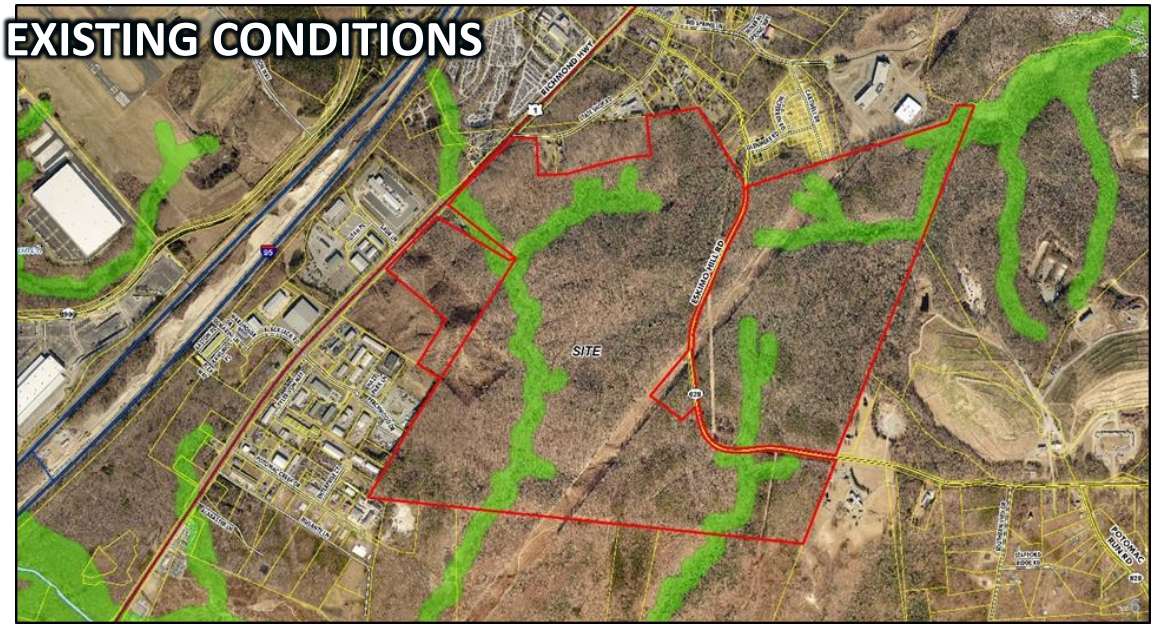
STAFFORD Virginia

ZONING



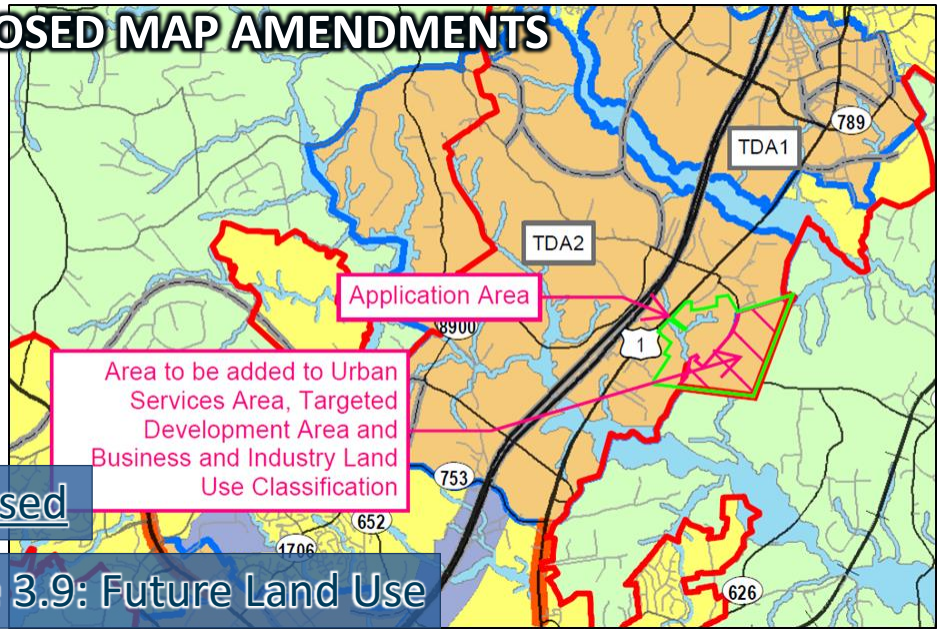
STAFFORD Virginia

EXISTING CONDITIONS



STAFFORD Virginia

PROPOSED MAP AMENDMENTS



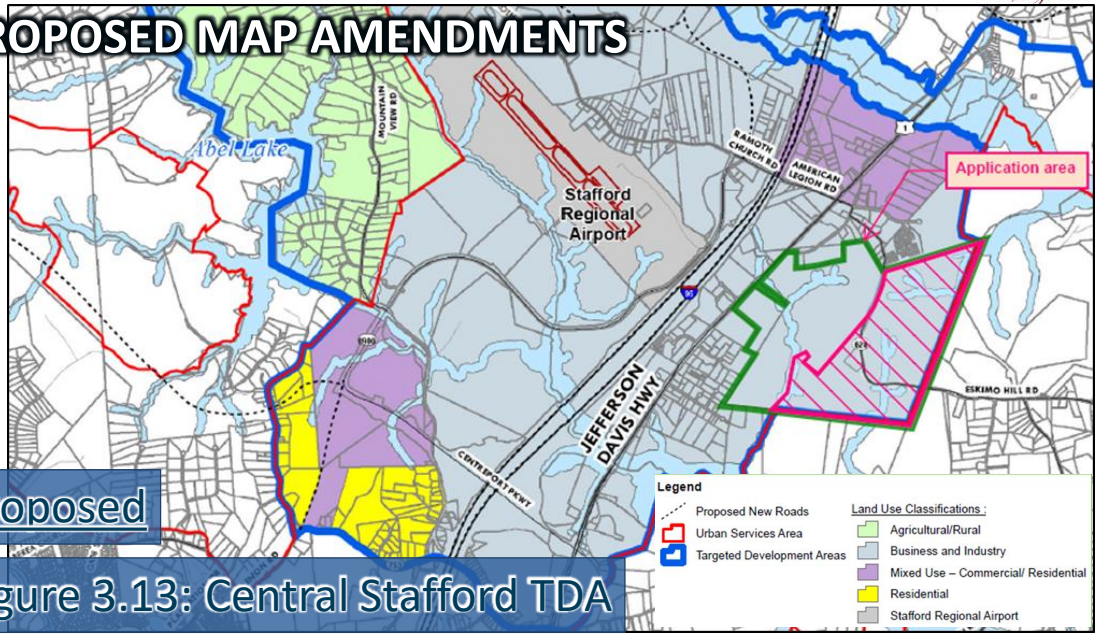
Proposed

Figure 3.9: Future Land Use

7

STAFFORD Virginia

PROPOSED MAP AMENDMENTS



Proposed

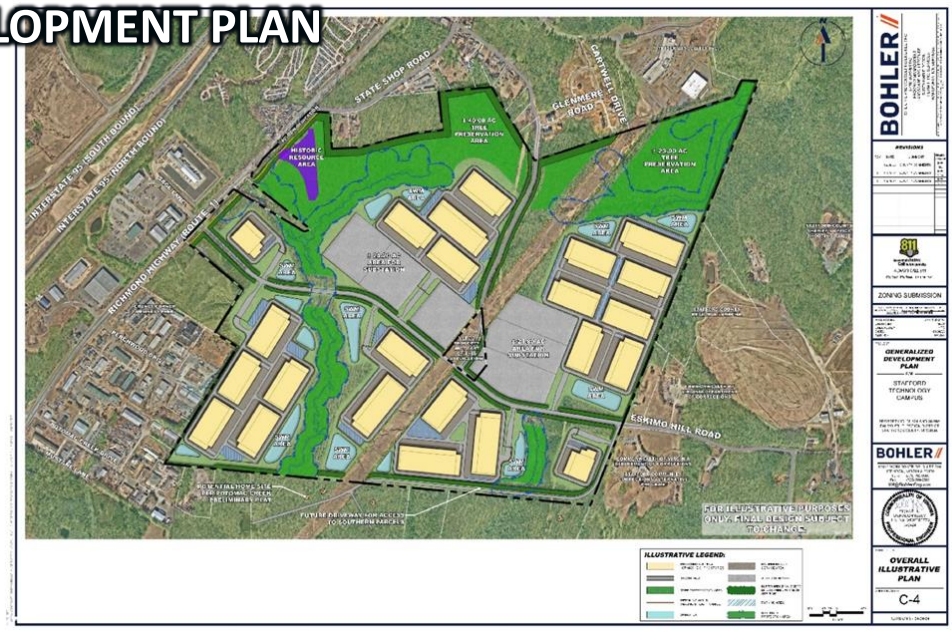
Figure 3.13: Central Stafford TDA

8

ZONING RECLASSIFICATION

9

DEVELOPMENT PLAN



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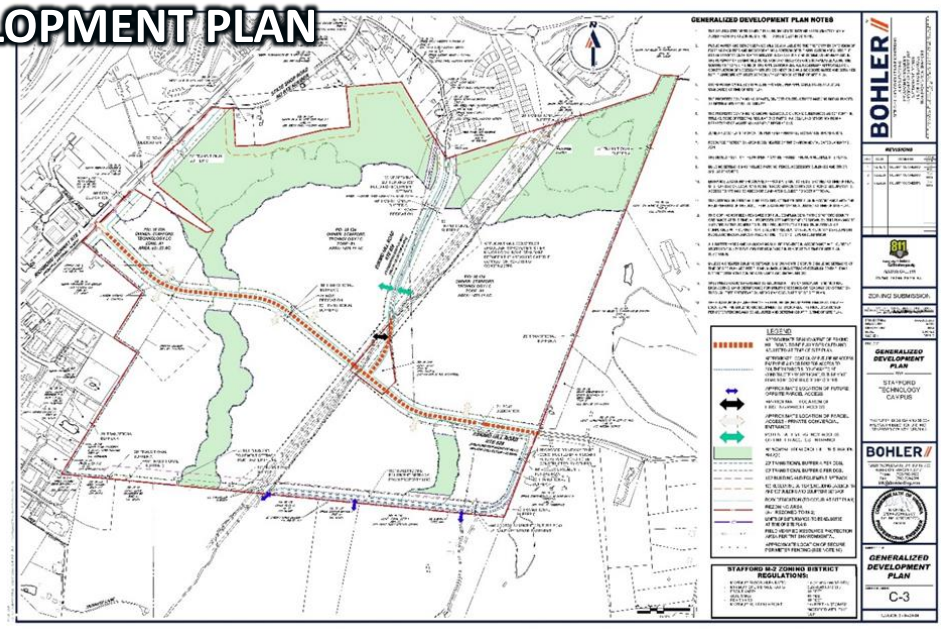
DEVELOPMENT PLAN



11

Proffer Statement Updates

- Proffer 5 – amended to specify that building height is measured based on the definition in the zoning ordinance.
- Proffer 6 – adds that if more than 6 substations are needed, they would be required to obtain a separate CUP.
- Proffer 8.a. – adds a series of more specific building façade standards
- Proffer 8.b. – clarify that fencing shall be around the perimeter of the property, data center building, or multiple data center buildings.
- Proffer 8.d. – added that generators facing A-1 properties to the south and not screened by buildings shall be screened by a solid wall for visual and sound attenuation.
- Proffer 12. – New proffer to contribute 1.5 million for fire and rescue purposes.
- Proffer 14. – require building sprinklers meet NFPA 13 standards.

12

Proffer Statement Updates

- Proffer 18. – clarify that sound measurements must be taken 6 months after final occupancy of each data center building, and annually for 5 years after OP of final building.
- Proffer 20. - adds that the Water Service Agreement (WSA) restrict the amount of development that might use potable water and the WSA shall be approved prior to the first OP.
- Proffer 28 – new proffer adding a series of standards to address construction mitigation.
- Proffer 29 – new proffer requires a community point of contact be established.
- Proffer 32 – requires reimbursement to the county if third party contractors are needed for assistance with permitting and enforcement.
- Proffer 33. – New proffer to limit generator testing to daytime hours (7 AM to 6 PM).

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Remaining Issues (ZONING RECLASSIFICATION)

- VDOT comments request modifications to several of the mitigation measures and request other additional information.
- Proffers leave open the possibility that the connector road to Richmond Highway may not be constructed.
- The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers.
- The electric substations, with components up to 90 feet in height, may be in conflict with the Airport Compatibility guidelines in the Comp Plan.

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Remaining Issues (ZONING RECLASSIFICATION)

- Regarding Utilities, staff recommends:
  - (1) The proffers identify the maximum amount of development that could use potable water;
  - (2) Move the WSA approval earlier in the development approval process; and
  - (3) The projects needed for "bridging" and the long-term improvements need to be included with the proffers, not only in the WSA. This includes the capacity improvements at the Aqua Wastewater Treatment Facility needed to accommodate the additional flow from areas outside of the existing Urban Services Area
- Recommend including additional sound measurement criteria, specifically conducting measurements at specific months and at varied locations.

15

Recommendation – ZONING RECLASSIFICATION

- Staff recommends approval of the application (RC23154931), pending satisfactory resolution of unresolved issues.

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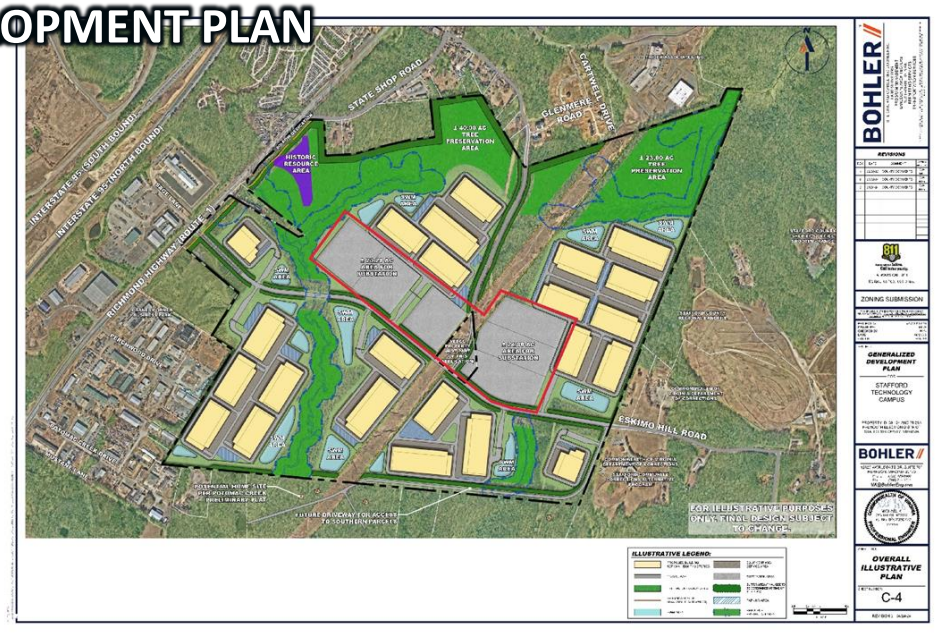
COMPREHENSIVE PLAN COMPLIANCE REVIEW

17

DEVELOPMENT PLAN



18

SAMPLE SUBSTATION IMAGE



19

Application Update

- The June 12 staff report noted that the proposed sub-stations complied with the relevant Comp Plan policies.
- However, the report cited the use as being incompatible in two of the airport zones that bisect the site.
- The application was deferred to this meeting.
- The application was forwarded to the Stafford Regional Airport for comment.
- Substation height is less than proposed surrounding buildings, which have been determined to be no hazard to air navigation.

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Recommendation – COMP PLAN COMPLIANCE REVIEW

- Staff recommends the Planning Commission find this request substantially in accord with the Comprehensive Plan, pursuant to PCR24-13, should the substations not pose a hazard to the Stafford Regional Airport.

1. RC23154931; Zoning Reclassification – Stafford Technology Campus - A proposed zoning reclassification, with proffers, from the A-1, Agricultural Zoning District to the M-2, Heavy Industrial Zoning District on Tax Map Parcel Nos. 38-124 and 38-29A, together consisting of approximately 503.84 acres (collectively, "the Property"). The proposed proffers would: require the Property to be developed in general conformance with the generalized development plan; prohibit specified uses otherwise permitted in the M-2 Zoning District; establish how floor area and open space requirements shall be calculated; permit height for data center buildings of one hundred and five (105) feet; permit a maximum of six (6) substations on the Property and establish requirements applicable to the electric substations; regulate vehicle and equipment storage; establish building setback and architectural design standards for data center buildings; establish tree preservation areas; establish fire and rescue standards; establish noise limitation standards; require specified improvements to utilities and transportation; and provide a public liaison and require plans related to construction management, emergency management, and a general development schedule. The Property is located on the east side of Richmond Highway, across from Sage Lane, south of State Shop Road, and east and west of Eskimo Hill Road, within the Falmouth Election District. **(Time Limit: September 20, 2024) (History: Public Hearing deferred at the June 12, 2024 meeting to the July 24, 2024 meeting)**

2. COM24155687; Comprehensive Plan Compliance Review – Stafford Technology Campus - A request to review compliance with the Comprehensive Plan, in accordance with Virginia Code Sec. 15.2-2232, for the placement of up to six (6) electric substations on Tax Map Parcel No. 38-124 (Property). The Property consists of approximately 476.61 acres, and is located on the east side of Richmond Highway, south of State Shop Road, and east and west of Eskimo Hill Road, within the Falmouth Election District. **(Time Limit: August 11, 2024) (History: Public Hearing deferred at the June 12, 2024 meeting to the July 24, 2024 meeting)**

Mr. Zuraf: Yes, Mr. Chairman, if I could, I would like to present items 1 and 2 together.

Mr. Apicella: Sounds good.

Mr. Zuraf: If I could have a computer, please. Okay, so this these items are for a project known as Stafford Technology Campus. This is a zoning reclassification and a Comprehensive Plan Compliance Review. So there are two requests; for the rezoning first, it's to rezone properties from the A-1, Agricultural zoning district to M-2, Heavy Industrial, and include proffers for the Comprehensive Plan Compliance Review. It's review and compliance with the Comprehensive Plan for placement of up to six electric substations. This would all be to permit a data center, public facility utility, and related accessory uses. On June 12th, the Planning Commission took the following actions related to this project. There was a separate Comprehensive Plan amendment before the Commission; that was recommended for approval. The remaining two items, the rezoning and Comp Plan, were both recommended to be deferred to this meeting. So this is, these are two properties that cover over 500 acres in the Falmouth District. Stafford Technology, LC is the applicant. Jonelle Cameron and Jessica Pfeiffer are here representing the applicant. So here's the location of the project. It's located on the east side of Richmond Highway, across from Sage Lane and on the south side of State Shop Road and both sides of Eskimo Hill Road. This is the zoning, current zoning map of the site and surrounding property. You can see the light green shading is A-1 zoned property which covers a lot of the surrounding properties. There also is some other M-2 in the darker blue and light blue is M-1, Light Industrial, in the adjacent properties. This is the aerial view of the site. The site is entirely wooded, other than a cleared area that bisects the site from north to south. That's the location of existing, of an existing power line corridor. The green shading represents Resource Protection Area that covers portions of the site. This is the proposed Comp Plan amendment that the Planning Commission

recommended approval for which proposed expanding the Central Stafford Targeted Development Area to cover the entire property under consideration. And then this is the proposed Central Stafford Targeted Development Area Land Use concept map, which also the Planning Commission recommended approval, which would expand business and industry recommendation across the entire site. So for the zoning reclassification, here is the development plan that was submitted by the applicant. This shows up to 23 buildings. Those are the yellow squares, rectangles on this site. And as a data center campus, it anticipates up to 5.8 million square feet of total floor area. The buildings are clustered into specific segments of the, of the site and also avoiding the Critical Resource Protection Area stream corridors. The plans show potential building locations and layouts. With the project of this size, it's going to be developed over, over many years. And so the applicant can't be too specific as to the location and number of buildings so, but this generally shows you where the buildings will be located. There might be fewer or potentially more, but you do have a cap of 5.8 million square feet. The buildings would be two or three level; the two level buildings would be up to 65 feet tall, three level buildings up to 105 feet tall. The applicant is proposing to construct a new road extension from Eskimo Hill Road to connect over to Richmond Highway. And then also in the center of the, of the site, the gray area represents where up to six electric substations are proposed. And then those substations would draw power off of that main power line corridor that runs through the middle of the site. The development plan also includes this exhibit that shows areas where tree preservation would be provided. That's the green shading across the site, which covers the Resource Protection Areas and then some additional area on the northern side of the property. That northern preservation area reflects an expanded buffer of 400 to 1,000 feet in width. And there are transitional buffers along the perimeter of 20 feet on the east side, adjacent to the regional landfill, and 50 feet on the south side, where some planned residential development is located. There are also street buffers of 50 feet in width proposed along Eskimo Hill Road and the new road connection. So they… you had received proffers at the last meeting on June 12th, and since then, the applicant has made several modifications to the proffer. So I'll focus on kind of going through those changes. On Proffer 5, that was amended to specify that the building height is measured based on the definition in the Zoning Ordinance. There was a bunch of different criteria listed in the proffer, and the applicant is just basically stating that it would just follow along with the, how it is defined in the Zoning Ordinance. Proffer 6 adds that if more than six substations are needed in the future, those additional substations would be required to obtain a separate conditional use permit at a later date. Proffer 8a, that adds a series of more specific building façade standards to ensure there's variety in materials and façade treatments on these buildings. Proffer 8b, that clarifies that fencing shall be around the perimeter of the property data center building or multiple data center buildings – basically requiring that fencing be provided in some way around any data center building that's on this project. Proffer 8d did add that generators that face A-1 properties to the south, and if they are happened to not be screened by other buildings, they shall be screened by a solid wall that will provide for visual and sound attenuation. Proffer 12 is a new proffer that would contribute $1.5 million for fire and rescue purposes to the County, and that would be paid at issuance, prior to issuance of the first occupancy permit for the first data center building. Proffer 14 would require building sprinklers meet NFPA 13 standards. Some additional adjustments: Proffer 18 clarifies that sound measurements must be taken six months after final occupancy of each data center building, and then annually for five years after the occupancy permit of the final building. Proffer 20 adds that the sewer, water sewer agreement restrict the amount of development that might use potable water, and the water sewer agreement shall be approved prior to the first occupancy permit. Proffer 28 is a new proffer that adds a series of standards to address construction mitigation, because construction will be happening over, over a period of time here, given the size of the site. So those proffers address any issues that might occur and tries to mitigate those. Proffer 29 is a new proffer; it requires a community point of contact be established moving forward to address any community concerns with the operations. Proffer 32 would require reimbursement to the County if any third-party contractors are needed for assistance with permitting enforcement of this, of this type of use. And then Proffer 33 is a new proffer that would limit generator testing to daytime hours, essentially between 7 AM and 6 PM. In the previous meeting, we did identify

several concerns from staff. There are still a few remaining issues. The first point, VDOT did request, comments requested modifications to several of the mitigation measures and requested other additional information. In discussions with transportation staff, they did view those as really more minor issues that could probably be, some of those could be addressed at other later date, but there was less of a concern with this issue. There still was a concern with proffers that leave open the possibility that the connector road to Richmond Highway may potentially not be constructed, and the way that is mentioned in the proffers there that the applicant would do a future traffic study and make any improvements that are recommended at that time. And staff does have a concern that that kind of leaves kind of some improved future improvements open-ended and kind of unknown. On the third point, the proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers due to topography and crossing of Resource Protection Areas. And on the fourth point, the electric substations with components up to 90 feet in height may be in conflict with the airport compatibility guidelines in the Comp Plan. A few additional concerns regarding utilities. Staff does recommend the proffers identify the maximum amount of development that could use potable water prior to connecting to a water reuse system. Also, moving the Water Service Agreement approval up earlier in the development approval process. And then, as a third point, the projects needed for bridging and the long term improvements need to be included with the proffers. And in addition to being in the Water Service Agreement, this includes the capacity improvements at the Aquia Wastewater Treatment Facility needed to accommodate the additional flow from areas outside of the existing Urban Services Area. And last point, recommended, staff recommended including additional sound measurements criteria, specifically conducting measurements at specific months and at varied locations around the site. That was mentioned in the initial staff report. It did not, was not placed in the in the latest report by error. So, I'm just bringing that up. Overall, staff does recommend approval of the application pending satisfactory resolution of the unresolved issues. With the Comp Plan Compliance Review, again, this would be consideration of the six electric substations that are proposed, and whether they are in compliance with the Comprehensive Plan. Those six substations are in the center part of the site in the area highlighted in red. The application included this, this image of what a typical substation may look like. So just as an update for this application, the June 12th staff report noted that the substations complied with the relevant Comprehensive Plan policies in Chapter 2. However, the staff report did cite the use as being incompatible in two of the Airport Land Use Compatibility Zones that bisects the site. That's another aspect of our Future Land Use Plan. The application was deferred to this meeting. The application was forwarded on to the Stafford Regional Airport to seek comment. Staff would note the substation height is less than the proposed surrounding buildings that are proposed, which… and the applicant has previously already sought input from the from the FAA and received comments from FAA determining that there would be no hazard to air navigation. Staff does recommend the Planning Commission find the request substantially in accord with the Comp Plan pursuant to Resolution 24-13 should the substations not pose a hazard to the airport. And that concludes my remarks.

Mr. Apicella: Thank you, Mr. Zuraf. Questions for staff? Ms. Barnes?

Ms. Barnes: Okay, I'll go first. Just to clarify, you said that staff recommends approval. You're talking about the Comprehensive Compliance Review, correct?

Mr. Zuraf: Yes.

Ms. Barnes: Because with the reclassifications there, I think this is although there are several positive aspects, staff recommends the Commission consider the following remaining issues, which you listed, but that's different than the approval for the Comprehensive Plan.

Mr. Zuraf: Yeah, they're two separate…

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Mr. Apicella: Compliance.

Ms. Barnes: Comprehensive compliance, yes, yes.

Mr. Zuraf: Yeah, yes.

Ms. Barnes: Okay, so just a couple of questions, and some of these may be for our Utilities experts, but these are also questions that I've gotten from constituents, so just bear with me as well. I noticed at some point in the package there was a vehicle trips per day to be not more than 4,376. We didn't cover that, but it is in the application. That's a lot of trips for a data center. It's my understanding that a data center is not really going to have 4,376 necessarily trips back and forth, unless, of course, you're talking about when it's under construction. What, why this number? And if there is this number, what are the consequences, penalties, or remedies if they go over that number?

Mr. Zuraf: So that, that number of vehicle trips, we went through before the application was submitted, we do a scoping meeting, a traffic impact assessment scoping meeting with VDOT and evaluate the total amount of development and corresponding vehicle trips. And that is the amount of vehicle trips that would potentially be generated by this use, just because the project is so large that that's why that, that is the case. And there's a proffer that limits the over, total number of vehicle trips to that cap. And so what will happen is as there will be separate site plans being submitted through the, likely, unless you know likely, I don't think, I don't think the application is going to completely come in as one entire site plan; it'll probably be in phases. And as each site plan is submitted, the applicant will have to provide a tally of corresponding vehicle trips, and we will as part of a normal site plan review, we do proffer evaluation of each site plan to make sure that they're following along with each proffer. That's one of the proffers and that gets tracked that way.

Ms. Barnes: So, and the follow-up for that is, what are the consequences, penalties, remedies, if we discover that, and this is just in general, because I noticed that we have these vehicle trips per day, but we never say, well, what happens if they go over that? If it's in a CUP, obviously, the CUP can be pulled. If it's in a proffer, what are the remedies and penalties for that, if something, if, for some reason, it goes way over that? How do you monitor that?

Mr. Zuraf: Really all we can do is base it on the estimated vehicle trips. If the actual trips that happen end up more, that's something that cannot be, that there's no, there's no penalty there. It's all based on what our, what, you know, the estimations, that's how that's tracked.

Ms. Barnes: So basically it's in the proffer but it's not really just, it's nothing really we can do about it if, for some reason, we all of a sudden have 10,000 cars or something different happens to go in on that, on that parcel.

Mr. Zuraf: Well, the… if there's a different use that is submitted, there's, there's a series of other uses that can be, can be provided. But again, we're, you know, no matter what uses go on the property, you cannot exceed that, that estimated vehicle trip. And it's all based on what is estimated. So if there's some higher intensity commercial use that likely would, would go, push the trips beyond that, that 4,300 cap, and we wouldn't be, we wouldn't, likely, we wouldn't approve a plan that has any use that exceeds that.

Ms. Barnes: Okay. As far as the fence that you mentioned, that will go on… a fence or a wall, actually, I should say a wall… on the south side, because it's, I don't think there's very much, a 50-foot buffer on a data center. And if there is going to be residential down there, what kind of fence, how tall is it going to

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be, or what kind of wall, and how tall is that going to be, so that we can make sure that it mitigates the problems, or the possible problems with the sound?

Mr. Zuraf: It's going, well, it'll be a solid wall. I probably would have to defer to the applicant to what type of material that might be and then the height is going to be dependent on the size of the generators and probably the corresponding topography and everything as well.

Ms. Barnes: Okay.

Mr. Zuraf: It's going to really be evaluated at building permit stage.

Ms. Barnes: I'll ask Mr. Payne when he comes up, we can take the notes on that. Okay, so I noticed that there were some proffers for sound studies, but there was no time of the year when those sound studies would take place. Is, can we add that? That's a clarification I think is really important, because there's times of the years where, obviously, where it's very cool, and we're not going to, we're not going to have nearly as much sound as opposed to the summer, when things are very hot and everything is running 24/7, hot and heavy. Why, why is there not, or could there be a, included in that, a specific time of year? I liken it to, hey, let's do a transportation study, a vehicle study, you know, in front of, in front of a school and we'll set our little strips out there at one o'clock in the morning. Well, there's not going to be a whole lot of trips. It seems to me that it would, it would be best to do a sound study at the time of the year that has the most intense use. I'm not sure if that's a question for you, a question for the applicant again. That seems like, and not only that, are we going to do sound study on the north side, where there's going to be a really nice buffer, but are we going to do a sound study on the south side, which it looks like there's a pretty skeletal buffer down there? It seems like those two points would probably want to make, you know, clear up, because we're looking at, you know, what we want to see is what's worst case scenario, and is the worst case scenario up to our levels and up to our standards that we're expecting in the data centers?

Mr. Zuraf: That's definitely a question that would be forwarded to the applicant…

Ms. Barnes: Okay.

Mr. Zuraf: … for their consideration.

Ms. Barnes: So, I also noticed that there's no limit or cap on water use, specifically the potable water use. I know that, you know, connecting all the dots here, we've got the Potomac Church, and they're going to build that infrastructure for that recycled water was, what we call the purple pipe. And then that is going to be built, hopefully, between the Potomac Church to Stafford Technology Campus. By the way, who's building that? Do we know? Between Potomac Church and Stafford Technology Centers? Is the County building that, that line, that infrastructure? Who's, who's doing that?

Mr. Zuraf: My understanding is Amazon.

Ms. Barnes: Oh, okay, good to know. But it seems to me that it's going to take a while, and there's going to be a lot of use for potable water before we get that purple pipe. There could be delays to get that. Is there, you know, in my opinion, I think there should be a cap. There should be some safeguards. There should be, if it's a cap on an amount on the usage, or is there a cap on the square feet? I know, with the last data center we, you know, they had to, they had to have that purple pipe built before the second building goes in. I'm not seeing anything on here, and that really gives me pause. I think we need some safeguards for the community, because that's the biggest concern that the community has at this point in time, is, you

know, we're going to build, you know, this huge complex which is going to take time, and people need to know that it's not, it's not like, you know, tomorrow they're going to come out of the out of the ground like mushrooms, but it is going to take time, and they are going to be using potable water. And I think that it would be very valuable for the community to know that there's, that there's some, some safeguards for them. We have, you know, none of us up here have any idea what's going on with that Water Services Agreement. I know we can't do it now, but boy, that would be a good thing to have for us, to be able to look at that and see what safeguards and see what checks and balances there are for these utilities that could, that could, under certain circumstances, be scarce and really impact the community. So that's something that I'd also really like to see. As far as the Water Service Agreement goes, is that an agreement that is set up with the County and it goes in perpetuity? Is that an agreement that's set up on a yearly basis? Do we get to, you know, revisit that if something is not working? Once again, I'm not sure if that's a question for you or for Utilities.

Mr. Zuraf: Yeah, I might ask Bryon Counsell to kind of help out with the details there.

Ms. Barnes: Okay.

Mr. Counsell: Thank you, Mike. My name is Bryon Counsell, Chief Director for Infrastructure. My purview includes Transportation and Utilities. Commissioner Barnes, if you would repeat your question, I'd like to make sure I understand it completely.

Ms. Barnes: I'm not sure that I can.

Mr. Counsell: I can repeat what I think I heard.

Mr. Apicella: I think there are a couple of them.

Ms. Barnes: So as far as the Water Services Agreement, I mean we're… in my mind, I'd really like to… I know this time it's not going to happen, because I don't think it's even complete yet, but it certainly would be nice if we're going to be recommending and voting on something in the future, for us to see what that Water Service Agreement is, and to see if there's checks and balances and safeguards for the community and for citizens who think, you know, are we going to run out of water and power because we've got 5.8 million square feet of data center running in 110 degree heat. That is something that I, that really gives me pause, it gives a lot of people pause. It's something that we'd, I think, like to see. And as far as the Water Services Agreement goes, is there one Water Service Agreement that is in effect in perpetuity? Is it updated on a yearly basis? If something is not working, if they're using too much water, and we're having a problem or too much electricity, is that something that is revisited, the Water Services Agreement?

Mr. Counsell: Typically, the Water Services Agreement will have a term, a finite term. However, there are provisions that will be worked in there that upon any necessary changes there are provisions in there to do that. There will be an assignment clause that will allow the Water Services Agreement to be assigned to a successor and owner of the property or to the operation of the, of the facility. Also, there will be provisions in there to allow a change, if it's an unnecessary burden or impact on the County or the, or the developer, or the property owner.

Ms. Barnes: Is there a timeframe for that? Is it yearly? Is it every five years?

Mr. Counsell: Unless I'm mistaken, it would be consistent with the term when it, when it's necessary. It's not going to, I don't think it's an easy thing to do. There's no triggers in there that says the agreement will

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be changed if this condition occurs. But for most part, there's no anticipated need at the, at the moment to have changes in the Water Service Agreement once it's finalized and agreed.

Ms. Barnes: Okay. In that Water Service Agreement, is there any, because it's not in the proffers that I can see here, is there anything that's going to have a cap on the amount of water, potable water, until that purple pipe reaches it? Is there any kind of limit on square-footage before, you know, that purple pipe comes? I mean, if we, if we get built out and, you know, things happen and that purple pipe isn't there, there's going to be, you know, there's, they're going to be using a lot of potable water. Is there any, any cross-check, any kind of checks and balances that will protect the County and the citizens of the County if we begin to have a problem, especially with the purple pipe?

Mr. Apicella: Can I jump in? So I'm, again, I'm looking at the staff report, and there are three things that the Utilities Department, I assume they work with you to identify these issues. And one of those is, staff still recommends the proffers identify the maximum amount of development that could use potable water. Do you have a sense of what that is? What are we looking at? What are we suggesting that cap be? Is it a square-footage? Is it total number of buildings? What is the recommendation, specific recommendation from the Utilities Department?

Mr. Counsell: The answer in short, is absolutely. There will be caps on the potable water, and it will be under a threshold that the County and utility staff feel safe within their operation, operational responsibilities. The more complicated answer is, the proffers will ultimately, if it's going to get some utility support, will have a finite cap of some method, either number of buildings, number of pods, gallons, or flow before those, a certain number of buildings can go online. There is and absolutely will be a limit to the amount of potable water they'll be using. And just for clarification, in the proffers, also, the developer is currently proffering to build additional capital infrastructure that we have in years into our future that we need. They are going to accelerate that through proffer to give additional capacity today or tomorrow into the near future to allow that potable water use. We have an inherent capacity after those projects are built of a certain amount, and we're discussing those values as we speak, and as this process continues. We believe there's a limit somewhere between 800 and 1.3 million gallons of capacity. And depending on how the buildings are built, how they're staged, how the pods and the buildings are built out in various buildings, there is a limit to the number of pods, or number or the flow that will, that will be, that will be within our capacity. And before Utilities will support that, the proposed buildings or pods that are going to go in will have to be within that capacity after what we refer to as the bridging water projects are constructed.
Mr. Apicella: So again, I apologize…

Ms. Barnes: Go ahead, we're probably going to ask the same question.

Mr. Apicella: … because I'm going back to the specific language in the staff report, unless you disagree with it. It says, it intimates that the Water Service Agreement by itself is not sufficient. It recommends specific changes in the proffers. So, those specific changes have not been incorporated into the proffers. So we're still, there's still this kind of vagueness about what the applicant is agreeing to in terms of square-footage and the associated water that the County can provide. You mentioned a specific number. So we're still, we're still not there. It seems like there's some misalignment between what you're saying… and I don't disagree with it, obviously you guys are the experts… and what's actually in the proffers today. That's number one. And number two is, you've talked about some other projects you've, you generally, I'll say the Utilities Department and the people who work for you, have indicated that, secondly, you want the Water Service Agreement approval to move earlier in the development process, but more related to the conversation we're having now, the projects needed for bridging and long term improvements need to be included with the proffers, not only in the WSA, Water Service Agreement, this includes capacity

improvements at the I think it's Aquia Wastewater Treatment Facility to accommodate the additional flow. So those things at this point have not been identified in the proffers. So again, we still have this gap between what you all are saying needs to be there and what's actually identified in the proffers, irrespective of what's in the WSA. I'm not an attorney, and I know our attorney probably can answer this question, but it seems to me, the proffers have more substance, especially because they're permanent as compared to the Water Service Agreement. And these things are important to put in the proffers for that very reason. They're binding, but what I heard earlier was that the agreement has a term; 15 years, 20 years, 25 years. Proffers last forever, unless and until they're changed. So that's the delta, in my opinion. So how do we, how do we, I'm not going to use the term bridging… how do we bridge the gap here? Because we need to kind of do that to move this package forward and make sure the board has everything they need for them to deliberate on this project.

Mr. Counsell: You're absolutely correct. So the, as I understand it, Mike, and Mike can chime in and correct me if I'm wrong, there was a deadline to get the, all the package requirements for the evaluation for the Planning Commission tonight. After that deadline passed, so the Planning Department could get all their recommendations and their subsequent report ready, the negotiations of the proffers continued between the developer and, at least as far as utilities goes, between the utility staff. We have reviewed some proposed modifications to the proffers that, that hone in a lot closer and will likely be acceptable to utility staff, as far as the how much, to what amount of buildings can go in based on flow. They've been reviewed, where they've been submitted. We're reviewing those now. There has been constant communication and talks about a variety of ideas on how best to manage and how to measure the amount of water that's left, or the amount of water capacity that's available for the temporary, for the temporary potable use. So those continue today, and we're, we're, we're confident that, I won't say we're, well we are confident, but there has been an extraordinary amount of effort on the developer's part to meet these. They've not been quiet. They've been very engaged, and we have been working towards what will hopefully be a solution in the very near future.

Ms. Sellers: Mr. Chairman, I have a question.

Mr. Apicella: Please go ahead.

Ms. Sellers: What is the surge rate for water usage? Because residents, we pay one rate, but then if you go over a certain amount of gallons that you use per month, there's a rate, it's a different rate.

Mr. Counsell: I don't know the specific rates, but there's a tiered rate, correct.

Ms. Sellers: Yeah, there's a tiered rate. So there's a financial, there's a financial aspect to this, too, that's in their best interest to not continue to be on the, on the potable water, because it, from what I remember, it's, it's, it's pretty large. Once you get into, and if we're talking about 1.3 million gallons of water, I can only imagine how much that's going to cost. Yeah, what their water bill is going to be, you know. So, that's just something to consider, too, is they have a financial incentive to get off that potable water because of that surge rate.

Mr. Apicella: I hear you and I don't disagree, but there's only so much capacity that the utilities folks can provide. Also, we may have other projects in the queue, data center projects who are going to be big demanders of water, too, from probably the same area. So I don't know to what extent that's been calculated or even thought about up to this point. So I think what I've heard you say is there's been some back and forth. It's kind of left with you all to review the latest version of what's been proposed, but we, we haven't seen it yet. So that's, again, my concern is, it's not there yet. It's not in the documentation, and we're being

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asked to make a decision tonight on a recommendation to the board. So, I mean is that something you all are willing to share with us at this point, or we just have to go on faith that at some point, if we were to move this package forward, the board would get what they need when it comes to them. You're going to reach that finite point where, yes, we all are in agreement about, here's how much water we can provide, and that's the associated amount of square-footage or buildings that could occur on the, on the parcel. Do you understand what I'm, what I'm asking?

Mr. Counsell: Yes, sir. I'll defer to Mike on the process and how the process is designed. But what I can tell you is the utility staff and the developer or the applicant have been engaged. We remain engaged on a daily basis on proposed language, different types of words, what they mean, how they describe things, and if they're not in the proffers now, I can only expect that if the developer decides to proffer that, they'll include them at some point in the future.

Ms. Barnes: So that's my question. Is usually when we have proffers, we see them here at Planning Commission, we recommend or deny or whatever, and then it goes on to the Board of Supervisors who make the final decision. So you're saying that outside of those two specific the public hearings for that, they can add proffers into the agreement outside of us or the Board of Supervisors…

Mr. Apicella: The proffers, the proffers can always change between the time that the Planning Commission has made its recommendation and the board receives it. So yeah, those proffers can either be more, I'll say, strident or less strident based on what the applicant chooses to present to the board. The board has the ultimate authority as to whether or not they accept those. But my concern is some of the words you said that is the if, because that would be very important for the staff when it gets to the board to say, hey, we think this is what we need, and the applicant has not agreed to it. We can't support it because we can't provide it. We can't provide that amount of water, or we can't, we can't allow them to build X number of square-footage because we can't support anything beyond this threshold requirement or need.

Mr. Counsell: Well, my only response is this, we can't review what we don't have, and you've just outlined that you can't review what you don't have if that's, if that's the Commission's desire to review that. What I can speak to is the continued discussions between the applicant and utilities in an effort to, for them to understand the impacts and to offer whatever mitigation they choose to offer. I can tell you that is ongoing and is strong.

Ms. Barnes: Will the Board of Supervisors be able to see that before they make a vote?

Mr. Counsell: Oh, that's up to the board. But the intent of always is to make sure the board…

Ms. Barnes: Because that would, that would make me I think it'll be a little bit more comfortable that, you know, at least somebody has a look at that before we all vote. And, you know, and what is it Meg calls in, I believe, we need to see that, or at least, ultimately, the Board of Supervisors needs to see that. And that can be complete so that they can look at that and make sure that Stafford is protected in extreme cases of power outages or droughts or things like that.

Mr. Counsell: Like I said, it's up to, it's up to the applicant to submit those proffers at some point in time for what they want to use as mitigation...

Ms. Barnes: But I'm talking about the Water Services Agreement.

Mr. Counsell: The Water Services Agreement, at least right now, is proffered to be complete and agreed to before they get their first occupancy permit.

Ms. Barnes: But not before the Board of Supervisors votes on it.

Mr. Counsell: The current proffer says they, they will proffer to have that agreed before the first occupancy permit.

Ms. Barnes: Okay, that's a good thing. Okay. I do have a couple more questions. So, real quick, some constituents have asked me some questions. They're, they're a little simple, and they may be, maybe to an engineer or to a utilities person seem kind of silly, because you all know all about this.

Mr. Counsell: No silly questions.

Ms. Barnes: Yeah. Well, so the water that this Stafford Technology Campus is going to be drawing from is not being drawn from the Rappahannock River.

Mr. Counsell: The, we have two reservoirs. It's not just a simple yes or no. We have two reservoirs, one in the north, one in the south…

Ms. Barnes: Right, Lake Mooney and Smith Lake.

Mr. Counsell: … Lake Mooney and… Lake Mooney is pumped off of the Rappahannock River. Some of the water that the data centers will be using, potable water, temporary potable water, will come from the Rappahannock via Lake Mooney.

Ms. Barnes: Okay. So, when that purple pipe is finally completed and we have it come into the Potomac Church site, and we have it coming down to here, that water is coming from water treatment plants that originally, that water came out of Smith Lake?

Mr. Counsell: Are you talk about the potable water?

Ms. Barnes: No.

Mr. Counsell: The reuse water.

Ms. Barnes: The reuse water.

Mr. Counsell: Reuse water will be, will be treated at the Aquia Wastewater Facility and pumped to the site, and then recaptured again and sent back to Aquia Wastewater again.

Ms. Barnes: And it'll cycle back and forth.

Mr. Counsell: Keep cycling back and forth, yes.

Ms. Barnes: Okay. So, and this is an interesting question that somebody gave me. As it is right now, when the water treatment plants receive the water that they need to treat, you know, from all of our sewers and, you know, our washing machines and everything, that's treated; right now, where does that go after it's treated? Is it released back into the watershed?

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Mr. Counsell: It's released back into the environment, correct.

Ms. Barnes: So, when we actually have this purple pipe and we have the recyclable water, is that going to impact the watershed because we're not releasing that recycled water back into the watershed, instead, it's going to data centers. Is that going to impact the watershed up there? Because it all of a sudden, we're not, we're not putting that back into it. We're sending it down to a data center. Does that make sense?

Mr. Counsell: Yes. There will always be flow coming out of the wastewater treatment plant to keep the streams alive and to keep the, at least a certain level of minimum amount of water per the Department of Environmental Quality.

Ms. Barnes: So we're not going to, we're not going to pump all the reuse water out and dry up the entire watershed.

Mr. Counsell: No, we're not allowed to do that.

Ms. Barnes: These are questions that I do get, so. Last question I believe I have for you. Have we had any experts, environmental consultants, utility experts, water, electric, that have expressed concerns about adequate water and power that we will need when these things are at build out? We hear a lot of people having concerns that, you know, this is going to take a lot of water, and we do have, there's a reason why a lot of places are competing for these, because obviously this is going to be a great revenue source. But people are very concerned about the water and the power usage. Just regular folks. Me. I'm not an expert. Have we had anything from experts that have said we have plenty of water and we have plenty of electricity?

Mr. Counsell: I can't speak to electricity because that's Dominion Power. But as I understand it, there are no current concerns. We have spoken in various meetings with Dominion Power. I'm aware of no challenges to, to Dominion Power providing power. But speaking from utilities, we have had, we've engaged two consulting firms along, as as well as our utility staff. We've gone over this. We continue to go over it. We learn new things. Every once in a while, a little, a little usage here, a little usage there we didn't anticipate. We think we've covered all of that now. Both of our consultants, as well, of all, as all of our staff, we've evaluated the water models, we've evaluated the demand models from the developer, and we've arrived at that number for temporary potable water. And we feel very comfortable with that number.

Ms. Barnes: Okay. And, to loop it back then, and if, for some reason, things aren't exactly as we planned, there is the ability for that Water Services Agreement to be updated and changed.

Mr. Counsell: That is correct.

Ms. Barnes: Okay, thank you.

Mr. Apicella: I'm just going to go ahead and springboard off the, one of the questions that Ms. Barnes asked. So, who is paying to connect the line from Old Potomac Church to the Stafford Technology site?

Mr. Counsell: One meeting ago, or maybe two meetings ago, I think it was… I can't, I can't, I think it was the July, the first July meeting, the Board of Supervisors approved the Potomac Church tech site Water Services Agreement. And in that agreement, Amazon agreed to build the reuse water line, the facility at the Aquia Wastewater Treatment Plant, the level one treatment portion of it, as well as all the pumping facilities and the main lines all the way to the Stafford Technology Campus site.

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Mr. Apicella: And in that agreement that it was approved, what's the timeline for that to happen?

Mr. Counsell: Right now the line to, at least to the Potomac Church site, is set as, at Quarter 2, ’27, the end of the second quarter of ’27. And coincidentally, all of the pipe is scheduled by the, by the applicant or property owner of the Old Potomac Church site to be finished by Q2 ’27, end of the second quarter 2027.

Mr. Apicella: So the earliest that reuse water could be available would be 2027.

Mr. Counsell: That's correct.

Mr. Apicella: Okay, in the AWS proffers for that project, one of the items that they offered the County was to financially support a utility study. That project is 10 times, 10 times smaller than this project. Is there a reason, or reasons why we didn't think that was necessary in this case?

Mr. Counsell: During the study we had, even the studies today that we're looking at and engaging the consultants, we've had the ability to really study the system through the studies we used for the Old Potomac Church site, as well as the proposed site that we're speaking about here tonight. With the engagement of two consultants, we have thoroughly gone over this. We've thoroughly looked at all the modeling and all the demands, and the utility staff right now is comfortable with all the studies that have been done, and they're adequate to make decisions on.

Mr. Apicella: Okay, so again, the bottom line is, from your vantage point as the person who's leading the Utilities Department, that once there's an agreement on the amount of potable water that the county can provide, that we will not be putting ourselves in jeopardy by allowing the applicant to build more than the system can offer to them.

Mr. Counsell: That is correct, and I'll even go further than that. The amount of water I was speaking about earlier, the 800 to 1.2 million, 1.3 million gallons, is in additional capacity to what the anticipated undeveloped areas could demand in the area, as well as a safety factor. So all of the all of development in that watershed is anticipated in our model and the up to 1.3 million gallons is additional capacity that we could use, temporary basis, for some short period of time, two to five years, to allow this project to go on potable water temporarily.

Mr. Apicella: Okay, thank you. Any other questions to the utilities folks? Thank you, sir. I have some questions for staff but I'll give other folks a chance to ask. Okay, Mr. Zuraf, I apologize that I wasn't here at the last meeting, so I may be cover covering some ground that was already covered. Just kind of a generic question for the residential parcels that are close to the project, what is the applicant doing to mitigate both visual and noise impacts?

Mr. Zuraf: For the residential projects adjacent on the north side of the site, the applicant has proffered to retain existing trees in a buffer area that's included. That was on one of the images that I presented tonigh. That buffer ranges from 400 to 1000 feet from the areas that would be cleared for development. On the south side there's a larger property that has an approved A1 subdivision has not been developed. The property owner actually submitted a comp plan amendment on that property to basically expand the area of business and industry around that site. They've not submitted any rezoning yet, but just that they're considering expansion of the growth area in there. In adjacent to that, there's a larger property with one or two homes on it, and that's where you have the smaller, 50-foot buffer. And then the additional proffer that was mentioned about screening any generator equipment with solid walls, if for some reason they do not screen those with buildings.

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Mr. Apicella: And how about in terms of noise?

Mr. Zuraf: With noise there's a proffer to screen all the external mechanical equipment, which will have some sound qualities and then also, they are reducing the maximum decibels in the evening by five decibels, down from 55 to 50. I believe it is, let me check that.

Mr. Apicella: I think in the evening, it's still proposed to be 55 so I think they just had a universal 55.

Mr. Zuraf: Yeah, 55.

Mr. Apicella: Okay. Are we aware of any other potential residential building that might occur in the southern part of the area?

Mr. Zuraf: No, nothing else is planned.

Mr. Apicella: Okay, can you pull up slide 16? Alright, actually, that slide's fine. So, at the bottom of the slide, it says, there's some words there that say illustrative. So what portions of the GDP are illustrative, meaning it could change versus other parts of the GDP that I'll use this term "cast in stone"?

Mr. Zuraf: So, the illustrative features are the building, I guess, locations and number of buildings, and I guess specific building locations shown. That's really kind of what is illustrative on this and then also where you kind of have the darker shaded generator areas adjacent to those buildings. That's all illustrative, because the applicant doesn't have necessarily "set in stone" plans, as far as we're aware, to be too specific. The items that are set in stone was the other image, which, let me go to that. These are the features, really, that you kind of have where it's set in stone is the road network, that connector road, alignment, the land and the stream preservation areas and buffers. Those are features that are set in stone.

Mr. Apicella: How about setbacks?

Mr. Zuraf: And setbacks as well. Let me see if that is specified. I have to check through the details of these proffers as we're going forward to just check on that.

Mr. Apicella: Okay, just kind of move on. So, one of the questions Ms. Barnes asked was about electricity impacts. As far as you know, although we haven't seen it, you might have, has the applicant received a load letter from Dominion indicating that that utility provider will be able to meet their demand?

Mr. Zuraf: I don't recall if they have or not.

Mr. Apicella: Okay. I think you covered this one, but just to be sure I do. There were some lingering VDOT comments the applicant believes are beyond their control or beyond their responsibility to address. Are there any other specific improvements that they have not yet addressed that staff thinks they still should?

Mr. Zuraf: Not the issues raised by VDOT but the other factors that we mentioned about the access road connecting to the property to the south, and then the issue with the connector road and kind of the uncertainty.

Mr. Apicella: So, on those two issues, do you have some specific recommend changes that you would ask the applicant to make, either language or at least in general terms?

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Mr. Zuraf: With the access road, really probably more direct road, and that's kind of been mentioned, but they do have concerns. The applicant has expressed some concerns about security with providing a more direct route, a road network, as opposed to kind of following along the perimeter.

Mr. Apicella: But they will provide an access road? It may not necessarily be what we see on the…

Mr. Zuraf: Well, right now the proffer is to provide what you kind of see on the plan, but you know that…

Mr. Apicella: And what's the issue that you all are seeing that you'd like to see changed?

Mr. Zuraf: A more direct route. The issue with it around the perimeter of the site is the unknown of how much additional areas needed for clearing because the unknown of slopes with grading and then if there's a need to deal with any off-site easements that they may or may not be able to get. To hug a property line, t can make it more challenging and also that could affect buffers that are required.

Mr. Apicella: So, what in a hypothetical world, what happens if those issues arise and they need to make changes? Will they be allowed at site plan to make changes but still have that connector road?

Mr. Zuraf: I have to look at the details of how that connector road is proffered, if there can be an alternate location. I can check on that.

Mr. Apicella: Again, I'm going back to the what if scenario, saying there might be steep slopes or there might be other issues that impact what they've put on their GDP is the specific location of the connector road, and if those issues arise again, that would be a concern of mine, that they still have to provide a connector road, irrespective of whether or not any issues come up.

Mr. Zuraf: They will and they'll have to either work to get off site easements and still provide the buffers that are required, so it could be done but we just don't know. It's kind of some gray area there.

Mr. Apicella: And how about the interpersonal connection? There were some concerns there. What change or changes would you like to see to ameliorate the issues that you've seen there?

Mr. Zuraf: With the connector road?

Mr. Apicella: No, with the interpartial connection.

Mr. Zuraf: Yeah, yeah, that's the issue of providing the more direct route.

Mr. Apicella: Okay, so again, there were two issues. There was connector road and there was the interpartial connection. I'm sorry, if I'm confusing the two. I thought, in one case, the language was, you thought was vague, and they could somehow wind up not doing whichever one it was?

Mr. Zuraf: That's the connector road, yes.

Mr. Apicella: So what language would you like to see to clarify that that's going to be set in stone?

Ms. Barnes: Mike, can you pull that up on the screen that we can look at it? Because I'm getting the connector and the inter parcel. Thank you.

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Mr. Zuraf: I don't have a pointer here, but the connector road is the orange line going east to west, you know, from Route 1, over towards the power line. That's the connector road that will connect from Eskimo hill over to Route 1.

Mr. Apicella: Yeah, so again, I'm reading the language that was in the staff report. It says proffers leave open the possibility that the connector road to Richmond Highway may not be constructed. Again, how do we assure ourselves that the proffers get modified to the point where that's not going to be a concern?

Mr. Zuraf: Well, I guess the options are either to, because they have a provision, it basically says if the county VDOT does not approve that road, then they will, you know, then they'll access via Eskimo Hill. So, I guess one option is to remove that language that provides that option to not…

Mr. Apicella: Get out of jail card?

Mr. Zuraf: Or the other option would be because their proffer says that they would have to submit a traffic study in the future and make any improvements, one option would be to do a traffic study now and I'd list out what those improvements would be, but that's going to cause delays, and you know that they may not want to go through at this point.

Mr. Apicella: Okay, just, just one more question. There have been a lot of positive changes. You've referenced a number of those that have occurred even since the last meeting. From staff's perspective, aside from the issues we just talked about, are there any showstoppers?

Mr. Zuraf: No, I don't think so. And I think the, well, the big issue which we've talked about is really the utility details, you know, so and how that, you know, Brian mentioned talking about the planning process moving forward with getting those details on the utility improvements, how that will happen. So, if, for example, if the Planning Commission chooses to recommend approval tonight, we will still move forward with those comments, moving forward to the Board with those concerns from utilities about wanting to see those details, those maximum potable water details, until such time as the applicant provide those modified proffers.

Mr. Apicella: So, if it doesn't get resolved when the Board sees this, which is, what about a month and a half from now, two months maybe, then will staff recommend the Board not move forward? Again, water usage is a pretty big deal. So, to me, that would, we're going a little bit on faith here, if we move this package forward.

Mr. Zuraf: I'm not going to say necessarily what our final recommendation will be, but those concerns will still be pushed forward, you know, in consultation with utilities department.

Mr. Apicella: Okay, that's it. Thank you. Any other questions for staff? Ms. Barnes.

Ms. Barnes: You may have covered this. I may have missed it. There's a lot of information going on here. The electric substation and the airport compatibility. We haven't heard back from them yet on that.

Mr. Zuraf: I've not.

Ms. Barnes: Okay, is that something that is, what is it Steven calls a show stopper?

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Mr. Zuraf: Well, I don't think it will, because it's meant as the applicant provided that information, the documentation that they provided to the FAA, estimated structures up to 170 some feet for (175), you know, and this is much less, it's, you know, almost half the half the height of that. So, I don't anticipate that, but we've not heard back.

Ms. Barnes: Hopefully we'll hear back by the time the Board of Supervisors gets that. Okay, thank you.

Mr. Apicella: Alright. Thank you everybody. Thank you Mr. Zuraf and Mr. Council. With no other questions, would the applicant like to come forward?

Ms. Cameron: Thank you. My name is Jonelle Cameron with Walsh, Colucci, Lubeley and Walsh. With me tonight is Taylor Chess and Kevin McHugh with Peterson, Michael O'Shaughnessy, the Civil Engineer with Bohler, Kevin Sitzman, the traffic consultant with Gorove Slade, Charlie Payne, the representative for the contract purchaser. And Mike went through the presentation in pretty great detail. I have a lot of slides for brevity since we've been an hour and 15 minutes, I will go ahead and maybe skip, if it's okay with you, Chair Apicella, the background information that Mike already covered, but I do want to focus on transportation improvements again, because Mike has did not go over those in great detail, and then I will walk through staff's recommendations and why we think that those have been addressed. Some of them specifically we talked about when we saw you all in June, which were the transportation improvements, what VDOT is asking for, specifically what we are doing and then finally, I will hit on the proffer revisions. I'll go through those pretty quickly as well, because Mike did address those, and I'll slow down and hit the water service agreement proffer to answer some of Commissioner Barnes and Commissioner Apicella questions. Sorry that clicker is not working today. User error. Thank you. So as part of this proposal, the applicant did proffer several transportation improvements. And I just want to walk through those transportation improvements with you all, and then we can slow down and talk about any of the VDOT comments after. These transportation improvements are all outlined in proffer 27 for you. At the intersection of Route 1 and Hospital Center Boulevard, which is more than 2.4 miles away from the site. In order to mitigate any impacts, the applicant has proffered to restripe the eastbound approach on Hospital Center Boulevard, to provide dual left turn lanes, one through lane and two right turn lanes. The applicant has also proffered to modify the traffic signal, if required. With these improvements, the overall level of service at this intersection changes from a level of service E, in the future, without this development, during the am peak hour to a level of service D and it changes in the pm peak hour in the future without this development from a level of service F to a level of service E. A lot of the improvements were focused on the site, including the connector road at the intersection of Route 1 in Sage Lane, the applicant proffered to provide dedicated left and right turn lanes into the site, restripe the Southbound right turn lane on Route 1 to provide a shared right through lane extending from Sage Lane to Blackjack Road and to install a traffic signal. On Sage Lane itself the applicant also proffered to provide curb and striping modifications to not allow for through movements onto the connector road. At Route 1 and I95 ramp the applicant proffered to provide striping to channelize the right turn lane and provide signal modification timing. And we talked a lot about the water service agreement and the proposed infrastructure. Bryon really hit on some of the CIP projects that the applicant is proffered and as Commissioner Barnes mentioned we have also received a lot of comments about the reuse water so I thought it would be helpful just to provide an exhibit. The applicant is creating a new potable water pump station on Centreport Parkway and a new waterline that crosses from Centreport Parkway connecting to the existing waterline. This is the blue line that you see as P3 on the screen. This project is tapping into water from Lake Mooney. The project was identified in the CIP as a critical project that wouldn’t be completed until after 2028. It was approximately $6.5 million in the CIP. The applicant is proffering to construct and fund that improvement. The applicant is also increasing the size of the sanitary force main from the Potomac Creek Pump Station and expanding the Potomac Creak Pump Station that was also a CIP project. That was about $3.5 million that was outlined in the CIP. These

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improvements will expand capacity and will be at the cost of the applicant which is estimated to be over $10 million in those improvements. The applicant will be tapping into a specific sewer line when the reuse water becomes available. With the new sewer pump station and the new sewer force main that infrastructure is what you see in the green line on the screen and the applicant has proffered that they will connect to a dedicated reuse supply line through a water service agreement in which all of the cooling systems will use reuse water once the line becomes available and these lines are the lines you see in purple. Until the reuse water supply becomes available there will be a limit to the number of buildings in potable water supply that can be used for cooling systems for data centers to ensure that there is not a negative impact to County residents. The water service agreement is an agreement that is ultimately approved by the Board and our proffer specifically state that that water service agreement will have a cap on the maximum number of potable water until that reuse system is available. A question came up as to whether or not we would be willing to add a proffer to provide additional information as to the scope and the actual amount of potable water and the applicant, as Bryon mentioned, has been working with the utilities department and is willing to provide a proffer once agreed upon between the Planning Commission and the Board so at the Board public hearing they have additional information.

Mr. Apicella: So, before you move on Janelle, you mentioned a couple of specific utility improvement proffers and I'm looking at the utilities section and I don't see those proffers here. I do see the proffer on the connection but I don't see, and I'm sorry the print is really small, so help me understand, which specific items here are actually in the proffers and where they are in the proffers.

Ms. Cameron: They are not outlined specifically in the proffer but they are outlined as infrastructure improvements which would be included in the water service agreement. So we are happy to between the Planning Commission and Board to add a proffer to specifically outline those but as the proffer is written it does say that there would be in the course of the applicable county requires the applicant will design, permit and construct all onsite and offsite potable water and sewer improvements required to provide such services for demand generated by the development on the property including to support the bridging water and bridging sewer for the project. And then it goes on to say the design of the utility infrastructure improvement shall be submitted by the applicant to the county following rezoning approval and is subject to approval by the county, and such approval will not be reasonably denied, withheld or delayed. The capacity design, permitting and construction specifications for these improvements, along with the details regarding funding, bonding and construction obligations, will be described and performed in accordance with the separate water service agreement between the applicant in the county.

Mr. Apicella: Okay, again, I hear you, I understand what you're saying, and I think what staff is saying what I think I heard you just agree to, between now and the time this gets to the Board is to identify what those specific projects are, because right now, there is no specificity. And in my opinion, a water service agreement doesn't have the same horsepower. Maybe that's not the right word, teeth, as a proffer. So, is that what you're saying to me, to us?

Ms. Cameron: I am saying that we would add that information between the Planning Commission and the Board. I do think the water service agreement is a binding document, and it is ultimately also approved by the Board, so the Board is able to look at that water service agreement, and it's at a public hearing, and walk through what that capacity is. It is also binding on the land. The applicant would, if the County preferred, record that water service agreement instead of it being in the proffers. The water service agreement is subject to change. As Bryon had mentioned, there could be something that happened. So, we just want to be very careful that what we proffer still says "as may be amended in the water service agreement". Because ultimately, the Board is the deciding factor, and they review that water service agreement and it may be amended in the future. And what we would not want to happen is have to come back again for a proffer

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amendment if there was a change that was agreed upon by the Utilities Department and the Board for the water service agreement. But we hear you and we will add additional language between the Planning Commission and Board.

Mr. Apicella: Okay, thank you.

Ms. Cameron: You're welcome. And then quickly, just in the next few slides, we thought it would be helpful just to provide some line of site exhibits. So, this was part of the original Planning Commission package that shows the distances between the nearest buildings. So, from nearest building to building, really quick, just line of sight exhibits to the south. This is 294 feet from the property line to the nearest building. This slide is 195 feet away. We have 802 feet away from the North. 835 feet away, 1235 feet away, 1064 feet away, and then 490 sorry, 493 feet away. And then this last slide in the corner is also 438 feet away. As Mike mentioned, as part of this proposal, the applicant is seeking a comprehensive plan compliance review to allow for six substations on the property. This slide shows an illustrative of the substations, and then quickly and the next couple of slides, I just want to walk through with you the Virginia Department of Transportation comments and what they were asking for and why we think that we've gone above and beyond to adequately mitigate our impacts. So, the concern specifically with Route 1 and Hospital Center Boulevard. VDOT would like for there to be a sixth eastbound lane on Hospital Center to Route 1, and that is not possible because of that existing 7-11 that was constructed that has a wall there. That was proffered by Burns Corner, but subsequently, that 7-11 was constructed, and so, as I mentioned before, the applicant, per their proposed improvement is mitigating the impacts and improving the levels of service at this intersection. This slide shows the delay. So, what it shows is how we are mitigating those impacts in the am and pm to better help. VDOT also requested additional studies at Route 1 and Sage Lane. We subsequently amended our proffers to specifically add that shared through lane and right turn lane from Sage Lane to Blackjack Road. So that was a change to specifically address VDOT comments. At Route 1 and Centerport VDOT commented on potential improvements at Enon. Enon was not part of the original scope, and as our proffered improvements were not negatively impacting that intersection. And this slide shows what the levels of service are at US Route 1 and Centerport Parkway. Both a comment from VDOT and the County pertain to the uncertainty if the connector road was not constructed, and while both VDOT and the County approved the connector road because it is going over RPA that also requires the Army Corps of Engineer approval and DEQ approval, which are federal and state. And in the event they do not approve the road, the applicant has specifically proffered that they would make improvements to Eskimo Hill Road, as outlined in the comprehensive plan, and do a traffic impact analysis that is reviewed and approved by VDOT, and make any additional improvements on Eskimo Hill Road to mitigate that impact. Staff's recommendation for the inter-parcel connection, what staff is looking for, hopefully I don't break your board, is a direct connection here, and for security reasons, the applicant is unable to make that direct connection. It also would lead to a four-way stop. And a four-way stop is less safe than a three way stop. So, once you get to the end here it would be a three way stop sign instead. The applicant also believes that there is plenty of space for any additional grading that may be needed on the site. So as part of the proposal, there is, sorry, I messed it up already. There's 150-foot building setback. Then on the site, there's 25 feet between the property to the south and the road. There's then 60 feet of right-of-way that is being designed. If the properties to the south develop 200 homes or less, that road width is only required to have 22 feet. If the properties to the south develop 200 homes or more, that road with is 24 feet. So that essentially, is giving the applicant anywhere between 36 to 38 feet to do grading before you hit that 50-foot buffer area. So, we do not believe that there would be any impacts to the buffers. In addition, the 50-foot buffer is required. So, in the event there's grading that is needed, the applicant would still be responsible to construct that 50-foot buffer. Finally, I think Mike hit it, so I'll go super quick. The substations height is proposed to be at 90 feet. The applicant did submit FAA determinations for every building on the property to determine that there is no hazard to air navigation. And the buildings closest to the substations, as Mike mentioned, were up to 175

feet above finished floor area, and for all of the buildings on the site, the FAA determined that there was no hazard to air navigation, so we believe that there would not be a hazard at 90 feet either. Finally, I wanted to quickly walk through with you the latest proffer revisions. We went through the utility infrastructure improvements. The applicant did make these proffer revisions after receiving and working with staff, after the Planning Commission, public hearing and recommendations from the Planning Commission, and then separate meetings with the Planning Commissioners. So specifically added the utility infrastructure proffer to talk about the water service agreement and make it clear that the water service agreement does need to have a cap on the maximum number or the maximum water usage and sewer usage that could occur before bridging. The applicant also proffered reuse water to make it clear that all industrial data center cooling water demands required for the project will utilize reuse water and walked through in the event that reuse water becomes delayed, they would not be able to increase the capacity without approval from the Utility Department to make sure there were no negative impacts to the residents. The applicant updated proffer 6 to make it clear that six electric substations shall be permitted on the property without requiring any further conditional use permits. In the event seven or more substations are needed on the property. Each additional substation over six would require a conditional use permit. The applicant updated proffer 8A to match the design standards that were outlined in the AWS Potomac Church proffers. In addition, the applicant, specifically, at a request of Commissioner Caudill, included that there would be sound enclosures for each generator. Proffer 8B, we made it clear that fencing shall be required and added language to confirm that the buildings will be fenced. For screening of mechanical equipment, we added language that for the properties to the South that are planned for residential uses, screening shall address both visual screening and sound attenuation, and in addition, generators that are facing the above-mentioned tax map parcels that are not screened by buildings shall be screened by a solid wall. The applicant included a monetary contribution for $1.5 million to be used for fire and rescue purposes. The applicant included language requiring the sprinkler system to be NFPA 13 standard. The applicant included language for the noise levels to decrease the level for the daytime from 60 feet to 55 feet in residential and mixed-use zoning districts. The applicant, again, I highlighted this previously, updated the proffer for utility infrastructure to make it clear that the water service agreement has to include a cap on the maximum capacity for bridging. The applicant highlighted what would occur if reuse water project became delayed. The applicant updated the proffer for transportation to extend the shared through right turn lane from Sage Lane to Blackjack Road. The applicant added several proffers pertaining to construction. They proffered a construction mitigation plan, delivery notification, requiring a Public Liaison, requiring a joint construction traffic reaction team, a proffer pertaining to pavement damage, providing an applicant point of contact, and then requiring third party contractor reimbursement to the County in the event the county has to hire a third-party contractor to review the applications. And that concludes my presentation. We also heard some comments pertaining to what are the economic benefits for this proposal? It's about $1.5 billion in capital investments, about $88 million per year for tax revenue. It will be about 150 full time jobs. That does not include construction workers during the construction and I can answer any questions you all may have.

Ms. Barnes: Can you repeat that, what, per year? It's 88…

Ms. Cameron: Million, approximately.

Ms. Barnes: … at full build-out.

Ms. Cameron: At full build-out, yet.

Ms. Barnes: Okay.

Mr. Shelton: Mr. Chairman, I have a couple questions.

Mr. Apicella: Please go ahead, Mr. Shelton.

Mr. Shelton: I commend the applicant on the modifications of the proffers. I have a couple comments and questions. One, with type one construction, NFPA 13 and FPA 14 are mandatory, so we will be looking at a fully sprinkled facility as well as a standpipe in the fire resistive stairwell. So where I asked the question about on the roof aspect, it will be in the stairwell at the access to the roof. So thank you very much for that. Also talking about the noise dBA, since this is going to be an extremely large project, it's going to be a mini city, I think we need to consider the fact that we had made recommendations previously on a 55 dBA during the day and a 50 dBA at night. I would like the applicant to consider that. I think that's important, because I, as I see this, we're, we're going to have a major growth area on US 1 in the foreseeable future with your project, as well as many other projects that now seem to be hitting, hitting the table. So comment on the 55/50?

Ms. Cameron: I can talk to the applicant about it. I know that because of the property to the south, that would potentially be the closest residential development to this property. The applicant has agreed to do sound enclosures around each one of the generators. They've also agreed to do a wall to better screen the generators and noise modifications to that wall so it's sound attenuation. I can talk to the applicant to see about the 50 at night, but I do know that they have proffered additional noise attenuation measures to make sure that we meet the zoning ordinance standards.

Mr. Shelton: Understand. Two other comments on the traffic reaction team. Please add Fire and Rescue to that reaction team, because we're part of the emergency management aspect, either from a fire EMS standpoint, would you please?

Ms. Cameron: Okay.

Mr. Shelton: My, my last comment deals with the aspect that we discussed, a dedicated five acres for a Fire and Rescue station in the future. I'm not talking 2024, I'm talking five to seven years. So you have done a commendable job with the 1.5 million in Fire and Rescue apparatus, but I ask you to consider a parcel of property as close to US 1 as we can. Right now the two stations that serve that particular area, one is on Courthouse Road and the other one's on Butler Road, so there's a parameter of eight miles in between the two. So, from a person that does fire protection engineering and emergency management, I'm looking to the future, because I'm looking at the fact that you're building a mini city, and everything else is beginning to grow on US 1. I ask for consideration there. And that concludes my comments.

Mr. Apicella: Thank you, Mr. Shelton. Ms. Barnes?

Ms. Barnes: Okay, so I brought it up before, and I didn't hear it mentioned; the sound study. I know that there's a sound study that's going to be required, but there was no specificity as to where the sound study was going to be happening and what time of the year. Like I mentioned before, I'd like to see that the sound study takes place during the most intense part, or the hottest part of the year, when most intense use is going to happen, as well as specifying that there's, there's a sound study both on the north side and on the south side. I would like to have that considered as well.

Ms. Cameron: So the applicant would be willing to do a proffer between the Planning Commission and Board that requires the sound study, I would say, between June and August, if that's acceptable to you, which is technically the summer months.

Ms. Barnes: Yeah.

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Ms. Cameron: And then at various locations on the north and south side.

Ms. Barnes: So that's something you would consider before you get to the Board of Supervisors, you will add that in.

Ms. Cameron: We will add that in.

Mr. Apicella: Is there a reason you can't do that tonight?

Ms. Cameron: Type it up?

Mr. Apicella: Yeah.

Ms. Cameron: Well, I figured…

Mr. Apicella: It's a couple of words to add to the proffers. We can accept new proffers tonight.

Ms. Cameron: Accept those proffers tonight?

Mr. Apicella: We can accept any modifications to the proffers at the will of the Planning Commission.

Ms. Cameron: I guess… I was just asking because we still have to make the revisions to the proffers pertaining to the utilities before the Board. So I didn't know if it'd be easier to add all of the proffers at one time, but if, Commissioner Barnes, you would like us to type up those proffers beforehand.

Ms. Banres: This seems like a really simple addition, and I mean, probably a couple of sentences, if you feel that you can do it, that'd be great.

Ms. Cameron: Okay.

Mr. Apicella: Did you have anything else, Ms. Barnes?

Ms. Barnes: Oh, nope, that was it. Thank you.

Mr. Apicella: Anyone else? Okay, um, can you help me or help us understand kind of the timeframe for this project? When, when do you think if the, if the Board approves this project in the next couple of months, from the time you start turning dirt to the completion of the final building, what's that timeframe look like?

Ms. Cameron: From the time that they start turning dirt, so after site plan approval, building permit approval, we think it would be seven years for full build-out. And can I correct one thing? For the jobs it's 150 jobs per phase. There's about four phases here, so it'd be 600 jobs in total.

Ms. Barnes: Permanent?

Ms. Cameron: Yes, permanent jobs.

Mr. Apicella: What, what's kind of the average salary range for those jobs?

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Ms. Cameron: We don't have the exact average salary range. We did get that question, and the answer back was they're high paying jobs, but I don't have that exact number.

Mr. Apicella: More than minimum wage.

Ms. Cameron: Yes, more than the minimum wage.

Mr. Apicella: Okay. Staff have continued to raise a concern about some of the language, specific language on the connector road. I think their concern is the word "if." Can you consider modifying that to address staff's concern?

Ms. Cameron: We can't, because the final approval is not only VDOT, which is the state and they've reviewed the connector road, but there are federal agencies that are required to also approve the connector road. So there is a slight chance that the connector road does not get approved by DEQ or the Army Corps of Engineers. It's a small chance, but that could happen. But in order to give VDOT, because it also came from VDOT… well, if it doesn't happen, there are potential impacts to Route 1 and Eskimo Hill Road. And we said we acknowledge that, and we will do a Traffic Impact Analysis. And a Traffic Impact Analysis outlines mitigation measures that are required to make sure that the levels of service are not degragated. And so we have proffered that we would do that Traffic Impact Analysis, and whatever those mitigation measures are to adequately in, to adequately address any impacts, we would do those. So what we are trying to accomplish is, if the connector road is not connect… is not approved, we would still make transportation improvements to make sure that there, that Eskimo Hill Road and Route 1 would still operate acceptably.

Mr. Apicella: At the last meeting, Ms. Caudill had a concern about the buffer, the minimum 50-foot buffer, where your property abuts residential, and I think she mentioned a request for a minimum of 100 feet. Did you all look at that?

Ms. Cameron: We did look at that. We are not able to accommodate the 100-foot buffer, but what we have done is there is 150-foot building setback. We've also proffered to mitigate any impacts, visual impacts of generators. So if they're visible from the residential to the south, they would have to have screening both for visual and sound. And then we also proffered the sound wall to help with any visual impacts.

Ms. Barnes: How tall is that sound wall? Do you know?

Ms. Cameron: We do not know. It would be determined at site plan to be able to make sure that it adequately screens the generators in the generator pad.

Ms. Barnes: And you don't know necessarily what it's… it's not going to be a huge…

Ms. Cameron: No.

Ms. Barnes: … Soviet block wall type of thing.

Mr. Apicella: What does a Soviet block wall look like?

Ms. Barnes: A Soviet block wall, the Great Wall of, yeah. You say you don't have an idea what the, uh, what it would be made of?

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Ms. Cameron: It's architectural precast generally.

Ms. Sellers: We have standards, more of them.

Mr. Apicella: Ms. Sellers, did you have a question?

Ms. Sellers: I have a point of clarification for Ms. Barnes. Are you talking about a sound study or are you talking about noise measurements? There are two different proffers in here, one on noise measurements, which they're already saying that they'll do at each build, at each permit, six months after final occupancy permit, and then annually. And you're saying maybe biannually or twice a year. Or are you talking about, and I don't really know what a sound study is. I have no idea what that is. I'm being completely honest how that differs from measurements, but.

Ms. Barnes: I was specifically referring to the sound study, but you bring up a valid point.

Ms. Sellers: Right, yeah, what are you asking for? Because I'm not really… I mean, they have a, because they do have proffers in here for what I think you're trying to get them to do, and it sounds like they're going to be taking measurements.

Ms. Barnes: I want to make sure that the sound studies or the measurements take place during the most intensive use. Not, you know, when it's negative 10 degrees outside, not that it ever gets that way. You know, something during August, because that's when the chillers are going to be running at their max all day and all night. So it, you know, I know that there was language in there for a sound study, but there wasn't for a specific time. And of course, where that takes place. I mean, because there is residential to the north and there's, obviously it sounds like there's going to be residential to the south. So that's, that's where I specifically was going with that. Now, if that would be more effective, if this, you know, putting that in there with the sound measurement, that's fine. But what I was concerned about and looking at was the sound study.

Ms. Cameron: I think, so what we say is sound or noise measurements shall be taken to confirm compliance with Proffer 14 and 15, six months after final occupancy permit is issued, and then annually for a period of five years after final occupancy permit for conduct… permit for the final data center building on the property. And I think what you're asking for is that those sound measurements be conducted annually, anytime between the months of June and August.

Ms. Barnes: I'd like it during July and August, but I'll take June and August. That sounds fine.

Ms. Cameron: If it's July and…

Ms. Barnes: Just, I just, it has to be done when, when those buildings are going to be running at their, at their peak performance basically.

Ms. Sellers: So you want an amendment to paragraph18.

Ms. Cameron: Seventeen.

Ms. Sellers: Seventeen, whatever the number is.

Ms. Cameron: Seventeen.

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Ms. Sellers: But the sound noise measurements. I just wanted clarification to make sure we were, because they did have, they have two different, a sound study and then noise measurements. And based on your comments, it sounded like you wanted to take them, to have them update the noise measurements that they're taking.

Ms. Barnes: Would that be more appropriate?

Ms. Cameron: That is more appropriate.

Ms. Barnes: Then let's do it there.

Ms Cameron: That works.

Mr. Apicella: I can't speak for the rest of my colleagues, but you know, when I make a recommendation to the Board about a specific proposal I like it to be as fully baked as possible, so that they're not dealing with loose ends. And I understand the Water Service Agreement and some of the utility issues are still being negotiated between you all and the Utilities Department. So what I heard tonight, and I hope you will consider addressing these tonight, maybe while we're having the public hearing, I heard Mr. Shelton make a request to consider a potential donation of land on your parcel for a fire station. He also mentioned considering 50 dBA at night for abutting residential parcels. And again, what Ms. Barnes and you just talked about. Is there anything else that, that came up tonight that folks would like them to address prior to us making a decision tonight and sending this on to the Board?

Mr. Shelton: The inclusion of Fire and Rescue in the traffic reaction team.

Mr. Apicella: Okay. So four, four things I heard mentioned. So if you'll, if you'll consider those and potentially make modifications that we can consider tonight, that would be, that would be helpful.

Ms. Cameron: Okay.

Mr. Apicella: Any further questions? Alright, with no further questions for the applicant at this point in time, I'm going to open up the public hearing on this item. It's an opportunity for the public to comment on both the rezoning and Comp Plan compliance review associated with Stafford Technology Center. Before starting your comments, please state your name and address. The clock starts when the green light appears. Yellow means there's one minute left. Red means your time is up. So, I see somebody already standing there, please go ahead.

Ms. Muller: Hello. My name is Linda Muller. I live in the Aquia District, and I really appreciate this evening's discussion on the water issue. Really, Commissioner Barnes, you probably took a lot of my thunder out of some of my comments I was going to make. I read your, I read the draft minutes from your last meeting. And what kind of struck me and has been raised this evening was that when it came to the actual water needed for this enormous project, I don't know if the public understands how large this project is going to be. But the amount of water was not specifically identified. And as been discussed this evening, there is a variety of reasons for that, depending on the build-out, et cetera, et cetera. But I believe that the public should at least have an understanding of at least of a minimum if you can't give a specific amount. I mean, for example, a data center that uses something like 300,000 gallons a day. That's equivalent to, let's say, three residential houses. I also, from reading the last minutes, I read your minutes from your last meeting, the idea or the discussion of drought came up, and we were given, or at least the County was given the understanding that we're not in a drought condition. But what are the requirements as far as water use

during a drought? And it first starts out as voluntary; so residential voluntary, commercial voluntary, and then when the drought gets worse, it's residential mandatory, then commercial mandatory. So really, data centers can never not be cool. They require water or cooling all the time. So in a hopefully never drought, but potentially, we've been experiencing one recently, they need to be cooled, though residents may not be required, be allowed to have water during a drought session. I again, I appreciate your discussion on the Water Service Agreement and making sure we understand that the residents understand that water usage will be capped, and when we say potable water, we mean our, of course, our household using water, drinking water. I think those issues do need to be ironed out as far as benefits to the County because our one re… there's two resources we are offering for the, for the developer, our land obviously, but also our water. And we really need to be paying attention to our water use. There's going to be future residential growth, there's going to be other future proposed data centers, and we need to be mindful of again our water use. So thank you this evening for your discussion and thank you.

Mr. Apicella: Thank you, Ms. Muller. Is there anybody else who would like to come forward?

Ms. Maxson: Kristen Maxson. The applicant side, number 11, reclaimed water system was not in the packet and was not stated by the Chair, and was stated by the Chair, not in the proffer statement. So this means that the public did not have a chance to review this and see the impact. There was a request for a parcel for fire station. I know that there is target range close to this area, and there's a lot of government land, so I would imagine that the government has the land for this. Please understand that the RPA is completely covered in the project area, and the buildings are right up to the RPA lines. What does this do to the soil? There are 15 ponds depicted in the site. The Hospital Boulevard and Route 1 all was stated that the impact will be immediate, mediated, immediated. How? Connector road was painted as, pointed out as the road that was purple in the project area, but it really should have another name so it can be defined with another service connector road. Connector road is too vague. And why are the words so vague when the public is trying to read it and trying to understand and the Commissioners have to ask so many questions. The proffer statement dated July 18, 2024 does not allow 30 days approval time for the Commissioners to review. Page 13 of 1,293 of this packet, that's a lot of pages. This allows less than a week for people to read it. Mitigations. Mitigating a traffic like, light to will only mitigate it to the traffic going the opposite direction. The applicant can't even commit to the specific number of buildings, and it's a mini city. Well, let's just say it's a campus. Let's just use the word campus. Why does the document state applicant in no case be responsible for addition, additional traffic studies. Page 8 of 1,293. It does state of an alternative design, and that will probably impact the people more. The applicant suggests, excuse me. I'm running out of time, so I want to thank everybody here, and please…

Mr. Apicella: Thank you.

Ms. Maxson: … consider the impact on the people.

Mr. Apicella: Is there anybody else who would like to speak on these two agenda items? Alright, seeing no one, I'm gonna, I'm gonna close the public hearing, and what I'm gonna do, since they're still working feverishly on potentially making some modifications to the proffers, is postpone any further consideration on this item until they're ready to go. Alright, I'm going to bring back Stafford Technology Center, rezoning and Comp Plan Compliance Review.

Ms. Cameron: Thank you. Ms. Baker is handing out revised proffers for you. They are double-sided, but if you want to start on page 8. The first revision is page 8, Proffer 18. The applicant has added language that, sound and noise measurement shall be taken to confirm compliance with Proffer 15 and Proffer 16 six months after final occupancy permit for each data center building is issued, and then annually between the

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months of June and August for a period of five years after final occupancy permit for the final data center building on the property. Said sound and noise measurement shall be taking, taken at varied locations, including those along the north and south property boundaries. So that was to address Commissioner Barnes' request. The next proffer change is on page 13, Proffer 27b3. It reads, it pertains to the Eskimo Hill Road improvements in the event the connector road is not constructed. And it says, in addition, the applicant shall conduct another Traffic Impact Analysis to be reviewed and approved by the County and VDOT to identify the impacts to Eskimo Hill Road and provide such improvements recommended from the, from the northern property boundary on Eskimo Hill Road to Eskimo Hill Road/Route 1 intersection. The next change you will see is on page 17; we realized that there were two number 28s so we just quickly updated the proffer numbers so they were accurate. So 17 is just a change to the proffer number. Page 18, 29d, County Fire and Rescue Department was added to the joint construction reaction team. And Commissioner Shelton, you had two specific requests regarding the dBA to 50 at night, and we… as well as the 5-acre fire department and the stakeholders that are able to make that final decision are not here this evening, but we will take that into consideration between the Planning Commission and Board.

Mr. Shelton: Thank you.

Ms. Cameron: You're welcome.

Mr. Apicella: Thank you.

Ms. Cameron: Thank you.

Mr. Apicella: Okay, I closed the public hearing on this one. I'm going to pass, pass the gavel to Mr. Shelton so I can make some motions.

Mr. Shelton: Mr. Apicella, it's your floor.

Mr. Apicella: So I'd like to make a motion to accept the proffers as just read and updated.

Ms. Sellers: Second.

Mr. Shelton: Motion by Mr. Apicella and second by Ms. Sellers. Am I correct?

Mr. Apicella: Yes.

Mr. Shelton: Any additional comments, Mr. Apicella?

Mr. Apicella: I appreciate the additional changes that the applicant made, and hopefully the other ones that we talked about will be forthcoming when this moves on to the Board of Supervisors.

Mr. Shelton: Ms. Sellers?

Ms. Sellers: No comments.

Mr. Shelton: Other Commission members?

Mr. Shelton: Alright, let's cast your vote. Tally the vote. Looks like we're 6 to 0 with one absent (*Ms. Caudill absent*).

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Mr. Apicella: Mr. Chairman, another motion I'd like to make is to approve the zoning reclassification for Stafford Technology Campus, RC23154931.

Ms. Sellers: Second.

Mr. Shelton: A motion and a second. Any further discussion, Mr. Apicella?

Mr. Apicella: Yes. I'll be quick. So we've been working on preparing the County for potential data centers for around 18 months, including developing robust policy and criteria. If we're going to allow data center campus anywhere in Stafford County, this would appear to be a very good location. County staff, the applicant, and the planning… and the Planning Commission, specifically, Planning Commissioners have worked to identify and address issues and to mitigate impacts, including noise, water use, transportation, and other considerations, notwithstanding the fact that, again, there's still some outstanding utility issues that we've identified tonight that the applicant has agreed to work with the County on and to move it forward to the Board of Supervisors with potential additional proffer changes. If this project is ultimately approved by the Board of Supervisors, once it's built out, it will provide hundreds of high paying jobs, and as the applicant indicated, around $88 million in tax revenue as the property is built out. In my mind, that's a significant amount of money that could help pay towards a new courthouse, a new school, or make significant transportation improvements over the life of this project. This will be one of, if not the most significant development projects in the County's history. I want to thank everybody involved in its consideration, including County staff and my colleagues, and especially applicant for agreeing to the many changes that we've requested over the past many, many months. With that in mind, Mr. Chairman, those are the reasons why I'm recommending approval of the reclassification.

Mr. Shelton: Ms. Sellers?

Ms. Sellers: Yeah, I echo what Mr. Apicella says, and add that, you know, with any big application like this, you're kind of going in with some faith and entering into this long term agreement. So it's kind of exciting and also a little nerve wracking to see where we're going, because there are some things that we're not going to know that we have to go in and really just trust our attorneys and trust that our staff know what they're doing. But it does provide this opportunity to fund some things, and I think the residents here in the County have seen our taxes go up and continuously go up, and they're going to continue to go up. And this is a very unique opportunity, not only to generate some revenue, but to build in some infrastructure with very limited impact to transportation, which is something that we have got to figure out, because I spend a lot of time looking at transportation and there's not much new revenue coming into transportation. So we need every opportunity we can to generate revenue that does not put more burden on our transportation networks. So this is exciting, also very again nerve wracking, and glad we're on the Planning Commission where we make the recommendation and not on the Board where they're the ones who have to really get in the weeds. But I appreciate everybody's patience, particularly the folks who've been with us for 18 months as we've talked about noise and all these other things. So I will support this as well.

Mr. Shelton: Mr. Martinez? Ms Barnes?

Ms. Barnes: So, yeah, what everybody said so far is very much, I'm in very much in agreement with, and to me, this was a very, very, very difficult decision, because this is just, you know, that if you've got 540 acres of trees out there, and someone comes along and says, hey, we're going to plow it down and put up some data centers. If someone had told me 10 years ago, I wouldn't have been supporting that; I would have called them crazy. But there's a, there's a lot that needs… there's a lot that Stafford County needs right now. And we constantly hear from taxpayers, from constituents, from citizens, that we need to bring in

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revenue streams. We need to bring in business and industry so that the tax burden isn't on property taxes. It's basically on the backs of property owners. But then when you say, hey, let's, we've got a data center here or a warehouse there, oh, no, those are those are too big, those are too impactful. We would rather have a county park. Well, we don't own the land and the county park's probably not going to earn a lot of money. And we're building four schools right now, and… three schools right now, and by the time those are built, those are going to be full. We're going to need many more schools coming down the line. I watched a work session a couple weeks ago with the Board of Supervisors. If they were to build that courthouse, which they were supposed to build many, many years ago, if they were to build it today, it's $120 million. And with every month that goes by, that, of course, goes up. So we can't build these things with vape shops and nail salons and storage units; not that, not that they don't pay taxes or are a valuable part of our corporate citizenry of Stafford. Nevertheless, those aren't adequate. So when we have something like this come along, it's huge, it's scary, and in my opinion, it still needs some work. There still needs to be some massaging to this application, but we need to get this off of our desk and up to the Board of Supervisors so that the varsity team can really take a stab at this and hopefully work out some of those things with the Water Service Agreement, and make it very clear to the public that the priority is to make sure that not only is this a good source of revenue and a revenue stream, but that it is not going to negatively impact the quality of life of the rest of the people living in Stafford County. We know that when these applications come to us, they come with rose colored glasses sometimes. We know that these things come to us with best case scenario. Nevertheless, when you say $88 million when this is at full build-out, that's going to buy a few things, and we need those things. So, surprising myself, I have to support this. Thank you.

Mr. Shelton: Mr. Braxton?

Mr. Braxton: No comment.

Mr. Shelton: I'd like to close the comment by saying, I appreciate what the applicant has done in compromising. I think that's commendable. I think it's a win-win for Stafford County, even though it's going to be a little city. And as Emergency Manager, I am worried about little cities. So thank you very much. If you would, cast your vote. Tally the vote. Pass 6 to 0 with one absent (*Ms. Caudill absent*).

Mr. Apicella: Mr. Chairman, one more motion on this item. I make a motion that the Planning Commission approve the Comp Plan Compliance Review application, COM24155687.

Ms. Sellers: Second.

Mr. Shelton: I have a motion and a second. Mr. Apicella, any additional comments?

Mr. Apicella: No further comments, Mr. Chairman.

Mr. Shelton: Ms. Sellers? Other Commission members? Cast your vote. Tally the vote. Pass 6 to 0 (*Ms. Caudill absent*). And it's back to you, Mr. Apicella.

Mr. Apicella: Thank you, Mr. Shelton. And again, congratulations to the applicant. And appreciate all the hard work that you did on this project.

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Stafford Technology Campus

COM23154932; Comprehensive Plan Amendment

RC23154931; Reclassification

Stafford County Board of Supervisors

September 17, 2024

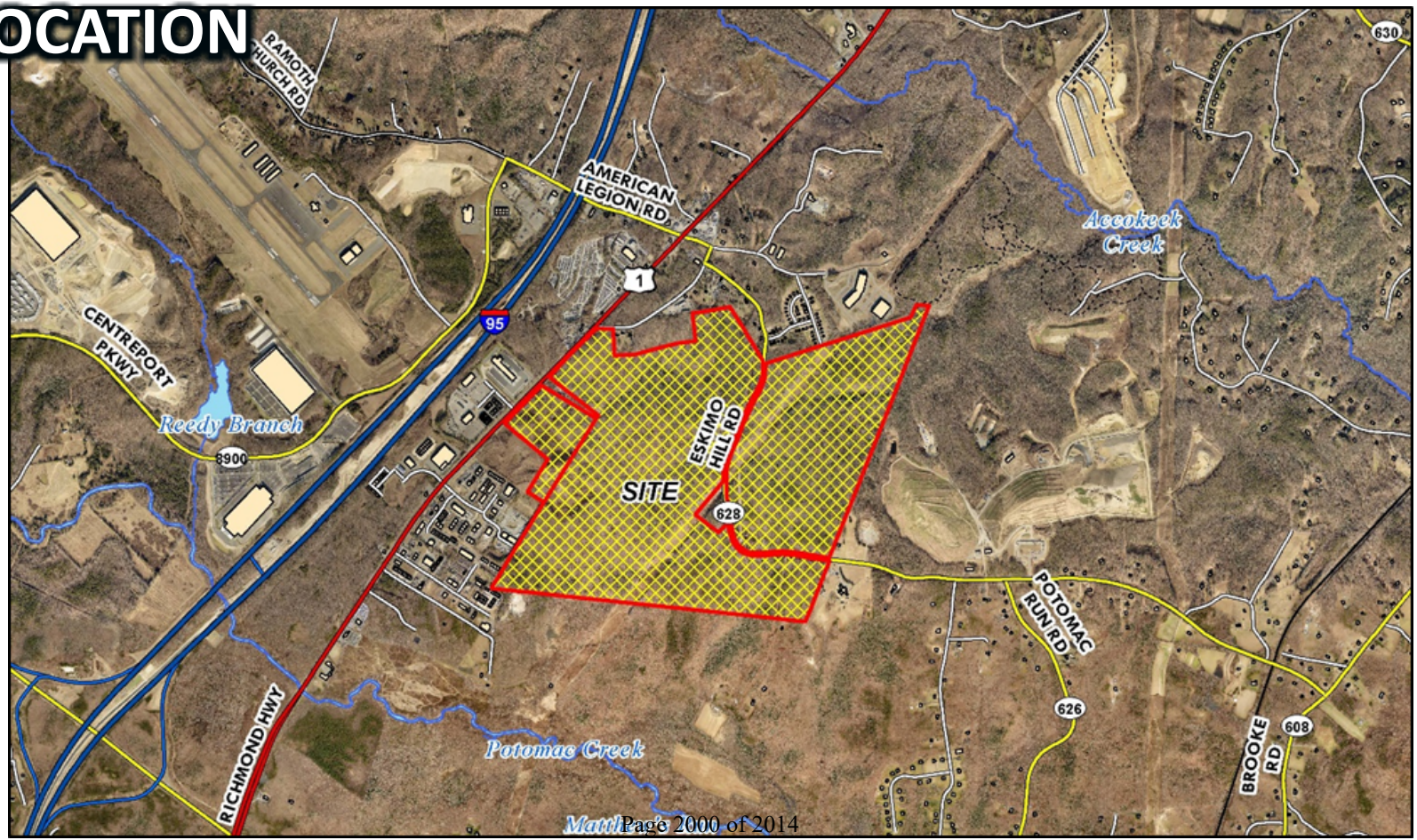
Background

- Requests:
  - COMP PLAN AMENDMENT: Amend Future Land Use Plan maps to expand the Urban Services Area and amend the future land use from Agricultural/Rural to Central Stafford Targeted Development Area, and future land use of Business and Industry
  - REZONING: Rezone from the A-1, Agricultural to M-2, Heavy Industrial Zoning District, with proffers.
- All to permit a data center, public facility/utility, and related accessory uses.

Background

- Tax Map Parcel Nos.: 38-124 & 38-29A
- Area: 503.84 Acres
- District: Falmouth
- Applicant/Owner: Stafford Technology, LC
- Agents: Jonelle Cameron & Jessica Pfeiffer, Walsh, Colucci, Lubeley, & Walsh PC

LOCATION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CENTREPORT PKWY
Reedy Branch
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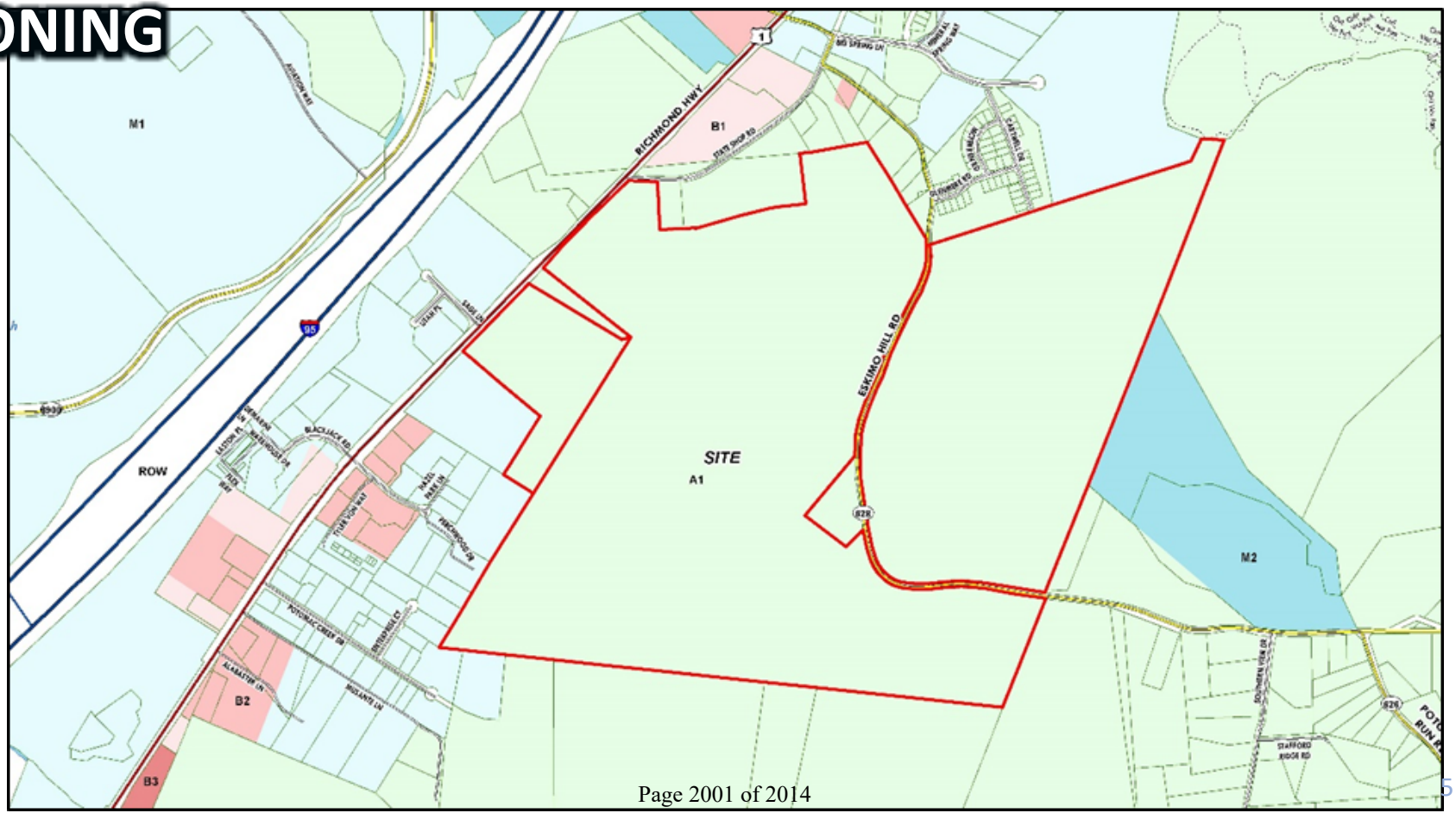
POTOMAC RUN RD
626
608
BROOKE RD
RICHMOND HWY
Potomac Creek

ZONING



COMPREHENSIVE PLAN AMENDMENT

PROPOSED MAP AMENDMENTS

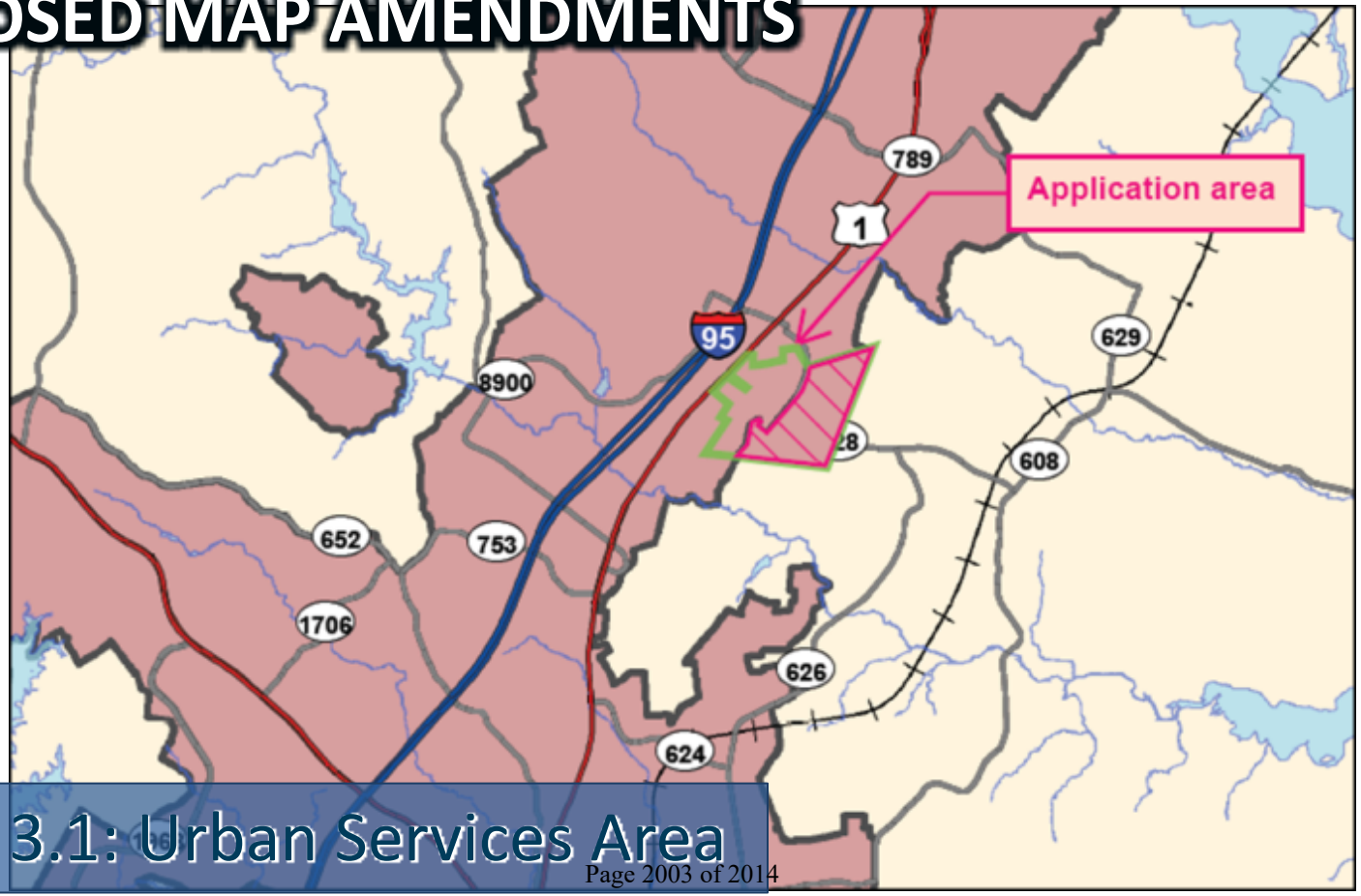


Figure 3.1: Urban Services Area

PROPOSED MAP AMENDMENTS

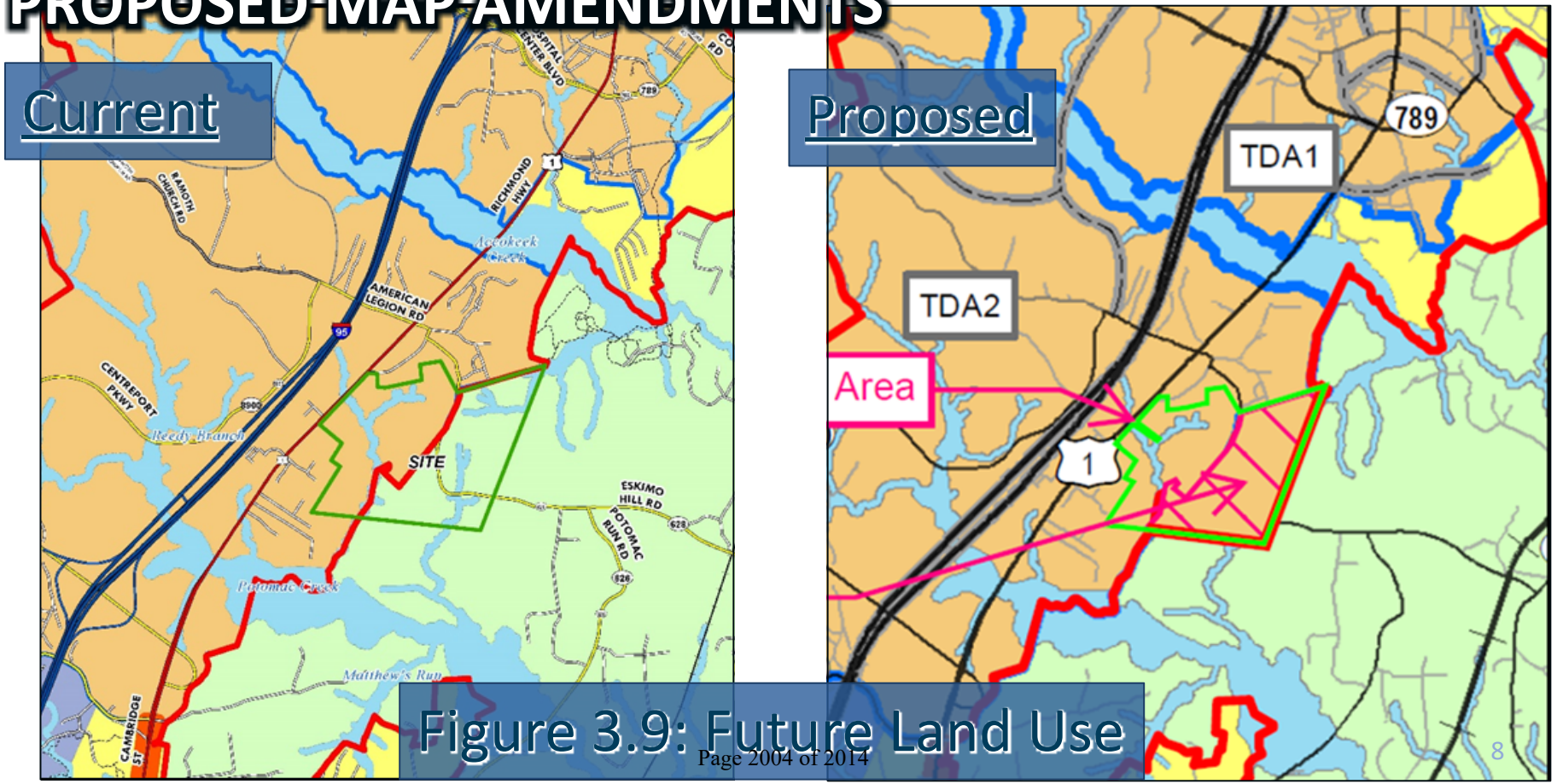
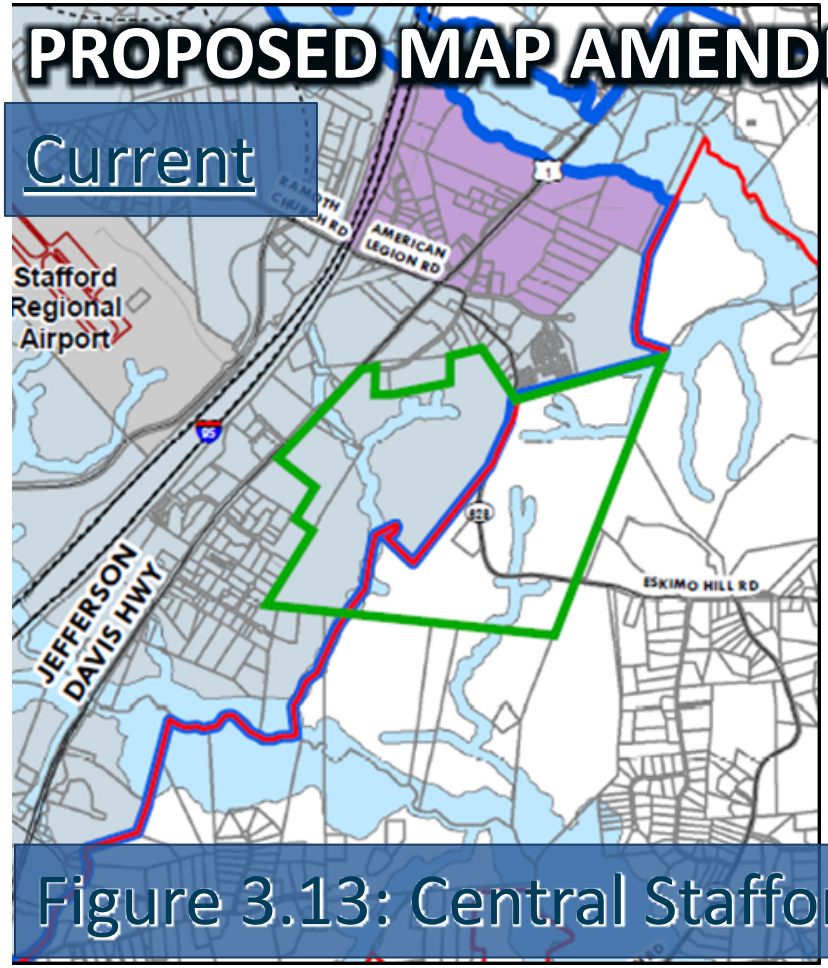


Figure 3.9: Future Land Use

PROPOSED MAP AMENDMENTS

Current



Proposed

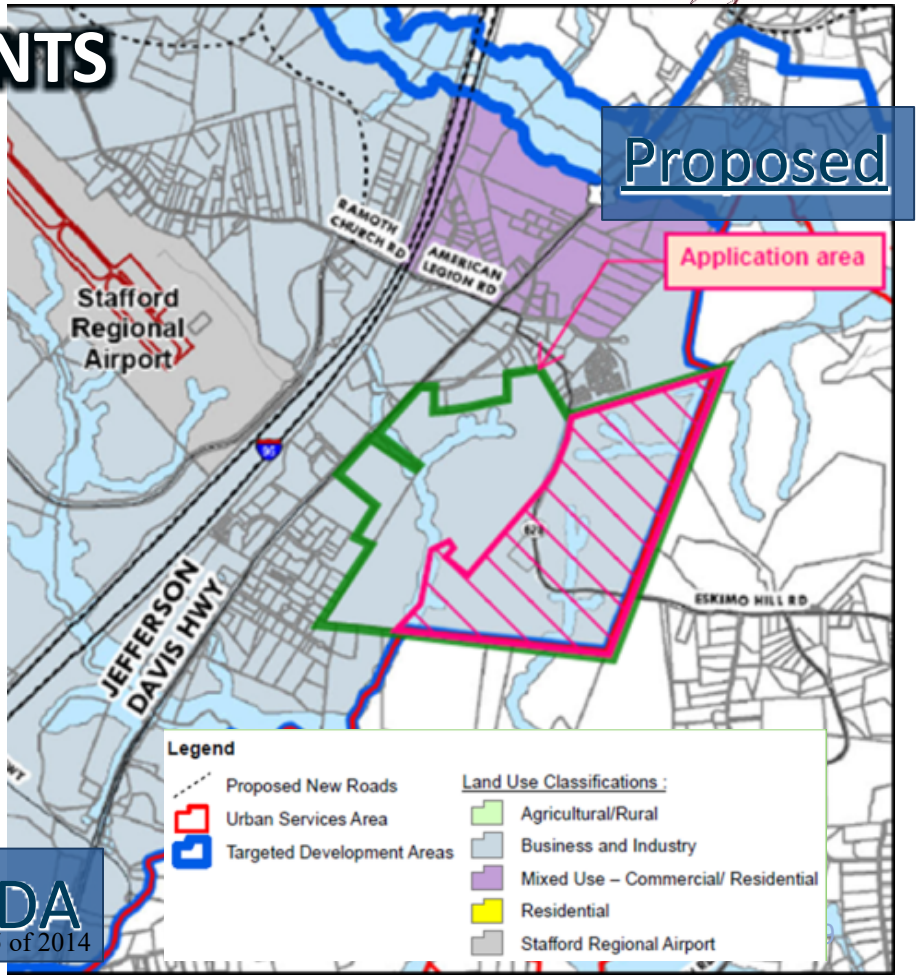


Figure 3.13: Central Stafford TDA

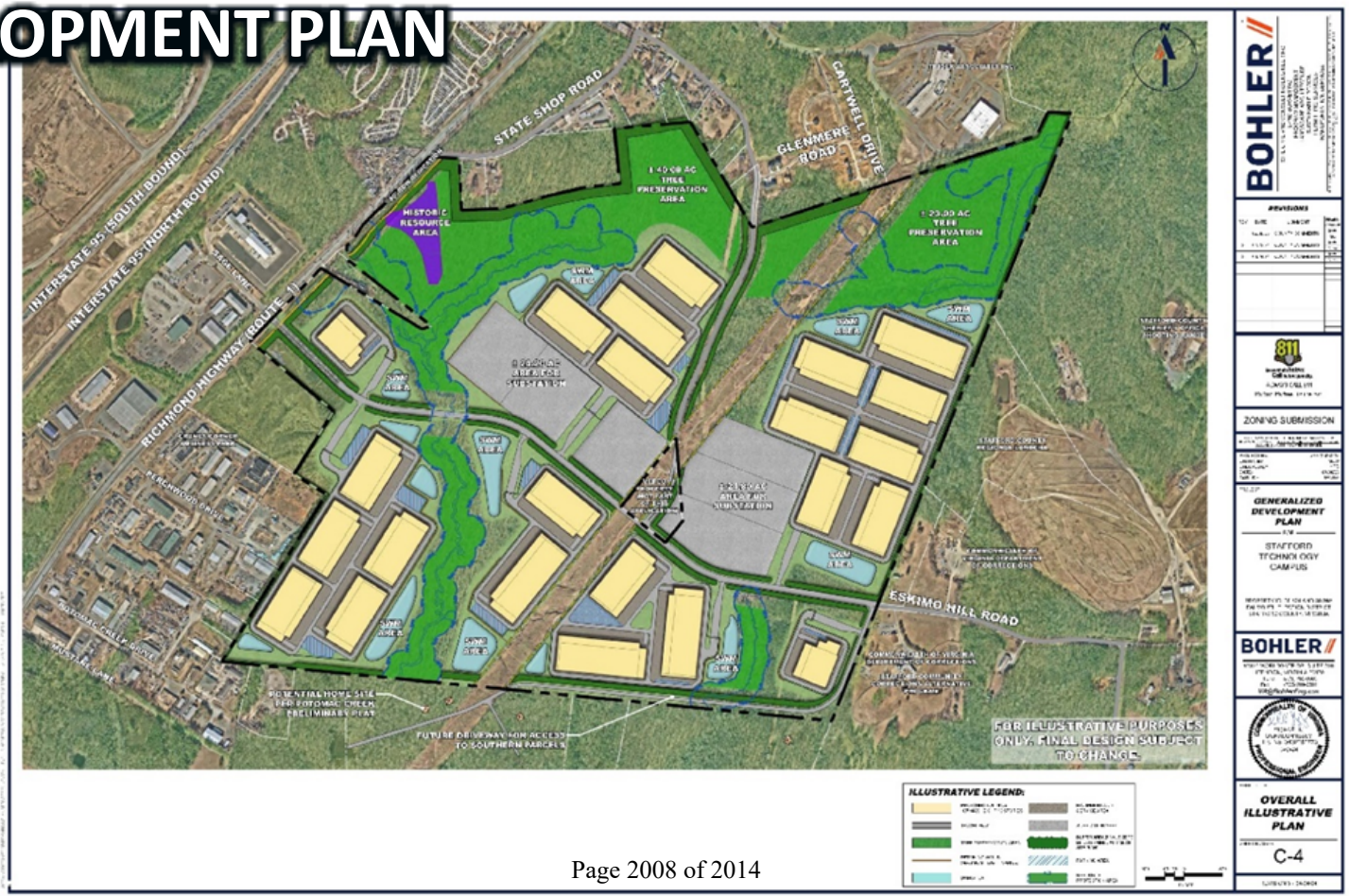
Recommendation – COMP PLAN AMENDMENT

- Staff recommends approval of the proposed amendments to the Comprehensive Plan (application RC23154932), pursuant to proposed Resolution R24-187.

- On June 12, 2024, the Planning Commission voted 4-2 (1 Absent) to recommend approval.

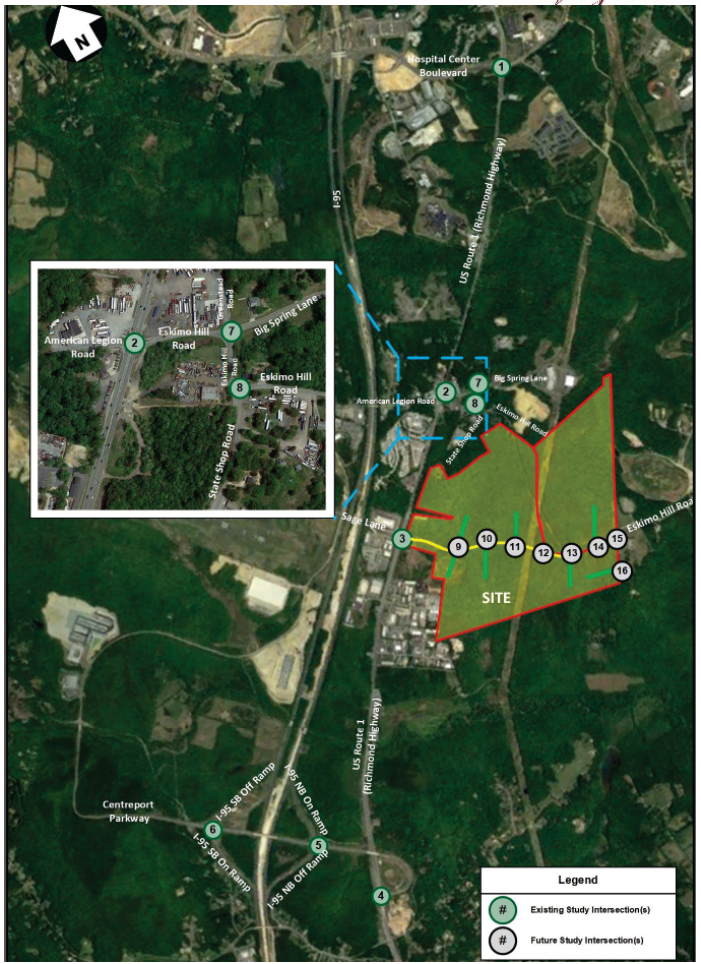
ZONING RECLASSIFICATION

DEVELOPMENT PLAN

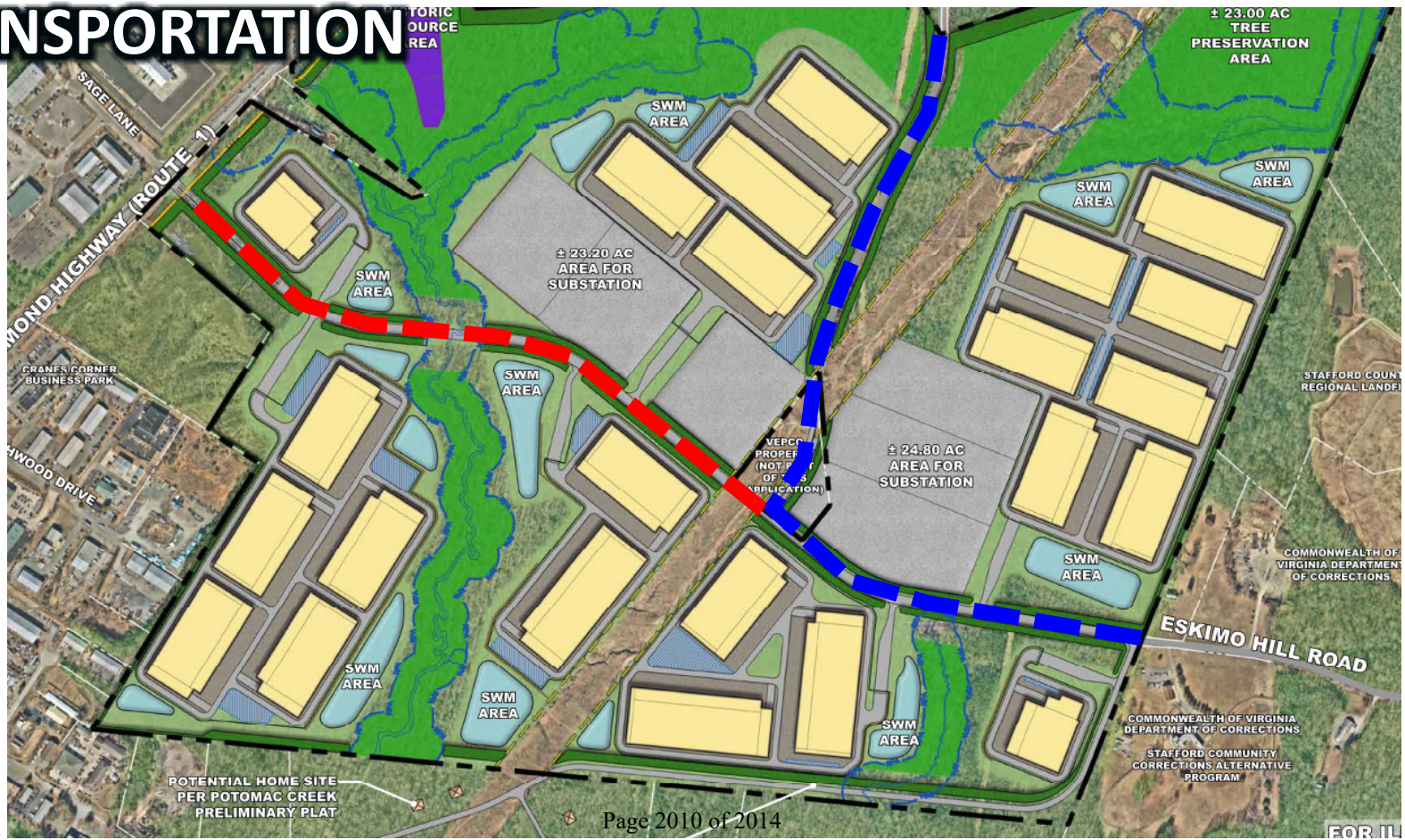


TRANSPORTATION

- 4,356 vehicle trips per day
- A TIA evaluated surrounding intersections
- Several mitigation measures identified
- Project would implement recommendations from the Transportation Plan



TRANSPORTATION



TRANSPORTATION



Recommendation – ZONING RECLASSIFICATION

- Staff believes the positive aspects outweigh the negative aspects and recommends approval of the reclassification (RC23154931), pursuant to Ordinance O24-20, subject to approval of the concurrent Comprehensive Plan Amendment.
- Remaining Issues noted by staff:
  - The proposed inter-parcel connection alignment to the southern properties may be difficult to construct and may impact proffered buffers.
  - Recommend phasing of project based on progress of reuse water system construction.

- On July 24, 2024, the Planning Commission voted 6-0 (1 Absent) to recommend approval.

CM24-26

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION OF CLOSED MEETING

At a special meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of September, 2024:

MEMBERS: VOTE:
Meg Bohmke, Chairman
Tinesha O. Allen, Vice Chairman
Deuntay T. Diggs
Darrell E. English
Monica L. Gary
Crystal L. Vanuch
Dr. Pamela Yeung

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO AUTHORIZE CLOSED MEETING

WHEREAS, the Board desires to hold a Closed Meeting for (1) consultation with legal counsel and briefings by staff members pertaining to *VDOT v. Stafford County and VRA,* Case No. CL24-3110, where such consultation or briefings in open meeting would adversely affect the litigating posture of the Board, (2) discussion concerning a prospective business where no previous announcement has been made of the business' interest in locating its facilities in the County, and (3) discussion and consideration of the disposition of County-owned property and entering in to a contract, where discussion in an open meeting would adversely affect the bargaining position and negotiating strategy of the Board; and

WHEREAS, pursuant to Virginia Code § 2.2-3711(A)(3), (A)(5), (A)(7), and (A)(29) such discussions may occur in Closed Meeting;

NOW, THEREFORE, BE IT RESOLVED by the Stafford County Board of Supervisors on this the 17th day of September, 2024, that it be and hereby does authorize discussion of the above matters in Closed Meeting.

A Copy, teste: _____
William H. Ashton, II
County Administrator

PROPOSED

BOARD OF SUPERVISORS
COUNTY OF STAFFORD
STAFFORD, VIRGINIA

RESOLUTION OF CERTIFICATION

At a special meeting of the Stafford County Board of Supervisors (the Board) held in the Board Chambers, George L. Gordon, Jr., Government Center, Stafford, Virginia, on the 17th day of September, 2024:

MEMBERS:	VOTE:
Meg Bohmke, Chairman	
Tinesha O. Allen, Vice Chairman	
Deuntay T. Diggs	
Darrell E. English	
Monica L. Gary	
Crystal L. Vanuch	
Dr. Pamela Yeung	

On motion of , seconded by , which carried by a vote of , the following was adopted:

A RESOLUTION TO CERTIFY THE ACTIONS OF THE STAFFORD COUNTY BOARD OF SUPERVISORS IN A CLOSED MEETING ON SEPTEMBER 17, 2024

WHEREAS, the Board has on this the 17th day of September, 2024, adjourned into a Closed Meeting in accordance with a formal vote of the Board and in accordance with the provisions of the Virginia Freedom of Information Act; and

WHEREAS, the Virginia Freedom of Information Act provides for certification that such Closed Meeting was conducted in conformity with the law;

NOW, THEREFORE, BE IT RESOLVED that the Stafford County Board of Supervisors does hereby certify, on this the 17th day of September, 2024, that to the best of each member's knowledge (1) only public business matters lawfully exempted from open meeting requirements under the Virginia Freedom of Information Act, and (2) only such public business matters as were identified in the Motion by which the Closed Meeting was convened, were heard, discussed, or considered by the Board.

A Copy, teste: _____
William H. Ashton, II
County Administrator