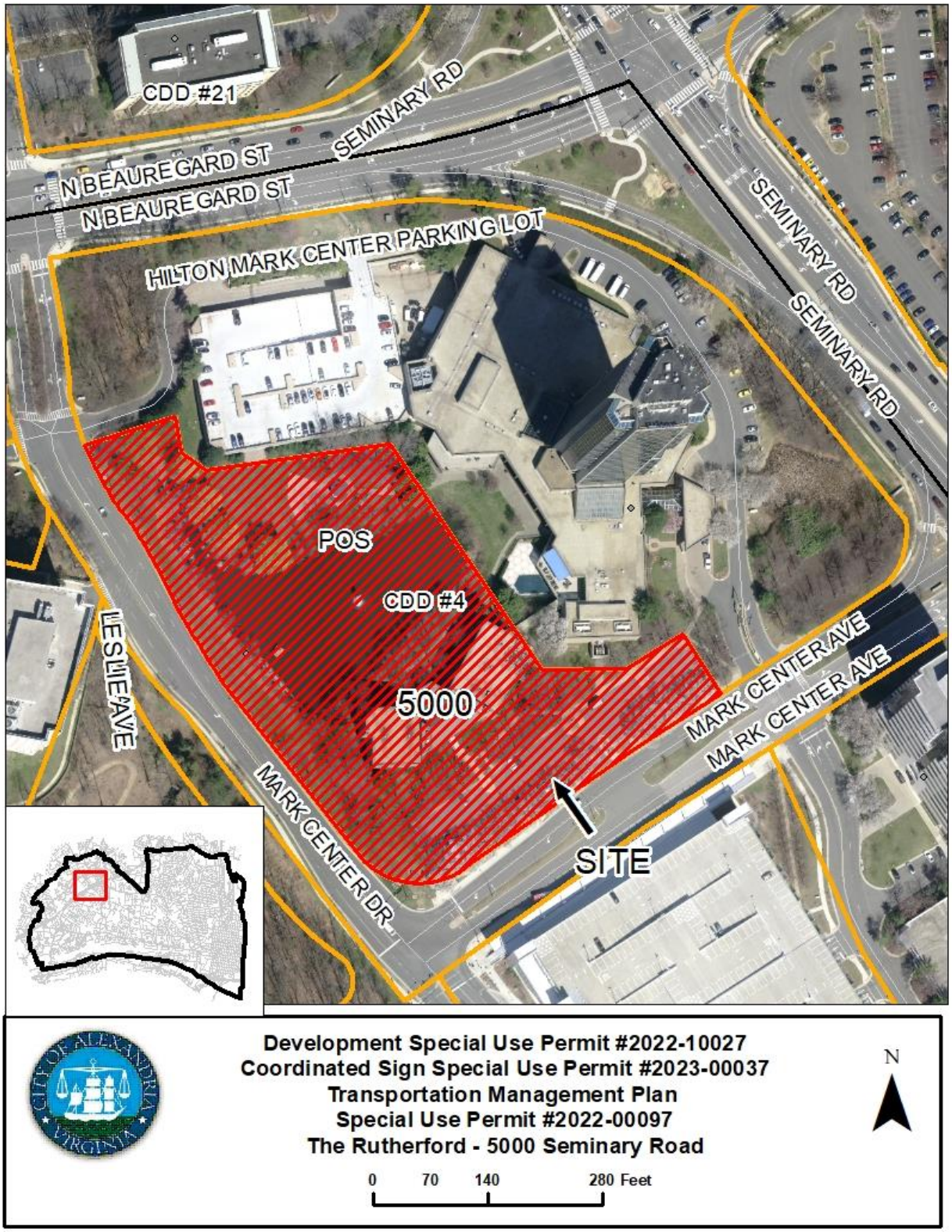
DOCKET ITEM #9
Development Special Use Permit #2022-10027
Transportation Management Plan #2022-00097
Coordinated Sign Special Use Permit #2023-00037
The Rutherford, 5000 Seminary Rd (future address 5050 Mark Center Drive)

Application	**General Data**	
Project Name: The Rutherford	PC Hearing:	June 6, 2023
	CC Hearing:	June 17, 2023
	If approved, DSUP Expiration:	June 17, 2026
	Total Plan Acreage:	4.56 acres / 198,829 sq. ft. (pre-ROW dedication area)
Location: 5000 Seminary Dr (future address 5050 Mark Center Dr)	Zone:	CDD#4
	Proposed Use:	Multi-family Residential
	Gross Floor Area Total	Existing:82,750 SF New: 592,783 SF
	Net Floor Area Total	Existing: 58,705 SF New: 457,307 SF
	Small Area Plan:	Beauregard Small Area Plan
Applicant: Mark Center Residential, LLC, represented by Kenneth Wire, Attorney	Green Building:	Complies with 2019 Green Building Policy

Purpose of Application
The applicant requests a Development Special Use Permit to construct a multi-family building with 367 units.
Special Use Permits and Modifications Requested:
A. Development Special Use Permit and site plan: • Special Use Permit to decrease off-street parking • Special Use Permit for penthouses to exceed 15 feet in height • Special Use Permit for a Coordinated Sign Plan • Special Use Permit for a transportation management plan for Tier III (multi-family building).

Staff Recommendation: APPROVAL WITH CONDITIONS
Staff Reviewers: Robert M. Kerns, AICP, Division Chief, Robert.Kerns@alexandriava.gov Maya Contreras, Principal Planner, Maya.Contreras@alexandriava.gov Maggie Cooper, Urban Planner III, Margaret.Cooper@alexandriava.gov


CDD #21
SEMINARY RD
N BEAUREGARD ST
N BEAUREGARD ST
HILTON MARK CENTER PARKING LOT
SEMINARY RD
SEMINARY RD
POS
CDD #4
5000
LESLIE AVE
MARK CENTER AVE
MARK CENTER AVE
MARK CENTER DR
SITE
Development Special Use Permit #2022-10027
Coordinated Sign Special Use Permit #2023-00037
Transportation Management Plan
Special Use Permit #2022-00097
The Rutherford - 5000 Seminary Road
N
0 70 140 280 Feet

I. SUMMARY

A. *Recommendation*

Staff recommends approval of the request from Mark Center Residential LLC to construct a multifamily development, subject to compliance with the Zoning Ordinance and all applicable codes, adopted policies, the Beauregard Small Area Plan, the Beauregard Urban Design Standards and Guidelines and staff's recommendations.

B. *General Project Description*

The applicant is proposing to construct The Rutherford, an approximately 457,307 net square foot multi-family building behind the existing Hilton Hotel, at the intersection of Mark Center Avenue and Mark Center Drive. The seven-story building will have 367 residential units, 25 of which will be affordable, and a three-story garage that is predominately at or below grade. The applicant is requesting Special Use Permits (SUP) for a parking reduction, for penthouses to exceed 15 feet in height, for a Coordinated Sign Plan (SUP#2023-00037), and a Transportation Management Plan (SUP#2022-00097). The development is being coordinated with the expansion of the existing Mark Center transit facility, in preparation for the West End Bus Rapid Transitway (BRT).

II. BACKGROUND

A. *Site Context*

The project site is one lot of record measuring 4.56 acres (198,829 square feet) at the intersection of Mark Center Avenue and Mark Center Drive. The lot was subdivided under SUB #2020-00001 from the Hilton Hotel parcel as part of the CDD#4 2021-00001 amendments.

The site is within the Mark Center, the Beauregard Small Area Plan and the AlexWest Small Area Plan study area. The northern portion of the site is bounded by the Hilton Hotel and associated structured parking, the eastern boundary is formed by Mark Center Avenue, the southern boundary by the intersection of Mark Center Avenue and Mark Center Drive and the western boundary by Mark Center Drive.

The site contains a surface parking lot, a man-made pond and the 65-foot-tall Hilton Hotel conference/retreat center, which was demolished in late 2022. The site is landscaped and includes a downward slope toward the southwest and west in the vicinity of Mark Center Drive. Vehicular access to the surface parking lot is provided directly from Mark Center Avenue.

Adjacent uses include the Washington Headquarters (BRAC-133) building, the City's Redella S. Pepper Community Resource Facility, the Winkler Botanical Preserve and the Sinclaire on

Seminary Apartments, a recently completed office to residential conversion.

B. Procedural Background

Coordinated Development District #4 (CDD #4) was approved in 1995 to create the City's premier office park, and while successful in its era, the office market has since changed substantially. In Fall 2020, two applicants, CRP Mark Center Hotel, LLC and Institute for Defense Analyses, approached staff regarding an amendment to the CDD for the future development of sites within the Mark Center/CDD#4 neighborhood; the subject property, referred to as the Hilton Site, and 4880 Mark Center Drive, referred to as the IDA site.

In October 2021, City Council approved Master Plan Amendment (MPA #2021-00006), Coordinated Development District (CDD) Conceptual Design Plan amendment (CDD #2021-00001), and Subdivision (SUB #2020-00010). The amendment allowed residential, office, commercial, hotel, and continuum of care uses at both sites, increased the allowed building height at the Hilton site to 100 feet, and granted the Hilton site 2.5 FAR and up to 420 new units.

The associated subdivision divided the existing Hilton Hotel parcel into two parcels, referred to as Lot 501 or Area III-A, on which the hotel would remain, and Lot 502 or Area III-B, where future development is expected. This new parcel at the Hilton site is where the Rutherford is located. Additional details can be found in the October 2021 staff report for the above amendments.

III. ZONING

Table 1: Zoning

Property Address:	5000 Seminary Road		
Total Site Area:	4.5645 Acres (198,829 square feet)		
Zone:	CDD #4		
Current Use:	Office		
Proposed Use:	Multi-Family		
	Existing Conditions	CDD #4	Proposed Redevelopment
Parcel Area	198,829 SF (4.56 AC)		193,298 SF (4.43 AC After Dedications)
FAR	0.30 FAR (conference center) (58,705 SF)	2.5 FAR (497,072 SF)	2.3 FAR (457,307 SF)
Height	65 ft	Max 100 ft	90 ft
Setbacks Mark Center Ave.	123 ft	0 ft	11ft

Mark Center Dr. North Property Line East Property Line	70 ft 29 ft 250 ft	0 ft 0 ft 0 ft	8ft 40- 96 ft (ranges) 31-105 ft (ranges)
Parking			
Office Use:	76 Surface Spaces	N/A	N/A
Residential Use:	N/A	485 (see section G for breakdown)	410 total (405 Garage 5 Surface) *
Loading spaces:	N/A	0	1
Open Space	N/A	25% (49,708 SF)	40.2% (80,000 SF)
Crown Coverage	25% (49,708 SF)	25% (49,708 SF)	26% (51,744 SF)

**SUP requested for parking reduction*

IV. STAFF ANALYSIS

A. Conformance to the Small Area Plan

Staff finds the proposal is generally consistent with the Beauregard Small Area Plan, and that reasonable justification has been provided where flexibility has been requested, as noted below:

- *Underground parking*- The substantial change in grade made it difficult to have all levels of parking fully underground. The applicant has substantially met this requirement with a bottom floor completely underground, one floor of parking below average finished grade and one floor of parking above average finished grade. The above-ground parking is fully screened along the public rights-of-way and includes decorative screening where exterior venting is needed.
- *Urban and Building Design*- The applicant has broken up the mass and height of the building by incorporating a variety of design elements that make the building appear as two buildings linked together by hyphens.
- *CDD#4*- The project is consistent with the amendments approved to CDD#4 (CDD#2021-00001) in October 2021 to allow for multifamily residential use on the property.
- *Streets*- The applicant is not proposing any new public streets with this application. Staff will continue to work with the applicant as the designs are refined for the expansion of the Mark Center Transit Facility, which will serve the upcoming West End Transitway.
- *Consideration of Transit and Street Design*- The applicant worked closely with P&Z and T&ES staff, as well as BDAC, to develop a site design and building program that worked with the topography, the proposed Transit Facility expansion and the requirements of a residential building.

Beauregard Urban Design Standards and Guidelines

The Beauregard Design Advisory Committee (BDAC) recommended approval of the proposal for a 367-unit multifamily building, as it is generally in conformance with the Beauregard Urban Design Standards and Guidelines, with some reasonable modification requests. The BDAC recommendation letter is attached (Attachment 1).

As the Mark Center neighborhood is largely constructed, BDAC review is limited to building design, per Condition 15 of the amended CDD#2021-00001:

> The portion of the Beauregard Design Guidelines pertaining to building design shall apply to new buildings, additions and significant renovations in CDD#4 for which a Development Special Use Permit (DSUP) is filed. The Beauregard Design Advisory Committee (BDAC) shall review the building design at such time that a preliminary DSUP is filed with the City. (P&Z)

B. Site Design /Architecture

Mark Center was developed over the last 40 years, primarily for office use, and this is the first new residential building in the CDD. Combined with the recent adaptative renovation of the former office building into the Sinclaire on Seminary apartments, the Mark Center is evolving as a mixed-use center.

The topography of the site and the planned expansion of the Mark Center transit facility heavily influenced the design of the Rutherford. The site elevation drops roughly 20 feet from the southwest to northwest, which made a lobby and entrance at the corner of Mark Center Drive and Mark Center Avenue infeasible. Additionally, the transit center expansion is planned for the Mark Center Avenue frontage, so moving the primary residential entrance to the Mark Center Drive frontage allowed space for a more cohesive arrival. The parking garage is three levels, one fully below grade, one partially below grade, and a third fully above grade, and the garage and loading area are accessed from a driveway off Mark Center Drive.

The proposed building is a strong modern structure that reads as two distinct buildings, each with its own architectural character and color scheme (see Figures 3 and 4), linked by glass connectors that are subsidiary to the two principal forms. The high percentage of glass on the top and lower levels on the south elevation along the open courtyard gives the impression of a bridge without impacting the unit layouts. The massing of the two penthouses gives a strong sense of varied height facing different directions, further supporting the two buildings design concept.

The materials for the structure are brick, architectural block, fiber cement, metal panels, and vinyl windows. Building A uses varying shades of browns and building B uses shades of gray, which assist in differentiating the buildings. The use of materials and colors helps the building feel related but not repetitive. The building achieves good articulation through the use of several window and

mullion configurations, balconies that project from the building, and balconies that recess into the building. Balconies at key locations provide architectural differentiation, without defaulting to a busy façade, echoing the decorating metal garage screening.

Because of its location, height, and the change in elevation, the beveled corner at the intersection of Mark Center Drive and Mark Center Avenue will become the most visible corner of the building. The varied colors, materials, mix of balconies and windows, and the open, visible courtyard immediately to the west help create a strong focal element at the intersection. The use of glass fencing and the terracing between the courtyard and the sidewalk along Mark Center Drive are nice features that allow a view of the courtyard and pool from the right-of-way.

The change in site elevation also impacted the location and design of the garage and loading area. The two-story glass base at the lobby creates a strong entrance and a sense of arrival. The drive court and driveway leading to the garage have a logical circulation. The thoughtful design, variation in materials, and the curvature of the formal entrance allow this area to function as a motor court and arrival space, rather than a traditional parking lot.

C. Open Space

The landscaping and open space surrounding the building have been planned to provide a mix of active and passive areas. A dog park and pickleball/multiuse court are located to the northwest of the building. The open grass area northeast of the building delineates the subject property from the Hilton Hotel property. A large grass area near the dog park and across from the lobby provides a visual break between the existing Hilton parking garage and the building. Bioretention plantings along Mark Center Drive and extensive terracing throughout the site assist with grade transitions.

Open Space Analysis

Per Condition #25 of the CDD amendment (CDD#2021-00001), the site is required to provide 25 percent open space at either the ground level or as a rooftop amenity. This project exceeds the requirement by providing 80,000 square feet, or 40 percent. The majority of the open space is located at-grade, with 60,000 square feet of publicly accessible space around the exterior of the building and 20,000 square feet of open space located in courtyards within the building. One courtyard will have a pool and social area, and additional amenities include a fenced dog park and a fenced pickleball/multi-use court.

Table 2: Open Space

	Amount of Land	Percentage of Entire Site (198,829SF)	Percentage of Total Open/Amenity Space
At-grade publicly accessible Open Space	60,000 SF	30%	75%

Private Open Space (interior courtyards)	20,000 SF	10%	25%
Total Provided	**80,000 SF**	**40%**	100%

Canopy Coverage

Because of the size and location of the proposed new building, as well as the grading required because of the topography of the site, all existing trees and plantings will be removed. The proposed landscape plan will provide 51,744 square feet of crown coverage, which is 26 percent of the site and 2,036 square feet and one percent more than the 25 percent crown coverage required. The landscape plan includes 45,000 square feet of coverage from 97 new trees comprising of 15 species and 6,744 square feet of coverage from shrubs.

D. Stormwater

Site stormwater management meets the requirements of the Virginia Stormwater Management Program (VSMP) Regulations and the Chesapeake Bay Act in accordance with Article XIII of the Zoning Ordinance for control of stormwater quality and quantity. To meet water quality requirements, the plan proposes the use of urban bioretention (stormwater planter boxes) and a proprietary manufactured treatment device. The proposed stormwater best management practices (BMPs) exceed the required phosphorus load reductions by 10% and improve phosphorus load reductions from the predevelopment condition by 25%. The plan meets City and State requirements for water quantity compliance for flood control and discharges to a natural channel by using run-off reducing stormwater BMPs and onsite detention.

The site has an existing wet pond that was built during the development of the Raddison (now Mark Center Hilton) Hotel. The pond was built for detention purposes and has no associated pollution reduction score. The plan proposes the removal of the existing wet pond and the installation of a large underground detention system. Per the conditions of approval, staff required a wildlife management and relocation plan to account for any displaced waterfowl, fish, reptiles, and amphibians during the pond deconstruction. Per the wildlife management and relocation plan, the relocation of native fish, reptiles, or amphibians will be done in consultation with the Virginia Department of Game and Inland Fisheries (DGIF) and will be relocated to a nearby watershed. Per the conditions of approval, staff required a Stormwater Pollution Prevention Plan (SWPPP) with enhanced protective measures from site sources to ensure preservation of the downstream Resource Protection Area (RPA).

E. Pedestrian, Streetscape, and Infrastructure Improvements

The applicant will provide several infrastructure improvements at the site. They are dedicating 5,531 square feet of right-of-way for sidewalks and bus stops, and installing four sawtooth bus bays that will accommodate the West End Transitway, a future eastern terminal for the Route 7

BRT line, additional DASH and Metrobus service, commuter routes, and shuttles. The bus bays will include junction boxes, electric connections, bus stop passenger loading pads, and benches. They are also installing sharrows that are consistent with AASHTO guidelines on Mark Center Drive and Mark Center Avenue. These infrastructure improvements will count as a credit towards the developer contributions that the applicant is required to provide for the project.

F. *Parking, Traffic, and Transit*

The site is well served by vehicular access as North Beauregard Street and Seminary Road are primary transportation corridors within the City and the site is proximate to I-395 which provides strong regional connectivity. The site is well-served by a robust variety of transit options. The site is adjacent to the Bus Station at Mark Center with regional connectivity to the Metrorail System, VRE, the Pentagon, Ballston, and Tysons Corner. The planned West End Transitway has proposed stops adjacent to the subject site and will further connect the site to a regional transportation system. Future improvements, such as an enhanced bicycle network and pedestrian trails, are called for in the Beauregard Small Area Plan.

Traffic Impacts

A multimodal traffic impact analysis was conducted in December 2022 to evaluate the impacts the proposed development will have on the existing transportation network and to identify if mitigation measures are needed to offset the impacts. While the development would result in a slight increase in overall intersection and turning movement delays, the analysis found that the additional vehicle trips generated by the development would have a negligible impact on the road network.

The proposed 370 multifamily units are estimated to generate 87 additional AM peak hour trips, 86 additional PM peak hour trips, and 976 daily trips upon completion by 2025 when compared to existing uses. The study also found that there is an efficient transit system in place, which will be improved once the West End BRT is operable (see below *Transit Improvements* for more detail).

Parking/Loading

Residential Parking Requirements

Table 3: Parking Requirements

	Market Rate	Affordable	Total
Number Bedrooms/Units*, **	501 bedrooms	25 units / 34 bedrooms	-
Base Ratio (per bedroom)	1.00	1.00	-
Maximum Parking Requirement	490	34	524
Voluntary Ratio	1.00	.75	-
Credits			-
Proximity to BRT	-	-	-
Walkability Index	-	-	-
4 or more bus routes	5%	5%	-
20% or more studios	-	-	-

Total Credits	5%	5%	-
Adjusted Ratio	.95	.71	-
Minimum Parking Requirement	466.5	18	485
Provided Residential Parking			410
* Voluntary Ratio based on up to 2 *bedrooms* for market rate units, and *units* for affordable units ** See Table 4 – Unit Mix for breakdown of unit types			

Parking for the project will be located on three levels, one fully below grade, one partially below the average finished grade, and one above the average finished grade, with the garage entrance accessed from Mark Center Drive. The project proposes 410 spaces (405 garage spaces and five surface spaces), and the applicant has requested a SUP for a parking reduction of 75 parking spaces, as described above. The project will also include 119 bicycle parking spaces for residents.

Transit Improvements

West End Transitway / Transit Center Expansion

Consistent with recommendations in its Transportation Master Plan, the City is implementing a Bus Rapid Transit (BRT) system known as the West End Transitway to provide high-capacity transit service using a combination of dedicated and shared lanes and enhanced stations with rider amenities. The future transit corridor route is expected to run along Mark Center Drive and Mark Center Avenue, with a stop at the Mark Center Transit Station. An expansion of the existing station to an area across the street adjacent to the west side of the proposal, which will include four additional bus bays, is planned to accommodate the West End Transitway, a future eastern terminal for the Route 7 BRT line, additional DASH and Metrobus service, commuter routes and shuttles.

The West End Transitway project was awarded funding from the Commonwealth Transportation Board in June 2019 and design work for the first phase of the BRT project began in late 2022.

Ellipse Re-Evaluation Study

At the time of its adoption in 2012, the Beauregard Small Area Plan anticipated the need for traffic-related improvements at the intersection of North Beauregard Street and Seminary Road, immediately adjacent to the Hilton site. One of the largest of these improvements is known as "the Ellipse", or an elliptical-shaped re-design of the intersection, to improve traffic flow. However, in the nine years since the adoption of the Plan, the anticipated redevelopment levels that would prompt the need for the Ellipse has not occurred.

Transportation & Environmental Services (T&ES) staff is coordinating an "Ellipse Re-Evaluation Study" to determine whether the Ellipse is still needed, or if another traffic and transportation improvement projects could better serve the area. Staff is currently considering and evaluating alternative designs by modeling the study intersection's performance using updated traffic counts and assumptions about future conditions given the market of development and regional travel. The

study is slated to be complete Fall 2023 and a preferred alternative will be recommended to move toward full design as part of the AlexWest SAP update.

G. City Policies

Green Building and Sustainable Design

The City's 2019 Green Building Policy established that newly constructed private buildings should achieve a *minimum* green building certification level of LEED Silver (or equivalent) and meet the City's identified performance points. The applicant will achieve conformance with the Green Building Policy using LEED for New Construction v4 certification at the Silver level, in addition to meeting the City's required performance points.

The project will feature three interior courtyards, enhancing access to natural daylight for occupants. High efficiency LED lighting will be used throughout, and the building envelope will meet IECC 2018 thermal insulation values. EnergyStar appliances will be used.

Renewable energy will not be produced on site at this time. However, the project will be solar ready with the necessary infrastructure installed to support future photovoltaic panel installation. The building's EUI will be provided prior to the release of building permit. The project will install five dual EV charging stations for a total of 10 charging ports initially and will install conduit and junction boxes to prepare for a total of 40 charging ports in the future.

Public Art

Pursuant to the City's Public Art Policy, the applicant proposes to include public art at the project site. There are several locations on the site that would be well-suited for the art installation. The applicant will coordinate with staff on the location and implementation of public art during the Final Site Plan process. In the event they opt not to install on-site art, they will provide a $75,000 monetary contribution, which will be used towards City art projects within the Beauregard SAP area.

Affordable Housing

The proposed 367-unit development is providing a tiered affordable housing contribution comprising a voluntary monetary contribution of $181,453 consistent with the current city policy; a monetary contribution of $811,547 as part of the Beauregard Development Implementation Fund; and 25 on-site committed affordable rental set-aside units pursuant to the City's 2020 Housing Contribution Policy Update (2020 Update).

Voluntary Monetary Contribution

The first 58,705 square feet of residential density, permitted by the underlying zoning, is subject to the City's Affordable Housing Contribution Policy and results in a voluntary monetary contribution of $188,453 to the Housing Trust Fund.

Beauregard Development Implementation Fund Monetary Contribution

The subject site is located in the Beauregard Small Area Plan (BSAP). Pursuant to the BSAP, developer contributions are charged on net new development and are intended to offset plan-wide and neighborhood-specific impacts to infrastructure, public facilities, affordable housing, and other city priorities by new development. It is noted that at the time the BSAP contribution rate was established in 2012, new development on the subject site, as well as on the neighboring IDA site, was not contemplated and consequently was not included as part of the contribution analysis.

With the proposed new density, the contribution rate applicable to the proposed project has been modified. As a consequence, the applicant is meeting the BSAP contribution through a combination of in-kind transportation improvements discussed in Section I, and through a $811,547 contribution for affordable housing to the Housing Trust Fund. The contribution amount will be paid directly to Housing when the project receives its Certificates of Occupancy, which is also a variation of the funding plan described in the BSAP.

Set-Aside Units

The subject site is part of Coordinated Development District (CDD) #4. It is noted that CDD #4 was amended by City Council in October 2021 to allow up an additional 438,367 square feet of residential multifamily, commercial, office, hotel and/or senior living on the Hilton site. Projects seeking density exceeding the level permitted in the underlying Small Area Plan, as is the case with the proposed project, are subject to the 2020 Update.

Located in an Emerging Submarket, as defined by the 2020 Update, the project is required to provide eight percent of density in excess of the density permitted in the underlying Small Area Plan be provided as committed affordable housing. The twenty-five set-aside units proposed as part of this project result from this policy; the methodology used to derive the units is described below. The units are valued at approximately $5.4-$6.0 M based on the proposed unit mix which is proportional to the overall unit mix (see Table 4).

Table 4: Unit Mix

Unit Type	Units	Unit Mix as % of Total	Affordable Units*	Affordable Units as % of Total Affordable Units
Studio	38	10%	2	8%
One-Bedroom	145	40%	10	40%

One-Bedroom + Den	27	7%	2	8%
Two-Bedroom	115	31%	8	32%
Two-Bedroom + Den	30	8%	2	8%
Three-Bedroom	12	3%	1	4%
Total	**327**		**25**	**100%**

**The final unit mix may be subject to refinement at the time of Final Site Plan to ensure proportionality.*

The methodology used to calculate the floor area and set-aside units resulting from the application of the 2020 Housing Policy is summarized below:

Permitted development under existing approvals: 58,705 SF
Proposed development: 444,801 SF
Proposed residential development: 385,000 SF
Proposed structured parking: 59,801 SF
Increase in residential density: 326,295 SF

Affordable housing floor area generated by 2020 Policy: 326,295 × 8% = 26,104 SF
Total number of residential units: 367
Average square feet per unit: 385,000 SF ÷ 367= 1,049 SF/unit (including prorated common area square footage)
Number of affordable units: 26,104 SF ÷ 1,049 = 24.9 units
Proposed affordable units: 25 units

Set-aside rents (adjusted for utilities and parking fees) will be affordable to households with incomes at 60% of the area median income (equivalent to $59,820-$85,380 in 2022 for a household with one to four members, respectively), as well as to eligible households with Housing Choice (Section 8) vouchers as required by State law. 'Non-standard' unit types, such as junior one-bedroom and one-bedroom/two-bedroom + den units, will have rent limits equal to their closest equivalent; junior one-bedroom units will rent at a studio rate, one-bedroom + den units will rent at a one-bedroom rate, and two-bedroom + den units will rent at a two-bedroom rate. The units will remain affordable for a 40-year period from the date of initial occupancy. The residents of the set-aside units will have the same access to amenities as market-rate residents in the project. The applicant has confirmed that the project will be constructed as a rental community.

Alexandria Housing Affordability Advisory Committee (AHAAC)

The applicant presented its Affordable Housing Plan (AHP) dated April 26, 2023, to the Alexandria Housing Affordability Advisory Committee (AHAAC) on May 4, 2023. The applicant noted that the proposed project is the first application within the BSAP to involve an increase in

density following the adoption of the 2020 Housing Policy Update and underscored its efforts to maximize the total affordable housing contribution.

While not specific to the project under discussion, some AHAAC members expressed concerns over when and how the City would be able to buy down affordability in other projects anticipated in the BSAP. Another member inquired if some of the monetary contributions could have been put towards deepening the affordability of several of the set-aside units; staff noted that the applicant had declined this option citing investor concerns. Expressing overall support for the 25 set-aside units, the Committee voted unanimously to approve the AHP. It was noted by staff, the developer and AHAAC that the resolution of the housing contribution for this development should not be considered a precedent for others but reflected a shared desire that the project move forward despite current market uncertainties and the additional, unanticipated development square footage emerging within the BSAP.

H. Special Use Permit Requests

The applicant is requesting Special Use Permits for the following items:

- Decrease in off-street parking
- Penthouses that exceed 15 feet in height
- Coordinated Sign Plan
- Special Use Permit for a Transportation Management Plan for Tier III (multi-family building).

Transportation Management Plan SUP #2022-00097

Section 11-700 of the City's Zoning Ordinance requires development projects with more than 20 units to participate in a Transportation Management Plan (TMP) to encourage residents to maximize transit use through alternative forms of transportation, including buses, bicycles, carpooling and other efforts to reduce the number of single vehicle occupancy trips. As the applicant is proposing a development with 367 units, the applicant is categorized as a Tier III use within the classification of the Zoning Ordinance, has developed a TMP, and is required to participate in the plan through Section 11-702.

Coordinated Sign Plan SUP2023-00037

Staff supports the request for a Coordinated Sign Plan. The subject property is located behind the Hilton property and is not visible from Seminary Rd or Beauregard Street, and the scale of the parcels support this level of signage. Final design of the signage will be reviewed during the Final Site Plan.

The applicant is requesting:

- Two illuminated blade signs each measuring 30ft x 3ft located more than 20 ft from grade on the southwest and southeast elevations;

- An illuminated wall sign facing northeast measuring 35ft x6 ft located more than 20 ft from grade;
- Three wall signs facing northwest. The signs for parking and loading are less than 20 feet from grade and the third sign is an illuminated sign measuring 45ft x 6ft located more than 20 ft from grade; and,
- Three freestanding monument signs: one on-site at the entrance on Mark Center Drive, and two off-site on the Hilton property at the intersection of Seminary Road and Mark Center Avenue and the intersection of Mark Center Drive and North Beauregard. The applicant has a private sign easement with the Hilton property owners to locate the signs at these locations. The proposed signs will be no more than 4 feet tall, including a 2-foot freestanding wall (see Figure 1).

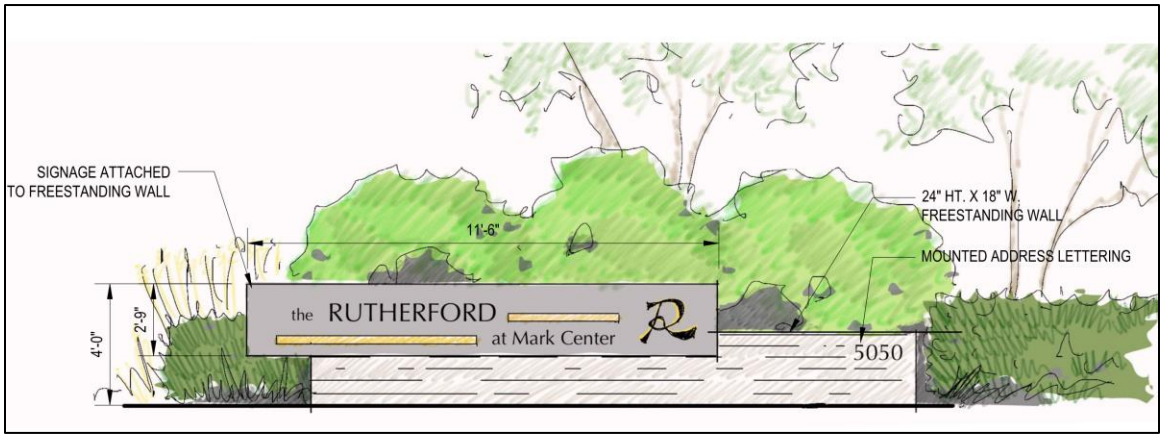


Figure 1- Proposed Monument Sign

Penthouse Height

Staff supports the request for additional penthouse height. Per section 6-403(3)(B), penthouses can only exceed 15 feet in height with an SUP. The proposed height of the penthouses is 18 feet, which is needed to accommodate stairs, elevators, mechanical equipment, and similar appurtenances. The penthouses also assist in the overall design of the building by providing height differentiation and visual cues that allow the project to read as two buildings instead of one.

Parking Reduction

The applicant has requested a SUP for a parking reduction of 75 parking spaces, for a total of 410 spaces (405 garage spaces and five surface spaces), rather than the 485 off-street parking spaces required by the Zoning Ordinance. Staff is supportive of this reduction because of the proximity to existing, and the pending expansion of proposed, transit.

Special Use Permit Potential Impacts

Section 11-500 of the Zoning Ordinance directs staff to review the potential impact of the Special Use Permit request to assess potential negative impacts of the request and to ensure the proposal: a) will not adversely affect the health or safety of persons residing or working in the neighborhood of the proposed use; b) will not be detrimental to the public welfare or injurious to property or improvements in the neighborhood; and c) will substantially conform to the master plan of the city.

A. Will not adversely affect the health or safety of persons residing or working in the neighborhood of the proposed use:
    - The proposed size and location of the signs have been designed to provide tasteful signage for the building to enhance building identification for public safety and to enable visitors and residents to more easily navigate the site. The locations and size of the signs have been reviewed to ensure minimal visual impact while providing needed identification.
    - The transportation management plan will require the applicant to coordinate parking management and activities with existing TMPs on adjacent properties, to encourage greater efficiency, and will ensure the careful monitoring of on-site parking to encourage a reduction of single-occupancy vehicle trips. A Tier III designation will not affect the health or safety of the neighborhood.
    - The increased penthouse height will have no impacts on health or safety.
    - The parking reduction of 75 spaces will result in fewer cars on the street and an increased usage of the transit options in the neighborhood.

B. Will not be detrimental to the public welfare or injurious to property or improvements in the neighborhood:
    - The signage will provide enhanced building identification and wayfinding which will facilitate easier navigation of the site for residents, visitors, and emergency services.
    - A transportation management plan will encourage strategic investments to reduce single occupancy vehicle trips and encourage shared transportation options such as bus rapid transit and carpooling. As more individuals participate in alternative forms of transportation, an overall reduction in vehicular congestion occurs which is beneficial to the surrounding community in the form of reduced environmental impacts and increased home values for properties proximate to a strong transportation network.
    - The increased penthouse height will not be detrimental to the neighborhood.
    - The parking reduction will not be detrimental to the neighborhood as the increasing number of transit options will offset the need for all residents to have cars.

C. Will substantially conform to the master plan of the city:

- The Beauregard Urban Design Standards and Guidelines does encourage high quality signage design which is integrated into the overall streetscape of a site. The applicant's overall sign plan has been reviewed by staff and BDAC and presents a quality design that has been integrated into the site design to provide wayfinding and building identification.
- The Beauregard Small Area Plan identifies district-wide Transportation Management Plans (TMPs) as an opportunity to reduce single occupancy vehicle trips.
- The increased penthouse height confirms to the master plan as, with the penthouses, the building will be no more than 86 feet tall, which is substantially below the allowed height of 100 feet.
- The parking reduction conforms with the master plan as there are plans to substantially improve the transit options in this area with the expansion of the West End Transit Way, which this project is assisting with.

I. BSAP Developer Contributions

The subject site is located in the Beauregard Small Area Plan (BSAP). Pursuant to the BSAP and CDD #2021-00001, developer contributions are charged on net new development and are intended to offset plan-wide and neighborhood-specific impacts to infrastructure, public facilities, affordable housing, and other city priorities by new development.

As explained above in section F *Ellipse Re-Evaluation Study*, the need for the ellipse at the intersection of North Beauregard Street and Seminary Road that was anticipated in 2012 has decreased and TES Staff is currently conducting a study to evaluate alternative approaches to infrastructure improvements in this area. Because the contribution outlined in the BSAP factored in the expense of the Ellipse, Staff is supportive of the applicant fulfilling their developer contributions through in-kind infrastructure improvements (valued at approximately $2.903 million) and an $811,547 contribution to the Housing Trust Fund (explained in more detail above in section G).

In-Kind Infrastructure Improvements

Prior to the project's proposal, T&ES staff had identified frontage on Mark Center Avenue, across the street from the existing Mark Center Transit facility, as a location for an expansion of the transit facility to accommodate the upcoming West End Transitway Bus Rapid Transit (BRT) service.

As part of their in-kind infrastructure improvements, the applicant will dedicate 5,531 square feet of right-of-way along Mark Center Avenue for sidewalks and bus stops and will coordinate with City staff on intersection improvements at North Beauregard Street and Seminary Road, and on the installation of four sawtooth bus bays at the Transit Center expansion. This will include junction boxes, electric connections, and bus stop passenger loading pads, as well as sharrow-style bike lanes on Mark Center Drive and Mark Center Avenue.

Staff finds these improvements will adequately off-set the impacts the Rutherford will have on the neighborhood's infrastructure and will help to facilitate the future new bus rapid transit that will benefit the community.

J. School Impacts

In anticipation of the Rutherford development, Alexandria City Public Schools (ACPS) and the City of Alexandria estimated the number of new students expected to join the school system based on historical enrollment and residential property data. The applicant proposes to construct 367 units, of which 25 units will be affordable. Per the current Student Generation Rate jointly developed by ACPS and the City, the proposed development could generate approximately 35 students, as outlined below:

Table 5 – Student projections

	Units	Student Generation Rate	Students
Affordable households	25	0.83	20.75 students
Market rate households	342	0.04	13.7 students
Total	**367**		**35 students**

The students from this development would be included in the enrollment forecasts that are used to plan school capacity improvements. The neighborhood is in the attendance area for Ferdinand T. Day Elementary School, Francis C. Hammond Middle School, and Alexandria City High School. Students would be distributed over all grade levels.

Ferdinand T. Day is currently within the ideal utilization range (90-110% capacity), and Francis C. Hammond is above capacity but within utilization range. City and ACPS staff will monitor and integrate the projected student generation numbers in forthcoming school enrollment projections and ACPS will continue to coordinate with the City to review, plan and allocate resources.

V. COMMUNITY

Development in CDD#4 is reviewed for design by the Beauregard Design Advisory Committee (BDAC), and the group met in person four times at the Patrick Henry Rec Center to discuss this proposal: September 25, 2022, October 24, 2022, December 5, 2022, and voting to recommend support on February 6, 2023. An additional virtual pre-construction related to demolition of the convention center was held on December 12, 2022.

Development of the site was supported by BDAC and community members who attended. Concerns were generally focused on traffic, expansion of and impacts to the transit facility, pedestrian and bike access in Mark Center and building design.

VI. CONCLUSION

Staff recommends approval of the Development Special Use Permit, and all associated applications subject to compliance with City codes, ordinances and staff recommendations below.

Attachment 1: BDAC Recommendation Letter

VII. GRAPHICS

Figure 2 Night view from Mark Center Drive

Figure 3 View from Mark Center Avenue

Figure 4 View from Northwest

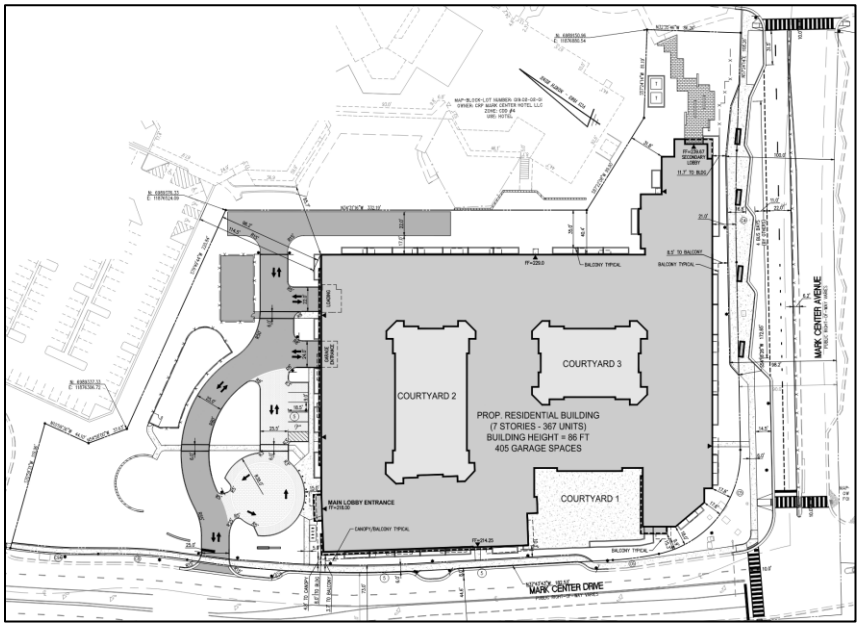


Figure 5 Site Plan

VIII. STAFF RECOMMENDATIONS

1. The Final Site Plan shall conform substantially with the preliminary plan dated 1/18/2023, and amended on 5/16/2023, and comply with the following conditions of approval.

I. SITE PLAN

2. Per § 11-418 of the Zoning Ordinance, the development special use permit shall expire and become null and void, unless the applicant commences substantial construction of the project within 36 months after initial approval and the applicant thereafter pursues such construction with due diligence. The applicant shall provide a written status report to Staff 18 months after initial approval to update the City Council on the project status if they have not yet commenced substantial construction. The applicant may petition to extend the validity period after adequate notice and a public hearing. (P&Z)

3. Submit the plats and associated deeds for all applicable easements as part of the first Final Site Plan. The applicant must obtain approval of the plat(s) prior to or concurrent with Final Site Plan release. (P&Z) (T&ES) *

    a. Provide public easements to the satisfaction of the Directors of P&Z and T&ES.

    b. Emergency Vehicle Easement(s) (EVE) shall not be painted. When an EVE is shared with a pedestrian walkway or consists of grasscrete or a similar surface treatment, the EVE shall be defined in a manner that is compatible with the surrounding ground plane.

4. Make all fee simple conveyances to the City with General Warranty of title (unless not available) or provide current ALTA survey and Title Report that includes the areas to be dedicated to City. Include the City as an authorized user of the ALTA survey for any purposes that the City deems necessary, including obtaining title insurance. Submit the ALTA survey and Title Report for review prior to approval of subdivision plat and deed by City. (T&ES) *

5. Record the plat and submit a copy of the recorded plat, dedications, and deeds with the first application for a building permit. (P&Z) (T&ES) **

6. Show site utilities compatibly with other site conditions on the site plan to the satisfaction of the Directors of P&Z and T&ES prior to Final Site Plan release, specifically: (P&Z) (T&ES) *

a. Locating above grade service openings and required clearances for items such as transformers, telephone, HVAC units, and cable boxes.
b. Minimizing conflicts with plantings, pedestrian areas, and major view sheds.
c. Excluding above grade utilities from dedicated open space areas and tree wells.
d. Screening all utilities from the public right-of-way.

7. Provide a lighting plan with the Final Site Plan, unless otherwise identified below, to verify that lighting meets City standards. The plan shall be to the satisfaction of the Directors of P&Z and T&ES in consultation with the Chief of Police and Code administration shall include: (P&Z) (T&ES) (Code) *

a. The location of all existing and proposed streetlights and site lights, shading back less relevant information.
b. A lighting schedule that identifies each type and number of all fixtures, mounting height, and strength of fixture in Lumens or Watts.
c. A photometric plan with lighting calculations encompassing all existing and proposed streetlights and site light fixtures, including any existing streetlights located on the opposite side(s) of all adjacent streets. Photometric calculations must extend from proposed building face(s) to property line and from property line to the opposite side(s) of all adjacent streets and/or 20 feet beyond the property line on all adjacent properties and rights-of-way.
d. Manufacturer's specifications and details for all proposed fixtures including site, landscape, pedestrian, sign(s), and security lighting.
e. The numeric summary for various areas (i.e., roadway, walkway/sidewalk, alley, and parking lot, etc.) in the proposed development.
f. Full cut-off lighting as applicable to prevent light spill onto adjacent properties. Provide a plan distinguishing between the site with all streetlights and other pertinent off-site lighting and the site without streetlights and off-site lighting to demonstrate how the plan complies with light spill regulations.
g. Additional lighting to achieve City standards if existing lighting within the City right-of-way adjacent to the site does not meet the minimum standards.
h. Basic, approved Dominion LED light fixtures for all proposed light fixtures in the City right-of-way.
i. All site lights designed to meet City of Alexandria photometric standards shall have photovoltaic switches.
j. The location of conduit routing between site lighting fixtures to avoid conflicts with street trees.

k. Details indicating proposed light pole and footings relative to the adjacent grade and pavement. All light pole foundations shall be concealed from view or light poles shall be direct bury.
l. Light-colored concrete (painted) for walls and ceilings in all garages to increase reflectivity and improve night lighting levels. **
m. A minimum average of 3.5-foot candle-maintained lighting for underground/ structured parking garages. When unoccupied the lighting levels may be no less than 1-foot candles. **
n. Light fixtures for the open canopies and underground/structured parking garages shall not be visible from the public right-of-way. **

8. Provide a unit numbering plan for each floor of a multi-unit building with the first Final Site Plan. The unit numbers shall comply with a scheme of 100 level numbers on the first floor, 200 level numbers on the second floor, and continue in this scheme for the remaining floors. Indicate the use of each unit (i.e., residential, retail, office). (GIS) *

9. Provide a georeferenced CAD file in **AutoCAD 2018**.dwg format that adheres to the National CAD Standards prior to Final Site Plan release. The file shall have the dimension plan including existing conditions, proposed conditions, and grading elements. (P&Z) (DPI) (GIS) *

10. Sheeting and shoring, support of excavation shall not extend beyond the property line, except when the applicant has obtained a written release or encroachment from adjacent property owners which has been reviewed prior to Final Site Plan release and recorded in the Land Records. (P&Z) (Code) *

A. BUILDING

11. Provide a building code analysis with these building code data prior to Final Site Plan release: (1) use group, (2) number of stories, (3) type of construction, (4) total floor area per floor, (5) height of structure, (6) non-separated or separated mixed use, and (7) fire protection system requirements. (P&Z) (Code) *

12. The building design, including the appearance, color, and quality of materials; final detailing; three-dimensional expression; and depth of all plane changes, shall be consistent with the elevations shown on the preliminary development special use permit dated 1/18/2023, and amended on 5/16/2023, and the following conditions. Provide this information regarding materials and design to the satisfaction of the Director of P&Z prior to Final Site Plan release: (P&Z) (Code) *

a. Samples of actual window glazing, frame, and sash components proposed for each area of the building in the color and material that will be provided (may reduce sample sizes for ease in handling).

i. Window sizes and types.
ii. Window mullion dimensions and projection in front of face of glass.
iii. Window frame, sash, and mullion materials.

b. Where fiber cement façade panels are permitted, they shall not use a wrap-around trim for mounting to the substructure but may use either a batten system to conceal the joints or a rainscreen type installation. If exposed fasteners are proposed, they may be either concealed or if exposed, shall be finished to match the adjacent panels and their location integrated into the overall design.
c. The underside of all balconies shall be finished with paint, stain or similar to present a visually cohesive appearance.
d. Where specified by the governing Small Area Plan and accompanying Design Guidelines, or by the governing CDD documents, the maximum percentage of fiber shall be interpreted as the percentage of ***solid façade*** that is fiber cement (excluding glazed portions of the elevation). Typically, such restrictions shall apply to building facades that face any public right-of-way or public open space, along with any portions of open courtyards that are visible from same.
e. Coordinate the design, color, and materials of all penthouses, rooftop mechanical areas, and rooftop screening with the overall architecture of the building, as regards massing, materials, and detailing/expression.
f. The recessed or projecting depth of brick rustication must be a minimum of ½ inches.
g. Where plane changes in facades are proposed, they shall generally not be less than two feet, unless otherwise shown on the DSUP plan set.
h. Where dissimilar materials meet, they must typically meet at an interior corner; where that is not possible, such transitions shall occur at a significant plane change or reveal.

13. Provide detailed drawings in realistic colors to permit evaluation of key building elements such as the building base, entrances, entry canopy, stoops, windows, balconies, railings, cornices, and other ornamental elements, and material details including the final detailing, finish, and color of these elements prior to Final Site Plan release. (P&Z) *

a. The drawings shall be enlarged and coordinated plan-section-elevation studies, typically at ¼" =1'-0" scale, with shadows cast at 45 degrees from both left and above to show true depth of recesses and projections.
b. Separate design drawings shall be submitted for each primary building typology, different wall, or bay type.
c. When warranted by the three-dimensional complexity of the design, the applicant shall provide isometric vignettes of special conditions or building areas to the satisfaction of the Director of P&Z.

d. All structures must remain within the property (e.g., balconies, railings, and canopies), unless permitted under the City of Alexandria Code or an encroachment has been obtained.

14. Provide the items listed below to allow Staff to review the materials, finishes, and architectural details. These materials shall conform substantially to the preliminary plan and the current *Guidelines for Preparation of Mock-Up Panels*, Memo to Industry effective at application submission.

a. Prior to ordering final building materials, provide a materials board that includes all proposed materials and finishes at first Final Site Plan. The materials board shall remain with P&Z until the issuance of the final Certificate of Occupancy, when Staff will return all samples to the applicant. (P&Z) *, ***
b. Staff may request more detailed/extensive materials relating to the proposed fenestration, such as samples of the glazing, frame, and sash components, and including whether the windows will be double-or-triple glazed and have simulated divided lights. *
c. Drawings of mock-up panel(s) that depict all proposed materials, finishes, and relationships as part of the first Final Site Plan. *
d. An on-site, mock-up panel using the approved materials, finishes, and relationships shall be constructed for Staff review and approval. Per VCC108.2 concrete or masonry mock-up panels exceeding 6-ft. require a building permit. The panel(s) shall be constructed and approved prior to vertical (above-grade) construction and before ordering building materials. Locate the panel so that it receives sunlight from the same predominant direction as will the finished structure. **
e. The mock-up panel shall remain on-site, in the same location, and visible from the right-of-way without entering the site throughout construction until the issuance of the first Certificate of Occupancy. (P&Z) (Code) ***

B. OPEN SPACE/LANDSCAPING

15. Develop a palette of site furnishings for review and approval by Staff prior to Final Site Plan release.*
a. Provide location, and specifications, and details for site furnishings that depict the installation, scale, massing, and character of site furnishings to the satisfaction of the Directors of P&Z and T&ES.
b. Site furnishings may include benches, bicycle racks, trash bins, recycling receptacles, and other associated features. City standard materials are mandatory in all public right-of-way. (P&Z) (T&ES)

16. Provide material, finishes, and architectural details for all retaining, seat, decorative, and screen walls prior to Final Site Plan release. Indicate methods for

grade transitions, handrails, directional changes, and above and below-grade conditions. Coordinate with adjacent site and building conditions. Design and construction of all walls shall be to the satisfaction of the Directors of P&Z, T&ES, and Code. (P&Z) (T&ES) (Code) *

17. Applicant shall develop a dog exercise area maintenance plan prior to the release of the first Certificate of Occupancy that includes daily maintenance and operations, routine repairs, capital maintenance, and capital replacement.

C. TREE PROTECTION AND PRESERVATION

18. Provide a Tree and Vegetation Protection Plan per the City of Alexandria's Landscape Guidelines for approval prior to Final Site Plan release and implement the plan for the duration of construction. (P&Z) (RP&CA) *

D. ARCHAEOLOGY

19. Call Alexandria Archaeology immediately at (703) 746-4399 if any buried structural remains (wall foundations, wells, privies, cisterns, etc.) or concentrations of artifacts are discovered during development. Work must cease in the discovery area until a City archaeologist comes to the site and records the finds. The language noted above shall be included on all Final Site Plan sheets involving any ground disturbing activities. (Archaeology) *

20. The applicant shall not allow any metal detection and/or artifact collection to be conducted on the property, unless authorized by Alexandria Archaeology. Failing to comply shall result in project delays. The language noted above shall be included on all Final Site Plan sheets involving any ground disturbing activities. (Archaeology) *

E. <u>PEDESTRIAN/STREETSCAPE</u>

21. Provide the pedestrian improvements listed below to the satisfaction of the Directors of P&Z and T&ES. Complete all pedestrian improvements prior to the issuance of the final Certificate of Occupancy. (P&Z) (T&ES) ***

    a. Install ADA accessible pedestrian improvements serving the site.
    b. Construct all concrete sidewalks to City standards. The minimum unobstructed width of newly constructed sidewalks shall be six feet.
    c. Maintain a minimum six-foot amenity zone with street trees between the sidewalk and curb face on Mark Center Drive including at the approach to the corner with Mark Center Avenue.
    d. Sidewalks shall be flush across all driveway crossings.
    e. All newly constructed curb ramps shall be concrete with detectable warning and shall conform to current VDOT standards.

f. Provide separate curb ramps for each direction of crossing (i.e., two ramps per corner). Curb ramps shall be perpendicular to the street.
g. Provide thermoplastic pedestrian crosswalks with ramps at the north and west crossings of the intersection at Mark Center Drive and Mark Center Avenue
h. All crosswalks shall be standard high-visibility crosswalks. Alternative crosswalk treatments must be approved by the Director of T&ES.
i. Install audible pedestrian countdown signals and pedestrian activated pushbuttons in accordance with City Standards on either end of the proposed crosswalk crossing Mark Center Drive at the Mark Center Ave signalized intersection. All pedestrian-activated push buttons shall be accessible per ADA Accessibility Guidelines (ADAAG).
j. All below grade utilities placed within a City sidewalk shall be integrated with the adjacent paving materials and to minimize any visible impacts.
k. Any special paving materials proposed on private property must be load rated for emergency vehicles.

F. PARKING

22. All residential parking shall be unbundled (i.e., the cost to purchase or rent a parking space is separate from the cost to purchase or rent the residential unit). (T&ES)

23. Provide wheel stops for all 90-degree and angled vehicle parking spaces adjacent to a sidewalk if the back of the sidewalk is less than 7 feet from the curb. (T&ES).

24. Provide a Parking Management Plan with the Final Site Plan submission that complies with the requirements of the Parking Management Plan Template provided in Memo to Industry 01-19. To release the Final Site Plan, the Parking Management Plan shall be approved by the Departments of P&Z and T&ES. (P&Z) (T&ES) *

25. Once per year, if available, share parking occupancy data for the facility with the City upon request. (T&ES)

26. Upon Applicant's request, parking spaces within the garage that are required to comply with zoning requirements may be made available for public/off-site if excess parking can be demonstrated to the satisfaction of the Directors of P&Z and T&ES. (P&Z) (TE&S)

27. Show all existing and proposed on-street parking controls and restrictions on the Final Site Plan. The Traffic and Parking Board must approve any on-street parking changes desired after the Signature Set approval. (P&Z) (T&ES) *

28. Provide bicycle parking per current Bicycle Parking Standards. Bicycle parking standards, acceptable rack types for short- and long-term parking, and details for allowable locations are available at: www.alexandriava.gov/bicycleparking.

29. Provide details on the locations and types of bicycle parking on the Final Site Plan. Install bicycle parking prior to the issuance of the first Certificate of Occupancy. (T&ES) *, ***

30. Provide signage, striping, or other means to prevent parking in emergency vehicle easement(s) prior to Final Site Plan release, to the satisfaction of the Director of T&ES. (T&ES) *

31. Provide Level 2 electric vehicle chargers for at least two percent of the required parking spaces, rounded up to the next whole number parking space. (T&ES)

32. At least 75 percent of the required parking spaces shall be electric vehicle charger ready per these requirements: (T&ES)

    a. Install (5) dual stations/(10) charging ports at 100Amps per dual station
    b. Install conduit and junction boxes to prepare for a total of 20 dual stations/(40) charging ports.
    c. Charging port can serve up to 10 EVs per month, and planning for 40 charging stations will future-proof for the life of the property

33. Update parking counts on the cover sheet to indicate the number of electric vehicle charger and electric vehicle charger ready parking spaces and show the location of these spaces prior to Final Site Plan release. (T&ES) *

G. SUSTAINABILITY

34. The applicant may propose additional strategies to the sustainability conditions outlined below and these additional sustainability strategies may be incorporated administratively to the satisfaction of the Directors of T&ES and P&Z. (P&Z) (T&ES)

35. The project shall comply with the requirements of the current City of Alexandria Green Building Policy at the time of DSUP approval. Diligent pursuit and achievement of this certification shall be monitored through these requirements unless exempted by the certification rating systems and the Green Building Policy (T&ES) (P&Z):

    a. Provide evidence of the project's registration with LEED, Green Globes, or Earthcraft (or equivalent) with the submission of the first Final Site Plan and provide a draft checklist from the P&Z website showing how the project

plans to achieve the certification and clearly indicate that requirements for the priority performance points are being met as defined by the City of Alexandria's Green Building Policy. *

b. Provide an updated copy of the draft certification scorecard/checklist prior building permit release for above-grade construction to show compliance with the Green Building Policy. **
c. Provide updated building energy performance analysis and building energy use intensity (EUI) (energy use per sq. ft.) prior to release of the building permits for above-grade construction. **
d. Provide a draft commissioning plan and verification, if required by the Green Building Rating System and the building code, from a certified third-party reviewer that includes items "i" through "v" below, prior to receiving building permits for above-grade construction. **

    i. A narrative describing the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.
    ii. A listing of the specific equipment, appliances, or systems to be tested and a description of the tests to be performed.
    iii. Functions to be tested including, but not limited to, calibrations and economizer controls.
    iv. Conditions under which the test will be performed. Testing shall affirm winter and summer design conditions and full outside air conditions.
    v. Measurable criteria for performance.

e. Provide updated water efficiency documentation for the priority performance points as defined by the City of Alexandria's Green Building Policy prior to building permit release for above-grade construction. **
f. Provide updated documentation for the indoor environmental quality priority performance points as defined by the City of Alexandria's Green Building Policy prior to the release of building permits for above-grade construction. **
g. Provide evidence that design phase credits (for the certifying party) have been submitted by the first Certificate of Occupancy. ***
h. Provide evidence showing that the requirements for priority performance points for Energy Use Reduction, Water Efficiency and Indoor Environmental Quality are being met as defined by the City of Alexandria's Green Building Policy for Design Phase credits to the U.S. Green Building Council, Green Globes, or Earthcraft (or equivalent) prior to issuance of a Certificate of Occupancy. ***
i. Provide documentation of applicable green building certification prior to release of the performance bond clearly indicating that the priority

performance points requirement for Energy Use Reduction, Water Efficiency, and Indoor Environmental Quality have been achieved as defined by the City of Alexandria's Green Building Policy. ****

j. Failure to achieve the certification level, as required by the City of Alexandria's Green Building Policy, will be evaluated by City Staff to determine whether a good faith, reasonable, and documented effort was made to achieve the certification level to the satisfaction of the Director of P&Z.

36. Post information on the City of Alexandria's Reuse Directory in a public place near trash collection area for residents of multifamily buildings that exceed 100 units and send proof to T&ES staff prior to the issuance of the first Certificate of Occupancy. The directory is available at: https://www.alexandriava.gov/tes/solidwaste/info/default.aspx?id=19202#NewCityofAlexandriasReuseDirectory (T&ES) ***

37. The building shall use electricity except for limited accessory elements of the building such as retail uses, emergency generators, and up to two gas fireplaces with occupant controls in common amenity areas. Gas fireplaces shall not burn continually. For these limited accessory elements, the buildings shall support low cost and easy conversion from onsite fossil fuel use to electrical use in the future. (P&Z) (T&ES) *

38. Demonstrate that the roof(s) are solar ready, with the necessary conduit and available electrical panel area to enable future solar panel installation, on the Final Site Plan. (T&ES) *

II. TRANSPORTATION

A. STREETS/TRAFFIC

39. Repair any of the City's existing public infrastructure that is damaged during construction per the most recent version of the T&ES Design and Construction Standards, or to the satisfaction of Director of T&ES, prior to Performance Bond release. (T&ES) ****

40. Conduct a pre-construction walk/survey of the site prior to any land disturbing activities with T&ES Construction & Inspection Staff and Code Administration Staff to document existing conditions prior to Final Site Plan release. (T&ES) (Code) *

41. Mark all private street signs that intersect a public street with a fluorescent green strip to notify the plowing crews, both City and contractor, that they are not to

plow those streets, prior to the issuance of the first Certificate of Occupancy. (T&ES) ***

42. Slopes on parking ramps to garage entrances and exits shall not exceed 15 percent. For slopes 10 percent and greater, provide trench drains connected to a storm sewer to eliminate or diminish the possibility of ice forming. The slope on a ramp with parking or used for egress shall not exceed 6.5 percent. For non-parking ramps with slopes of 10 percent and greater, a minimum of 10 feet in length transition slopes at the top and bottom of the ramp shall be required, and the transition slope shall be half the difference in slope between two adjacent sections. Final design shall be to the satisfaction of the Director of T&ES prior to Final Site Plan release. (T&ES) *

43. Any wall mounted obstructions (exclude charging station mechanism) at the wall end of a parking space shall be limited to no more than 24 inches extended from the wall and at least 48 inches from the garage floor. Areas with obstructions that exceed this requirement will not count as parking spaces. (T&ES) ****

44. Furnish and install two 4-inch Schedule 80 PVC conduits with pull wires under the sidewalks fronting the site along both Mark Center Ave and Mark Center Drive. These conduits shall terminate in an underground junction box at each corners of the site. The junction box cover shall have the word "TRAFFIC" engraved in it. (T&ES) ****

45. Provide full curb to curb restoration for any asphalt patches larger than 20 percent of the total asphalt surface, measured along the length of the road adjacent to the property frontage and/or extending to the centerline of the street prior to Performance Bond release. (T&ES) ****

46. Provide bicycle facilities on the site frontage and through the site per the City's Transportation Master Plan, Pedestrian and Bicycle Mobility Plan, and applicable Small Area Plans and Design Guidelines. (T&ES)

    a. Provide routing signs on on-street bicycle facilities consistent with guidance from AASHTO and MUTCD. For shared-use paths, signs should be consistent with the City's Wayfinding Program.
    b. Install sharrows consistent with AASHTO guidelines on Mark Center Drive and Mark Center Avenue.

47. Street names and addresses must be obtained for mail delivery (addressed per the front door) and for emergency services (addressed per street access) prior to Final Site Plan release. (P&Z) (T&ES) (GIS) *

48. Remove the parking lay-by depicted on the preliminary plans. Final Site Plan should depict the sidewalk generally remaining in the location shown in the Preliminary Plans and the proposed parking area between the sidewalk and the curb as a landscape buffer, to the Satisfaction of the Director of T&ES. (T&ES) *

B. TRANSPORTATION MANAGEMENT PLAN

49. According to Article XI, § 11-700 of the City's Zoning Ordinance, a Transportation Management Plan (TMP) is required to implement strategies to encourage residents and employees to take public transportation, walk, bike, or share a ride instead of driving alone. Below are the basic conditions from which other details originate. (T&ES)

50. Inform tenants/owners of the transportation management plan Special Use Permit and conditions therein as part of leasing and purchasing agreements with language subject to review and approval by the City's Transportation Demand Management Program. (T&ES)

51. Integrate into the District Transportation Management Program when it is organized. All TMP holders in the established district will be part of this District TMP. The objective of this district is to optimize transportation resources to benefit residents and employees through economies of scale. No increase in TMP contributions will be required because of participation in the District TMP. (T&ES)

52. An annual TMP fund shall be created and managed by the TMP Coordinator, and the funds shall be used exclusively for approved transportation activities. The annual base assessment rate for this development shall be determined as set forth in § 11-708 (TMP Assessments Schedule and Adjustments). The base assessment rate will be adjusted on an annual basis on July 1 of each year according to the Consumers Price Index (CPI-U) as reported by the United States Department of Labor, Bureau of Labor Statistics. The base assessment rate in effect at the time of the issuance of the project's first Certificate of Occupancy permit is the applicable rate when TMP reporting begins. The TMP shall operate on the fiscal year, July 1 to June 30. (T&ES)

53. Designate an on-site TMP Coordinator for the entire project prior to the issuance of the first Certificate of Occupancy. Provide the name, location, email, and telephone number of the coordinator to the City's Transportation Demand Management Coordinator, updating this information as needed. This person will be responsible for implementing and managing all aspects of the TMP and the parking management program for the project. (T&ES) ***

54. The Director of T&ES may require that the funds be paid to the City upon determination that the TMP Coordinator or Association has not made a reasonable effort to use the funds for TMP activities. As so determined, any unencumbered funds remaining in the TMP account at the end of each reporting year may be either reprogrammed for TMP activities during the ensuing year or paid to the City for use in transportation support activities which benefit the site. (T&ES)

55. Submit to the Mobility Services Division these detailed attachments: biannual fund reports due in July and January of each fiscal year, modes of transportation survey, and a TMP Coordinator survey both due in July of each fiscal year. (T&ES)

56. As set forth in § 11-711(B) in the Zoning Ordinance, civil penalties shall be assessed for lack of timely compliance with the conditions of this TMP SUP. If after assessment of three civil penalties, any use continues to fail to comply with a condition of its approved TMP, the use may be required to participate in the Citywide TMP Program, may be subject to increased review and reporting requirements, and may be subject to a Staff recommendation for action by the City Council to revoke the TMP SUP pursuant to § 11-205 of the Zoning Ordinance. (T&ES)

C. BUS STOPS

57. Show all existing bus stops, bus shelters, and bus stop benches in the vicinity of the site on the Final Site Plan. (T&ES) *

58. Show all proposed bus stops on the Final Site Plan. All facilities shall be ADA compliant. *,***

59. Bus stops on Mark Center Avenue shall meet ADA requirements and City Standards to the satisfaction of the Director of T&ES and P&Z:

    a. Install four saw-tooth bus bays as generally shown in the Preliminary Plans.
    b. Provide Junction Boxes and 3-inch conduit at each bus shelter running to the closest power source along Mark Center Avenue. The conduit run and the power source determination shall be shown on the Final Site Plan and shall be to the satisfaction of Director of T&ES and DPI (T&ES).
    c. Install an unobstructed 10-foot wide, parallel to the roadway, by 8-foot wide, perpendicular to the curb, illuminated bus stop passenger loading pad. The unobstructed loading area should be at the front of the boarding zone and accessible from a transit shelter and adjacent sidewalk. The loading pad's cross slope shall be less than two percent and it should be made of concrete or other study, non-slippery materials approved by the Directors of T&ES and DASH. The existing width of the sidewalk may be counted

towards the eight-foot-wide perpendicular to the curb area. Passenger loading pads shall never be placed on storm drain inlets, catch basins, and other obstacles that would make the bus stop and bus stop loading pad inaccessible. The proposed storm drain shown in front of the bus shelter in the Preliminary Site Plan will need to be adjusted during Final Site Plan.

d. Submit the bus stop locations and designs for review and approval prior to Final Site Plan release. If any bus shelter is located on private property, the applicant shall provide an easement for the bus shelter. (T&ES)(P&Z)*

60. Plant and maintain street trees in proximity to bus stop approaches or directly adjacent to travel lanes pursuant to the Landscape Guidelines and to avoid conflict with vehicles, specifically:

a. Ensure any trees planted in immediate proximity of bus stops or bus travel lanes have a clearance of at least 15-ft. to the canopy and will not grow branches that protrude into bus stop area or bus travel lane.
b. Exclude trees from a 40-foot zone, which represents the length of the bus as it is serving the stop.
c. Locate trees within both the 10-foot departure zone and the 20-foot approach zone (on either side of the 40-foot zone) to minimize conflict with vehicles and to allow direct line of sight for approaching buses. (P&Z) (T&ES) *

III. PUBLIC WORKS

A. WASTEWATER/SANITARY SEWERS

61. Pay the sewer connection fee prior to Final Site Plan release. (T&ES) *

62. Discharge from pool(s) shall be connected to the sanitary sewer. (T&ES)

B. UTILITIES

63. If a franchise agreement has not been entered into with the City, locate all private utilities outside of the public right-of-way and public utility easements. (T&ES)

64. Do not locate transformer and switch gears in the public right-of-way. (T&ES)

65. All new fire hydrants on public streets shall be City owned and maintained. All hydrants on private streets shall be owned, inspected, tested, and maintained by the property owner or their representative. Hydrants must be installed and functional prior to issuance of the Certificate of Occupancy. (T&ES) ***

C. INFORMATION TECHNOLOGY

66. To the satisfaction of the Director of Planning & Zoning, construct a conduit grid per the specifications listed below that minimizes the need for post-development excavation and/or right-of-way impacts when installing fiber/cables for high-speed internet access. (ITS) (P&Z)

67. Construct all conduits using schedule 80 PVC or HDPE and install them to a depth of 3-feet. Install a pull line and tracer within each conduit. (ITS)

68. All conduit on private property will be owned and maintained by the property owner. Unless otherwise specified, conduit on public right-of-way will be owned and maintained by the City. (ITS) (T&ES)

69. Provide a minimum of two diverse entrance conduits for each building (East/West or North/South) with a minimum of two, 2-inch conduits for each entrance drop. Terminate each conduit drop to a 36-inch by 48-inch installed hand hole within the public right-of-way or at a nearby accessible location. Include two, four-inch open access conduit risers for each floor. (ITS)

    a. Enable telecommunications providers to install cables in the conduit. Designating exclusive access to a single provider is not allowed.

    b. Provide a fiber optic installation plan that provides the required specifications prior to the Final Site Plan release. (ITS) *

    c. Submit a digital as built in CAD or GIS that details the fiber conduit installation prior to the issuance of the Certificate of Occupancy. (ITS) ***

    d. Submit a digital as-built plan in CAD or GIS which includes information on the fiber conduit installation prior to the issuance of the Certificate of Occupancy. (ITS) ***

D. SOLID WASTE

70. The point of collection shall be as agreed upon between the owner and the private collector duly licensed, provided that such point shall not be in a public right-of-way and shall not hinder or interfere with parking, traffic, or pedestrians. All trash collectors for the project site are required to take their collected trash to the Alexandria/Arlington waste-to-energy facility (T&ES)

71. Provide $1,449 per receptacle to the Director of T&ES prior to Final Site Plan release to purchase and install two (2) Victor Stanley Ironsites Series model SD-42 black receptacle with Dome Lid dedicated to trash collection. The receptacle(s) shall be placed in the public right of way to serve open space and park sites.

Receptacles shall be generally located along the property frontage and at strategic locations in the vicinity of the site as approved by the Director of T&ES. To the extent that the receptacles cannot be located where accessible for public collection, the applicant may provide a contribution for receptacles to be installed in the vicinity or may agree to private hauling. (T&ES) *

72. Provide $1,685 per receptacle to the Director of T&ES prior to Final Site Plan release to purchase and install two (2) Victor Stanley Ironsites Series Model SD-42 blue receptacle with Dome Lid, approved dome decals, and approved band dedicated to recycling collection. The receptacle(s) shall be placed in the public right of way to serve open space and park sites. Receptacles shall be generally located along the property frontage and at strategic locations in the vicinity of the site as approved by the Director of T&ES. To the extent that the receptacle cannot be located where accessible for public collection, the applicant may provide a contribution for receptacles to be installed in the vicinity or may agree to private hauling. (T&ES) *

IV. ENVIRONMENTAL

A. STORMWATER MANAGEMENT

73. The City of Alexandria's stormwater management regulations regarding water quality are two-fold: (1) state phosphorus removal requirement and (2) Alexandria Water Quality Volume Default. Complying with the state phosphorus reduction requirement does not relieve the applicant from the Alexandria Water Quality Default requirement. The Alexandria Water Quality Volume Default, as determined by the site's post-development impervious area shall be treated in a Best Management Practice (BMP) facility. (T&ES) *

74. Provide a BMP narrative and complete pre- and post-development drainage maps that include areas outside that contribute surface runoff from beyond project boundaries to include adequate topographic information, locations of existing and proposed storm drainage systems affected by the development, all proposed BMPs and a completed Virginia Runoff Reduction Method (VRMM) worksheet showing project compliance prior to Final Site Plan release. The project must use hydrologic soil group "D" in the spreadsheet unless a soils report from a soil scientist or geotechnical engineer delineates onsite soils otherwise. (T&ES) *

75. Design all stormwater Best Management Practices (BMPs) to comply with the most recent standards and specifications published in the Virginia Stormwater BMP Clearinghouse. Provide complete design details for all BMPs, including site specific plan views, cross sections, planting plans, and complete design calculations for each BMP prior to Final Site Plan release. (T&ES) *

76. Provide a BMP table with a separate listing for each individual BMP that includes the name of the practice, total area treated (acres), pervious area treated (acres), impervious area treated (acres), phosphorous removal efficiency (percentage), phosphorous removal efficiency (percentage), phosphorous removed by the practice (lbs.), and latitude and longitude in decimal degrees, prior to Final Site Plan release. (T&ES) *

77. Complete construction inspection checklists and associated photographic documentation for each stormwater BMP and detention facility. Submit all documents required by The City of Alexandria As-Built Stormwater Requirements including as-built plans, CAD data, BMP certifications, and completed construction inspection checklists prior to Performance Bond release. (T&ES) ****

78. Construct and install the stormwater BMPs required for this project under the direct supervision of the design professional or their designated representative. Submit a written certification from the design professional to the Director of T&ES prior to Performance Bond release certifying that the BMPs are:

    a. Constructed and installed as designed and in accordance with the released Final Site Plan.
    b. Clean and free of debris, soil, and litter by either having been installed or brought into service after the site was stabilized. (T&ES) ****

79. Groundwater from sump pumps may not be discharged into any stormwater BMPs or detention facilities. Bypass pipes and/or structures must be installed to bypass groundwater around all stormwater facilities. If, during construction, iron sediments cause a discharge of discolored groundwater from the sump pump, a filtration system must be installed. (T&ES)

80. Submit two originals of the stormwater quality BMP Maintenance Agreement, to include the BMP Schedule and Guidelines Addendum as part of the Final Site Plan #2. Executed and record the agreement with the Land Records Division of Alexandria Circuit Court prior to Final Site Plan release. (T&ES) *

81. Submit two originals of the stormwater quality BMP and Stormwater Detention Facilities Maintenance Agreement to include the BMP Schedule and Guidelines Addendum with the Final Site Plan #2. Execute and record the agreement with the Land Records Division of Alexandria Circuit Court prior to Final Site Plan release. (T&ES) *

82. The Applicant shall be responsible for maintaining stormwater Best Management Practices (BMPs) until activation of the homeowner's association (HOA), and/or master association, if applicable, or until sale to a private owner. Prior to

transferring maintenance responsibility for the BMPs to the HOA, master association, and/or owner, the applicant shall:

a. Execute a maintenance service contract with a qualified private contractor for a minimum of three years, and transfer the contract to the HOA, master association, and/or owner.
b. Include a copy of the contract in the BMP Operation and Maintenance Manual.
c. Submit a copy of the maintenance contract to T&ES prior to Performance Bond release. (T&ES) ****

83. Submit a copy of the Operation and Maintenance Manual to the T&ES Stormwater Management Division prior to Performance Bond release. (T&ES) ****

84. Submit a certification by a qualified professional that any existing stormwater management facilities adjacent to the project and associated conveyance systems were not adversely affected by construction operations prior Performance Bond release to the satisfaction of the Director of T&ES. If maintenance of the facilities or systems were required to make this certification, provide a description of the maintenance measures performed. (T&ES) ****

B. WATERSHED, WETLANDS, & RPAs

85. Use standard city markers to mark all on-site stormwater curb inlets and public curb inlets within 50 feet of the property line to the satisfaction of the Director of T&ES. (T&ES)

86. For sites that contain marine clays, account for marine clay or highly erodible soils in the construction methodology and erosion and sediment control measures. (T&ES)

87. Provide Environmental Site Assessment Notes that delineate, map, describe, and/or explain these environmental features (if located on site):

a. Individual components of the RPA as well as the total geographic extent of the RPA, to include the appropriate buffer, intermittent streams, and associated buffers,
b. Highly erodible and highly permeable soils,
c. Steep slopes greater than 15 percent in grade,
d. Known areas of contamination; springs, seeps, or related features, and
e. A listing of all wetlands permits required by law. (T&ES)

88. Prepare a Stormwater Pollution Prevention Plan with enhanced protective measures from site sources to the proximity of the RPA(s) to the project. (T&ES)

89. A wildlife management and relocation plan is recommended based on the proposed changes to the existing wet pond. (T&ES)

90. The proposed storm sewer should provide the same flow regime as the existing low flow storm sewer infrastructure to downstream sources. (T&ES)

C. CONTAMINATED LAND

91. Indicate on the plan whether any soil and groundwater contamination are present Submit supporting reports for associated environmental investigations or assessments performed to substantiate this determination. (T&ES) *

92. If environmental site assessments or investigations discover the presence of contamination on site, the Final Site Plan shall not be released, and no construction activity shall occur until these items have been submitted and approved by the Director of T&ES: (T&ES) *

    a. A Site Characterization Report/Extent of Contamination Study detailing the location, applicable contaminants, and the estimated quantity of any contaminated soils and/or groundwater at or in the immediate vicinity of the site.
    b. A Risk Assessment indicating any risks associated with the contamination.
    c. A Remediation Plan detailing any contaminated soils and/or groundwater, including plans to remediate utility corridors. Utility corridors in contaminated soil shall be over excavated by two feet and backfilled with "clean" soil. Include description of environmentally sound methods of off-site transport and disposal of contaminated soils and debris (including, but not limited to types of vehicles appropriate for handling specific materials and ensuring vehicle loads are covered).
    d. A Health and Safety Plan with measures to take during remediation and/or construction activities to minimize the potential risks to workers, the neighborhood, and the environment. Initial Air Monitoring may be required during site activities to demonstrate acceptable levels of volatiles and/or airborne particles. Justify the air monitoring determination in the Health and Safety Plan submitted for review.
    e. Screen for PCBs as part of the site characterization if any of the past uses are within the identified high risk category sites for potential sources of residual PCBs, which includes these SICs: 26&27 (Paper and Allied Products), 30 (Rubber and Misc. Plastics), 33 (Primary Metal Industries), 34 (Fabricated Metal Products), 37 (Transportation Equipment), 49 (Electrical, Gas, and Sanitary Services), 5093 (Scrap Metal Recycling), and 1221 and 1222 (Bituminous Coal).

93. Should any unanticipated contamination, underground storage tanks, drums or containers be encountered at the site during construction, the applicant must notify T&ES, Office of Environmental Quality immediately. Should unanticipated conditions warrant, stop construction within the affected area until the appropriate environmental reports identified in "a" through "e" above are submitted and approved at the discretion of the Director of T&ES. This shall be included as a note on the Final Site Plan. (T&ES) (Code) *

94. If warranted by a Site Characterization report, design and install a vapor barrier and ventilation system for buildings and parking areas to prevent the migration or accumulation of methane or other gases or conduct a study and provide a report signed by a professional engineer showing that such measures are not required to the satisfaction of Directors of T&ES and Code Administration. The vapor barrier and ventilation system must include a passive ventilation system that can be converted to an active ventilation system if warranted. (T&ES) (Code)

D. SOILS

95. Provide a geotechnical report, including recommendations from a geotechnical professional for proposed cut slopes and embankments prior to Final Site plan release. (T&ES) *

E. NOISE

96. Submit a noise study identifying the noise levels that residents will be exposed to initially and 10 years into the future per the Noise Guidance Book used by the Department of Housing and Urban Development prior to the Final Site Plan release. (T&ES) *

97. If the noise study identified noise impacted areas, conduct a building shell analysis identifying ways to minimize noise and vibration exposure to future residents. Submit the building shell analysis and the noise commitment letter for review and approval prior to Final Site Plan release. (P&Z) (T&ES) *

98. If necessary, to comply with the City noise ordinance, equip all roof top HVAC and other mechanical equipment with noise reducing devices (e.g., silencers, acoustic plenums, louvers, or enclosures). Show the noise reducing specifications and locations prior to Final Site Plan release and install them prior to the issuance of the Certificate of Occupancy. (T&ES) (Code) *, ***

99. Supply deliveries, loading, and unloading activities shall not occur between the hours of 11 PM and 7 AM. (T&ES)

100. No vehicles, including construction vehicles, associated with this project shall be permitted to idle for more than 10 minutes when parked, including vehicles in the loading dock. Post at least two no idling for greater than 10 minutes signs in the loading dock area in plain view prior to the issuance of the Certificate of Occupancy. (T&ES) ***

F. AIR POLLUTION

101. Properly and sufficiently exhaust any gas fireplaces installed in the building to reduce air pollution and improve indoor air quality, prior to issuance of the Certificate of Occupancy. (T&ES) ***

102. Control odors and any other air pollution sources resulting from construction/demolition operations at the site and prevent them from leaving the property or becoming a nuisance to neighboring properties, as determined by the Director of T&ES. (T&ES)

V. CONSTRUCTION MANAGEMENT

103. Submit a construction phasing plan to the satisfaction of the Director of T&ES, for review, approval, and partial release of Erosion and Sediment Control for the Final Site Plan. All the requirements of Zoning Ordinance Article XIII (Environmental Management) for quality improvement, quantity control, and the development of Storm Water Pollution Prevention Plan must be complied with prior to the partial Final Site Plan release. (T&ES) *

104. Submit a separate construction management plan to the Directors of P&Z, T&ES, and Code Administration prior to Final Site Plan release. The plan shall satisfy these requirements: (P&Z) (T&ES) (Code)

a. No streetlights shall be removed without authorization from the City of Alexandria,
b. If streetlights are to be removed from the public right-of-way, then temporary lights shall be provided until the installation and commissioning of new lights, *
c. Include an analysis as to whether temporary street or site lighting is needed for safety during the construction on the site and how it is to be installed, *
d. Provide a detailed sequence of demolition and construction of improvements in the public right of way along with an overall proposed schedule for demolition and construction, *
e. Include an overall proposed schedule for construction, *
f. Include a plan for temporary pedestrian circulation, *
g. Include the location and size of proposed construction trailers, if any, *

h. Include a preliminary Maintenance of Traffic Plan as part of the construction management plan for informational purposes only, to include proposed controls for traffic movement, lane closures, construction entrances and storage of materials, and *
i. Post copies of the plan in the construction trailer and give to each subcontractor before they start work. ***

105. Provide off-street parking for all construction workers without charge and ensure that all workers use this parking. For workers who use Metro, DASH, or another form of mass transit, subsidize a minimum of 50 percent of the fees. Complying with this condition shall be a component of the construction management plan, which shall be submitted prior to Final Site Plan release and approved by the Departments of P&Z and T&ES prior to commencing any construction activities. This plan shall:

a. Establish and provide verifiable details and/or agreements on the location of the parking to be provided at various stages of construction, how many spaces will be provided, how many construction workers will be assigned to the work site, and mechanisms which will be used to encourage the use of mass transit, *
b. Post information on transit schedules and routes, *
c. The community liaison must manage parking actively for all construction workers and ensure compliance with the off-street parking requirement, and
d. If the off-street construction workers parking plan is found to be violated during construction, a correction notice will be issued to the applicant. If the violation is not corrected within five days, a "stop work order" will be issued, with construction halted until the violation has been corrected. (P&Z) (T&ES) *

106. Include a chapter on maintaining pedestrian access within the Construction Management Plan. Sidewalks adjacent to the site shall remain open during construction. If sidewalks must be closed, pedestrian access shall be maintained adjacent to the site per Memo to Industry #04-18 throughout the construction of the project. (T&ES) **

Include a chapter on maintaining bicycle access within the Construction Management Plan. Bicycle facilities adjacent to the site shall remain open during construction. If a bicycle facility must be closed, bicycle access shall be maintained adjacent to the site per Memo to Industry #04-18 throughout the construction of the project. (T&ES) **

107. Include a chapter on the waste control program in the Construction Management Plan. This program shall control wastes such as discarded building materials, concrete truck washout, chemicals, litter or trash, trash generated by construction

workers or mobile food vendor businesses serving them, and all sanitary waste at the construction site and prevent offsite migration that may cause adverse impacts to neighboring properties or to the environment to the satisfaction of Directors of T&ES and Code Administration. Dispose of all wastes offsite per all applicable federal, state, and local laws. If program is implemented in coordination with green building certification, include documentation as appropriate per the City's Green Building Policy and conditions therein. (T&ES) (Code)

108. Discuss construction staging activities with T&ES prior to the release of any permits for ground disturbing activities. No major construction staging shall be allowed within the public right-of-way. (T&ES) **

109. Transit stops adjacent to the site shall remain open, if feasible, for the duration of construction. If construction requires closing a stop, a temporary ADA accessible transit stop shall be determined and installed. Coordinate with the T&ES Transportation Planning Division at (703) 746-4088 as well as with the transit agency which provides service to the bus stop. Install signs noting the bus stop closure and location of the temporary bus stop prior to taking bus stops out of service. (T&ES)

110. Identify a Certified Land Disturber (CLD) in a letter to the Division Chief of Infrastructure Right of Way prior to any land disturbing activities and include the name on the Phase I Erosion and Sediment Control sheets prior to Final Site Plan release. If the CLD changes during the project, that change must be noted in a letter to the Division Chief. (T&ES) *

111. Conduct an in-person or virtual meeting to review the location of construction worker parking, plan for temporary pedestrian and vehicular circulation, and hours and overall schedule for construction prior to commencing demolition, clearing, and grading of the site. Notice all adjoining property owners, civic associations, and the Departments of P&Z and T&ES at least 14 calendar days before the meeting. Hold the meeting before any permits are issued. (P&Z) (T&ES) **

112. Hold an in-person or virtual pre-installation/construction meeting to review the scope of landscaping installation procedures and processes with the P&Z project planner prior to starting work. (P&Z) (Code)

113. Identify a community liaison throughout the duration of construction. Provide their name and telephone number, including an emergency contact number, to residents, property managers, and business owners whose property abuts the site, to the satisfaction of the Directors of P&Z and T&ES. Install a temporary informational sign prior to Final Site Plan release with the community liaison's name and contact information. Display the sign until construction finishes. (P&Z) (T&ES) *, ***

114. Temporary construction and/or on-site sales trailer(s) are permitted and subject to the approval of the Directors of P&Z and Code Administration. Remove the trailer(s) prior to the issuance of the final Certificate of Occupancy. (P&Z) (Code) ***

115. Submit a stamped electronic copy of a wall check survey completed by a licensed, certified public land surveyor or professional engineer when below-grade construction for the garage and for the building reaches proposed finished grade. Ensure each wall check shows: (P&Z) **

    a. Key dimensions of the building as shown on the approved Final Site Plan,
    b. Key dimensions from future face of finished wall above to the property line and any adjacent structures on the property,
    c. Extent of any below-grade structures,
    d. Foundation wall in place, and
    e. Future face of finished wall above.

116. Submit an as-built development site plan survey, pursuant to the requirements outlined in the initial as-built submission for occupancy portion of the as-built development site plan survey checklist to the T&ES Site Plan Coordinator prior to applying for a Certificate of Occupancy permit. The as-built development site plan survey shall be prepared and sealed by a registered architect, engineer, or surveyor. Include a note stating that the height was calculated based on all applicable provisions of the Zoning Ordinance. (P&Z) (T&ES) ***

117. If outstanding performance, completion, or other bonds for the benefit of the City are in effect for the property at such time as it may be conveyed or sold to a party other than the applicant, a substitute bond and associated documents must be provided by that party or, in the alternative, an assignment or other documentation from the bonding company indicating that the existing bond remains in effect despite the change in ownership may be provided. The bond(s) shall be maintained until such time that all requirements are met, and the bond(s) released by the City. (T&ES) ****

VI. CONTRIBUTIONS

[Refer to the Appendix at the end of this document for SAP developer contribution conditions]

118. Applicant will complete the following in-kind infrastructure improvements, valued at $2.903 million (see below for breakdown), prior to the issuance of the final Certificate of Occupancy to the satisfaction of the Directors of P&Z, T&ES, and Code.
    a. Dedication of land for the ellipse ($760,500)
    b. Bus Rapid Transit (dedication of land and construction costs) ($1,862,750)

c. Median Improvements ($280,000)

119. Contribute $40,000 to the City prior to Final Site Plan release for a Capital Bikeshare station and bicycles or system operations. (T&ES) *

120. Contribute $1,000,000 to the City's Housing Trust Fund. Payments shall be made to the City of Alexandria and submitted to the Office of Housing with a cover letter to include the project name, case number, and explanation of the contribution amount, if phased. Per condition #120, 25 on-site committed affordable rental units will also be provided (Housing) ***

VII. HOUSING

121. Provide two (2) efficiency, ten (10) one-bedroom, two (2) one-bedroom and den, eight (8) two-bedroom, two (2) two-bedroom and den, and one (1) three-bedroom affordable set-aside rental units, or a mix of units to be finalized at the time of Final Site Plan to the satisfaction of the Director of Housing. *

122. Rents for set-aside units shall not exceed the maximum amounts allowed under the Federal Low Income Housing Tax Credit (LIHTC) program for households with incomes at 60 percent of the Washington D.C. Metropolitan Area Median Family Income (including utility allowances and any parking charges) for a 40-year period from the date of initial occupancy of each affordable unit. For unit types not addressed by the LIHTC program, rents shall be as follows: a junior one-bedroom shall rent at an efficiency rent; a one bedroom plus den shall rent at a one-bedroom rent; and a two bedroom plus den shall rent at a two-bedroom rent.

123. If at the time of lease up or lease renewal, the differential between the market rent and set-aside rent (as adjusted for utility allowances) for a comparable unit is less than 15 percent of the market rent, then the set-aside rent shall be reduced to maintain a differential of 15 percent for the term of the new lease or lease renewal. (Housing)

124. Total non-refundable fees, excluding application and pet fees, shall not exceed 15 percent of gross affordable rent.

125. Residents of the set-aside units may be charged a monthly parking fee of up to $50 (in 2023 dollars) or the standard fee whichever is lower for their first parking space. Any additional parking spaces shall be subject to standard fees.

126. Recertify the incomes of resident households annually.

127. Once an income-eligible household moves into a set-aside unit, that unit shall count as an affordable unit until the household's income increases to more than 140 percent of the then-current income limit. Provide one additional one-year lease term at the affordable rent but notify the household that at the end of one year the household shall not be eligible to continue at the affordable rent. Afterwards, the over-income household may move to a comparable market rate unit or remain in the same unit. However, the next available and comparable unit (i.e., same number of bedrooms, den space, and/or approximate square footage) must be offered to a qualified household. Once the comparable unit is rented, the rent of the over-income unit may then increase to market rate per any lease restrictions. If a comparable unit within the building does not exist, then the over-income tenant must vacate the unit for an income-eligible household.

128. Do not deny households receiving Housing Choice Voucher assistance admission based on receiving such assistance. A household is income qualified if the amount of rent it can pay based on income, together with the voucher payment, is sufficient to cover the applicable rent.

129. Provide residents of set-aside units with access to all amenities offered within the entire development.

130. Set-aside units shall be comparable in size and floor plan and have the same finishes as similar units in the development. Clustering of set-aside units shall be avoided.

131. Notify the Landlord-Tenant Relations Division Chief at the Office of Housing in writing no less than 90 days prior to leasing. Provide the City with marketing information no less than 45 days prior to leasing, which shall include the affordable rents, fees, property amenities, and contact information for applications. The City shall notify interested parties of the availability of set-aside units. The applicant shall not accept applications for set-aside units until 45 days after providing written notification to the Office of Housing or until the Office of Housing advises the applicant that the information has been distributed and posted, whichever occurs first.

132. List all set-aside units at Virginia Housing's website: www.VirginiaHousingSearch.com.

133. Provide the City with the records and information necessary for annual compliance monitoring with the Housing conditions for the 40-year affordability period.

VIII. PUBLIC ART

134. Work with City staff to incorporate on-site public art elements or provide an equivalent monetary contribution for public art within the Small Area Plan per the City's Public Art Policy, adopted December 13, 2014, to the satisfaction of the Directors of P&Z and RP&CA. (P&Z) (RP&CA)

135. Identify the location, type, and goals for public art in the Final Site Plan. Select the artist, finalize locations and medium, and provide a schedule for the art installation prior to Final Site Plan release. (P&Z) (RP&CA) *

136. Install the art prior to issuance of the first Certificate of Occupancy, to the satisfaction of the Directors of P&Z and/or RP&CA. (P&Z) (RP&CA) ***

IX. USES AND SIGNS

A. SIGNAGE

137. The building and monument signs will match in general appearance and location as shown in the preliminary plan and as reviewed by BDAC to the satisfaction of the Director of P&Z. (P&Z) *

138. Show offsite monument signs on Final Site Plan. If offsite monument signs need to be removed or relocated, staff will review administratively. (P&Z) (T&ES) *

139. Design and develop a sign plan for wayfinding and directional signage that sets location, scale, massing, and character of all proposed signage prior to Final Site Plan release to the satisfaction of the Directors of P&Z and T&ES. (P&Z) (T&ES) *

140. Provide signage at the entrances to the parking garage with retail parking that is consistent with the City's wayfinding standards for identifying parking garages. (T&ES)

CITY DEPARTMENT CODE COMMENTS

Legend: C - Code Requirement R - Recommendation S - Suggestion F - Finding

A. Planning and Zoning (P&Z)

C - 1 Any parking requirement may be adjusted within five percent of the requirement if the Director of P&Z determines that physical requirements of the building prevent complying with the specific number of required parking spaces per § 8-200(A)(2)(c)(i) of the Zoning Ordinance. (P&Z) (T&ES)

F-1 If, in the future, ownership wants to add fencing, gates, or similar to the open space, or make changes to programming, staff will review administratively. (P&Z)

B. Code Administration (Building Code)

F - 1. The review by Code Administration is a preliminary review only. Once the applicant has filed for a building permit, code requirements will be based upon the building permit plans. A preconstruction conference is recommended for large projects. Contact the Code Administration Office, Plan Review Supervisor at (703) 746-4200 with any questions.

C - 1 New construction or alterations to existing structures must comply with the current Uniform Statewide Building Code (USBC) in effect when applying for building permit(s).

C - 2 Facilities shall be accessible for persons with disabilities per the current Virginia Uniform Statewide Building Code in effect when applying for building permit(s).

C - 3 Submit a soils report with the building permit application for all new and existing building structures. **

C - 4 Submit an abatement plan from a licensed Pest Control Company to prevent rodents from spreading from the construction site to the surrounding community and sewers to the Department of Code Administration prior to receiving a demolition or land disturbance permit. Code Administration Staff will conduct a pre-demolition site survey to verify that the abatement plan is consistent with the field installation. **

C - 5 Submit a wall location plat prepared by a land surveyor to the Department of Code Administration prior to any building framing inspection. **

C. Federal Environmental Reviews:

F - 1. Any project that is defined as a federal undertaking, in accordance with the National Historic Preservation Act of 1966 requires a § 106 review or other National Environmental Policy Act (NEPA) review. Projects that require federal review, approval or permitting, or projects that include federal funding are generally considered a federal undertaking. Coordinate with the Virginia Department of Historic Resources or the appropriate federal or state agency to determine the requirements and process and consult with City Staff.

a. Information on the § 106 process is at www.achp.gov or www.dhr.virginia.gov/environmental-review/
b. Information on the NEPA process is at www.epa.gov

D. Archaeology

C - 1 All archaeological preservation measures shall comply with § 11-411 of the Zoning Ordinance.

F-1 Historic maps indicate that the 4.56-acre property slated for redevelopment remained vacant throughout the nineteenth century, and into the twentieth century. Over many years, Native Americans established small, temporary sites in the vicinity of this property, and more than a dozen of these types of sites have been identified to the south and west of the property. However, because the property has been heavily developed in the past, the likelihood of encountering resources related to Native American activities is very low.

F-2 If this project is a federal undertaking or involves the use of any federal funding, the applicant shall comply with federal preservation laws, in particular Section 106 of the National Historic Preservation Act of 1966. The applicant will coordinate with the Virginia Department of Historic Resources and the federal agency involved in the project, as well as with Alexandria Archaeology.

E. Transportation & Environmental Services (T&ES)

F - 1. Prepare the Final Site Plan per the Memorandum to Industry 02-09 dated December 3, 2009, Design Guidelines for Site Plan Preparation, which is available at: http://alexandriava.gov/uploadedFiles/tes/info/Memo%20to%20Industry%20No.%2002-09%20December%203,%202009.pdf (T&ES) *

F - 2. Show and label the sanitary and storm sewer and water line in plan and profile in the first Final Site Plan, cross referencing sheets if plan and profile cannot be on the same sheet. Provide existing and proposed grade elevations plus the rim and invert elevations of all the existing and proposed sanitary and storm sewer at manholes, and water line piping at gate wells on the respective profiles. Use distinctive stationing for various sanitary and storm sewers (if applicable or required by the plan), and water line in plan and use the corresponding stationing in respective profiles. (T&ES) *

F - 3. Provide a dimension plan with all proposed features, the final property lines, and associated property line annotation. When possible, show all annotation pertaining to the final property line configuration on the site layout sheet (also referred to as the site plan sheet). (T&ES) *

F - 4. Construct all storm sewers to the City of Alexandria standards and specifications. The minimum diameter for storm sewers is 18-inches in the public right-of-way and the minimum size storm sewer catch basin lead is 15-inches Acceptable pipe materials are Reinforced Concrete Pipe (RCP) ASTM C-76 Class IV. Alternatively, the Director of T&ES may approve AWWA C-151 (ANSI A21.51) Class 52. For roof drainage system,

Polyvinyl Chloride (PVC) ASTM D-3034-77 SDR 26 and ASTM 1785-76 Schedule 40 pipes are acceptable. The minimum and maximum velocities are 2.0 fps and 15 fps, respectively. The storm sewers immediately upstream of the first manhole in the public right-of-way shall be owned and maintained privately (i.e., all storm drains not shown within an easement or in a public right-of-way shall be owned and maintained privately). (T&ES) *, ****

F - 5. Construct all sanitary sewers to the City of Alexandria standards and specifications. The minimum diameter of sanitary sewers is 10-inches in the public right-of-way and sanitary lateral 6-inches for all commercial and institutional developments; however, a 4-inch sanitary lateral is acceptable for single family residences. Acceptable pipe materials are Polyvinyl Chloride (PVC) ASTM D-3034-77 SDR 26, ASTM 1785-76 Schedule 40, Ductile Iron Pipe (DIP) AWWA C-151 (ANSI A21.51) Class 52, or reinforced concrete pipe ASTM C-76 Class IV (For 12-inches or larger diameters); Class III may be acceptable on private properties. Minimum and maximum velocities are 2.5 fps and 10 fps, respectively. Laterals shall be connected to the sanitary sewer through a manufactured "Y" or "T" or approved sewer saddle. Where the laterals are being connected to existing Terracotta pipes, replace the section of main and provide manufactured "Y" or "T", or else install a manhole. (T&ES) *, ****

F - 6. Provide a horizontal separation of 10-feet (edge to edge) between a storm or sanitary sewer and a water line. However, if this horizontal separation cannot be achieved, then install the sewer and water main in separate trenches and set the bottom of the water main at least 18-inches above of the top of the sewer. If both the horizontal and vertical separations cannot be achieved, then use Ductile Iron Pipe (DIP) AWWA C-151 (ANSI A21.51) Class 52 for the sewer pipe material and pressure test it in place without leakage prior to install. (T&ES) *, ****

F - 7. Provide at least 18-inches of vertical separation for sanitary sewer and 12-inches for storm sewer when a water main over crosses or under crosses a sanitary/storm sewer. However, if this cannot be achieved, then construct both the water main and the sanitary/storm sewer using Ductile Iron Pipe (DIP) AWWA C-151 (ANSI A21.51) Class 52 with joints that are equivalent to water main standards for a distance of 10-feet on each side of the point of crossing. Center a section of water main pipe at the point of crossing and pressure test the pipes in place without leakage prior to installation. Provide adequate structural support for sewers crossing over the water main (i.e., concrete pier support and/or concrete encasement) to prevent damage to the water main. Encase in concrete sanitary sewers under creeks and storm sewer pipe crossings with less than 6-inch clearance. (T&ES) *, ****

F - 8. No water main pipe shall pass through or touch any part of sanitary/storm sewer manhole. Place manholes at least 10-feet horizontally from the water main whenever possible. When local conditions prohibit this horizontal separation, ensure that the manhole is watertight and tested in place. (T&ES) *, ****

F - 9. Maintain at least 12-inches of separation or clearance from water main, sanitary, or storm sewers when crossing underground telephone, cable TV, gas, and electrical duct banks. If this separation cannot be achieved, then use Ductile Iron Pipe (DIP) AWWA C-151 (ANSI A21.51) Class 52 material for the sewer pipe for a distance of 10-feet on each side of the point of crossing and pressure test it in place without leakage prior to installation. Provide adequate structural support for sanitary/storm sewers and water main crossing over the utilities (i.e., pier support and/or concrete encasement) to prevent damage to the utilities. (T&ES) *, ****

F - 10. Design any rip rap per the requirements of Virginia Erosion and Sediment Control Handbook, Latest Edition. (T&ES) *, ****

F - 11. Provide the dimensions of parking spaces, aisle widths, etc. within the parking garage on the Final Site Plan. Exclude column widths from the dimensions. (T&ES) *, ****

F - 12. Show the drainage divide areas on the grading plan or on a sheet that includes topography and structures where each sub-area drains. (T&ES) *

F - 13. Provide proposed elevations (contours and spot shots) in sufficient details on grading plan to clearly show the drainage patterns. (T&ES) *

F - 14. Show all existing and proposed public and private utilities and easements on the Final Site Plan with a narrative. (T&ES) *

F - 15. Provide a Maintenance of Traffic Plan with the Construction Management Plan prior to Final Site Plan release that replicates the existing vehicular, pedestrian, and bicycle routes as closely as practical. Maintain pedestrian and bike access adjacent to the site per Memo to Industry #04-18. (T&ES) *

F - 16. Include these notes on all Maintenance of Traffic Plan Sheets (MOT): (T&ES)

a. Include the statement: “FOR INFORMATION ONLY” on all MOT Sheets. *
b. No sidewalks can remain closed for the duration of the project. Temporary sidewalk closures are subject to separate approval from T&ES at the time of permit application.
c. Contractor shall apply for all necessary permits for uses of the City right-of-way and shall submit MOT Plans with the T&ES Application for final approval at that time.

F - 17. Add complete streets tabulation to the cover sheet with the Final Site Plan submission. (T&ES) *

F - 18. Parking for the residential and commercial uses shall match the Zoning Ordinance requirements in effect at approval by the City Council and/or Planning Commission. (P&Z) (T&ES) *

F - 19. Maintain a separation of 150 feet between the beginning of street corner radius and any driveway apron radius on arterial and collector roadways, with a minimum of 100 feet permitted, subject to the approval of the Director of T&ES. (T&ES) *

F - 20. Maintain a minimum separation of 30 feet on residential streets between the beginning of the street corner radius and any driveway apron radius. (T&ES) *

C - 1 Complete a drainage study and adequate outfall analysis for the total drainage area to the receiving sewer that serves the site, per Article XI of the Zoning Ordinance. If the existing storm system is inadequate, design and build on-site or off-site improvements to discharge to an adequate outfall, even if post development stormwater flow from the site is less than pre-development flow. Demonstrate that a non-erosive stormwater outfall is present to the satisfaction of the Director of T&ES. (T&ES) *

C - 2 Comply with the stormwater quality requirements and provide channel and flood protection per the Article XIII of the Zoning Ordinance. Meet the peak flow requirements of the Zoning Ordinance if the development proposes combined uncontrolled and controlled stormwater outfall. If the project site is within the Braddock-West watershed or a known flooding area, provide an additional 10 percent storage of the pre-development flows in the watershed to meet detention requirements. (T&ES) *

C - 3 Design stormwater facilities that require analysis of pressure hydraulic systems, including but not limited to the design of flow control structures and stormwater flow conveyance systems according to Article XIII of the Zoning Ordinance, § 13-114(F), as signed and sealed by a professional engineer registered in Virginia. Include the adequate outfall, inlet, and hydraulic grade line analyses to the satisfaction of the Director of T&ES. Provide the references and/or sources used to complete these analyses. (T&ES) *

C - 4 Provide additional improvements to adjust lighting levels if the site does not comply with § 13-1-3 of the City Code, to the satisfaction of the Director of T&ES to comply with the Code. (T&ES) *

C - 5 The location of customer utility services and installing transmission, distribution, and main lines in the public rights-of-way by any public service company shall be governed by franchise agreement with the City per Title 5, Ch. 3, § 5-3-2 and § 5-3-3, respectively. The transformers, switch gears, and boxes shall be outside of the public right-of-way. (T&ES)

a. All new customer utility services, extensions of existing customer utility services, and existing overhead customer utility services supplied by any existing overhead facilities must be installed underground below the surface of the ground unless exempted by City Code § 5-3-2, to the satisfaction of the Director of T&ES. *, ****

b. Install all new installation or relocation of poles, towers, wires, lines, cables, conduits, pipes, mains, and appurtenances used or intended to transmit or distribute any service

(electric current, telephone, telegraph, cable television, traffic control, fire alarm, police communication, gas, water, steam, or petroleum) whether or not on streets, alleys, or other public places of the City must be installed underground or below the surface of bridges and elevated highways unless exempted by City Code § 5-3-3, to the satisfaction of the Director of T&ES. *, ****

C - 6 Discharge flow from downspouts, foundation drains, and sump pumps to the storm sewer per the requirements of Memorandum to Industry 05-14. Pipe discharges from downspouts and sump pump to the storm sewer outfall, where applicable after treating for water quality per Article XIII of the Zoning Ordinance. (T&ES) *, ****

C - 7 Provide a total turning radius of 25-feet and show turning movements of standard vehicles in the parking lot per the latest AASHTO vehicular guidance per the requirements of Title 4, Ch. 2, Article B, § 4-2-21, Appendix A, § A 106(6), Figure A 106.1 Minimum Standards for Emergency Vehicle Access to the satisfaction of the Directors of T&ES, Office of Building, and Fire Code Administration. (T&ES) *

C - 8 Provide storage space for both trash and recycling materials containers as outlined in the City's "Solid Waste and Recyclable Materials Storage Space Guidelines" to the satisfaction of the Director of Transportation & Environmental Services. Show the turning movements of the collection trucks, minimizing the need to reverse to perform trash or recycling collection. The City's storage space guidelines are at: https://www.alexandriava.gov/ResourceRecovery or by contacting the City's Resource Recovery Division at (703) 746-4410 or commercialrecycling@alexandriava.gov. (T&ES) *

C - 9 Include a note on the Final Site Plan that mandates delivering all solid waste, as defined by the City Charter and Code of the City of Alexandria, to the Covanta Energy Waste Facility located at 5301 Eisenhower Avenue. Stipulate in any future lease or property sales agreement that all tenants and/or property owners shall also comply with this requirement. (T&ES) *

C - 10 Submit a Recycling Implementation Plan to the Solid Waste Division, as outlined in Article H of Title 5 prior to Final Site Plan release. The form is available at: https://www.alexandriava.gov/ResourceRecovery or contact the Resource Recovery Division at (703) 746-4410 or CommercialRecycling@alexandriava.gov. (T&ES) *

C - 11 Satisfy the City's Minimum Standards for Private Streets and Alleys prior to Final Site Plan Release. (T&ES) *

C - 12 Post the bond for the public improvements before Final Site Plan release. (T&ES) *

C - 13 Provide plans and profiles of utilities and roads in public easements and/or public right-of-way for review and approval prior to Final Site Plan release. (T&ES) *

C - 14 Provide a phased erosion and sediment control plan consistent with the grading and construction plan prior to Final Site Plan release. (T&ES) *

C - 15 Provide as-built sewer data with the final as-built process per the Memorandum to Industry, dated July 20, 2005 prior to release of the Performance Bond. Prepare initial site survey work and plans using Virginia State Plane (North Zone) coordinates based on NAD 83 and NAVD 88. Reference the control points/benchmarks used to establish these coordinates. (T&ES) ****

C - 16 Design the thickness of sub-base, base, and wearing course using "California Method" as set forth on page 3-76 of the second edition of a book entitled, "Data Book for Civil Engineers, Volume One, Design" written by Elwyn E. Seelye. Determine the values of California Bearing Ratios used in the design by field and/or laboratory tests. Using an alternate pavement section for Emergency Vehicle Easements to support H-20 loading designed using California Bearing Ratio determined through geotechnical investigation and using VDOT method (Vaswani Method) and standard material specifications is acceptable to the satisfaction of the Director of T&ES. (T&ES) *, ****

C - 17 Provide all pedestrian, traffic, and wayfinding signage per the Manual of Uniform Traffic Control Devices, latest edition to the satisfaction of the Director of T&ES. (T&ES) *

C - 18 No overhangs (decks, bays, columns, post, or other obstructions) shall protrude into public rights-of-ways, public easements, and the pedestrian or vehicular travel ways unless otherwise permitted by the City Code or additional City approvals are obtained. (T&ES) *

C - 19 Design all driveway entrances, curbing, etc. in or abutting public right-of-way per City standards. (T&ES) *

C - 20 All sanitary laterals and/or sewers not shown in the easements shall be owned and maintained privately. (T&ES)

C - 21 Comply with the City of Alexandria's Noise Control Code, Title 11, Ch. 5, which sets the maximum permissible noise level as measured at the property line. (T&ES)

C - 22 Comply with the Alexandria Noise Control Code Title 11, Ch. 5, § 11-5-4(b)(15), which permits construction activities to occur during these hours: (T&ES)

i. Monday Through Friday from 7 AM to 6 PM
ii. Saturdays from 9 AM to 6 PM
iii. No construction activities allowed on Sundays and holidays

a. § 11-5-4(b)(19) further restricts pile driving to these hours:

i. Monday through Friday from 9 AM to 6 PM
ii. Saturdays from 10 AM to 4 PM

iii. No pile driving is allowed Sundays and holidays

b. § 11-5-109 restricts excavating work in the right-of-way to:

i. Monday through Saturday 7 AM to 5 PM
ii. No excavation in the right-of-way allowed on Sundays, New Year's Day, Independence Day, Thanksgiving, and Christmas.

C - 23 Comply with the stormwater pollutant load reduction, treatment of the Alexandria Water Quality Volume Default, and stormwater quantity management per Article XIII of the Zoning Ordinance. (T&ES) *

C - 24 Comply with the City of Alexandria, Erosion, and Sediment Control Code, Title 5, Ch. 4. (T&ES) *

C - 25 Obtain all necessary permits from Virginia Department of Environmental Quality, Environmental Protection Agency, Army Corps of Engineers, and/or Virginia Marine Resources for all project construction and mitigation work prior to Final Site Plan release. This condition includes the state requirement for a state General VPDES Permit for Discharges of Stormwater from Construction Activities (general permit) and associated Stormwater Pollution Prevention Plan for land disturbing activities equal to or greater than one acre. Refer to the Memo to Industry 08-14: http://alexandriava.gov/tes/info/default.aspx?id=3522. (T&ES) *

C - 26 Provide a Stormwater Pollution Prevention Plan (SWPPP) Book with the Final Site Plan. The project's stormwater management (SWM) plan and the erosion and sediment control (E&SC) plan must be approved prior to the SWPPP being deemed approved and processed to receive coverage under the VPDES Construction General Permit. Upon approval, provide an electronic copy of the SWPPP Book with the Signature Set submission and a copy of the coverage letter must be added to the plan sheet containing the stormwater management calculations. Include an electronic copy of the SWPPP Binder Book in the released site plans and include a hardcopy of the SWPPP Binder Book with the on-site construction drawings. Separate parcel owners must seek separate VPDES Construction General Permit Coverage unless a blanket entity incorporated in Virginia has control of the entire project. (T&ES) *

F. Information Technology

R - 1. Development cases should not use any addresses in their case name as existing site addresses may change during development. (GIS)

G. Fire Department

C - 1 Show the location of Fire Department Connections (FDC) prior to Final Site Plan release. (P&Z) (Code) *

H. Police Department

R - 1. Gate off the section of the underground garage dedicated to residents. Control access by electronic means. This design helps prevent tampering with resident's vehicles and other crimes.

R - 2. Provide controlled access for doors in the garage (garage levels only) that lead to the stairwell. Controlled access must not interfere with the emergency push-bar release located on the inside of the stairwell.

R - 3. Plant shrubbery that achieves a natural growth height of no more than 2.5 to 3 feet with a maximum height of 3 feet when it matures to avoid obstructing the view of patrolling law enforcement officers.

R - 4. Choose benches middle armrests to deter unwanted sleeping and skateboarding.

R - 5. Equip all ground floor windows with a device or hardware that enables securing them in a partially open position. This design prevents breaking and entering when the windows are open for air.

R - 6. Install "door-viewers" (commonly known as a peepholes) in all doors on the ground level that lead directly into an apartment to increase security for the occupant.

Asterisks denote:

* Condition must be fulfilled prior to release of the Final Site Plan
** Condition must be fulfilled prior to release of the building permit
*** Condition must be fulfilled prior to issuance of the Certificate of Occupancy
**** Condition must be fulfilled prior to release of the bond

X. Appendix / Small Area Plan Developer Contributions Conditions

A. Beauregard

141. Pursuant to conditions adopted by City Council applicable to CDD #4, a contribution to the Beauregard Implementation Fund is required. In addition to the affordable housing contribution outlined in condition #119 and the on-site committed affordable units outlined in condition #120, the applicant will also fulfill infrastructure commitments through in-kind improvements that are valued at $2.903 million (see below for breakdown) during development:

    a. Dedication of land for Ellipse ($760,500)
    b. Bus Rapid Transit (dedication of land and construction costs) ($1,862,750)
    c. Median Improvements ($280,750)

IX. ATTACHMENTS

Attachment 1: BDAC Recommendation Letter

DATE: March 3, 2023

TO: Karl Moritz, Director of Planning & Zoning
City of Alexandria

FROM: Donna Fossum, Chair
On behalf of the Beauregard Design Advisory Committee (BDAC)

SUBJECT: DSUP #2022-10027 – The Rutherford – Committee Recommendations

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Per Section 5-612 of the Zoning Ordinance, the Beauregard Design Advisory Committee (BDAC) is tasked with reviewing all applications for redevelopment of the land located within the boundaries of the Beauregard Small Area Plan (BSAP), checking for compliance with the SAP and the Beauregard Urban Design Standards and Guidelines. After its review, BDAC is to make its recommendations on such applications to the Planning Commission and City Council through the Director of Planning and Zoning.

BDAC met four times (September 26, 2022, October 24, 2022, December 5, 2022, and February 6, 2023) to review an application from Mark Center Residential, LLC, (DSUP #2022-10027), that seeks permission to build The Rutherford, formerly known as the Hilton Multifamily project, located south of the existing Hilton Hotel at 5000 Seminary Road. In addition to the Development Special Use Permit, the project application includes Special Use Permits (SUPs) for a parking reduction, a penthouse to exceed 15' in height, and signs that exceed the permitted size. The application also includes a Transportation Management Plan SUP (SUP#2022-00097).

The four BDAC meetings hosted robust discussions between BDAC Committee members, the applicant, City staff, and the public which assessed the project using the parameters of the Beauregard Design Standards and Guidelines, the BSAP, and CDD#4.

At the September 26, 2022 and October 24, 2022 meetings, the members of BDAC and City staff were supportive of the overall direction that the proposal was taking, but requested further refinement of the design to divide the structure into two primary buildings, refine the design of the main entrance, and put additional articulation and detail on the building frontage along Mark Center Avenue adjacent to the new bus bays.

While most of the requests of BDAC had been fulfilled by December, BDAC asked the Applicant for additional changes to the garage screening, the color palette of the buildings, and the links between the two buildings. At the February 6, 2023 meeting, BDAC accepted the revisions made by the applicant and voted unanimously (6-0)* to support the DSUP for The Rutherford, along with variations to the Beauregard Design Standards and Guidelines.

BDAC supports this project (as revised) and the requested SUPs, as well as the variations in the guidelines and standards, as such changes were deemed to be reasonable and beneficial to the overall project design. The requested variations are to:

- Not provide community function space
- Not meet the design standard for finished floor height of the ground floor
- Modify signage height, location, and illumination
- Revise the placement of street trees
- Provide a short-term surface parking area

Please note that members of BDAC expressed concern with the lack of ground floor retail space in projects that have recently come before BDAC for consideration.

** BDAC member Jill Phaneuf was not present at the September, October, and December meetings of the Committee, so she recused herself from voting on February 6, 2023. Samantha Moore was absent from the February 6, 2023 meeting of BDAC.*

APPLICATION

DEVELOPMENT SPECIAL USE PERMIT with SITE PLAN

DSUP # DSUP #2022-10027 Project Name: The Rutherford at Mark Center

PROPERTY LOCATION: 5000 Seminary Road, Lot 502

TAX MAP REFERENCE: portion of 019.02-02-01 ZONE: CDD #4

APPLICANT:

Name: Mark Center Residential, LLC

Address: 1210 Corbin Court, McLean, VA 22101

PROPERTY OWNER:

Name: Same as Applicant

Address:

SUMMARY OF PROPOSAL Multifamily Residential Building permitted under the existing CDD #4 Zone

MODIFICATIONS REQUESTED

SUP's REQUESTED 1) Parking Reduction; 2) TMP SUP; 3) Penthouse to exceed 15' in height 4) Coordinated Sign Plan

☑ THE UNDERSIGNED hereby applies for Development Site Plan with Special Use Permit approval in accordance with the provisions of Section 11-400 of the Zoning Ordinance of the City of Alexandria, Virginia.

☑ THE UNDERSIGNED, having obtained permission from the property owner, hereby grants permission to the City of Alexandria to post placard notice on the property for which this application is requested, pursuant to Article XI, Section 11-301 (B) of the 1992 Zoning Ordinance of the City of Alexandria, Virginia.

☑ THE UNDERSIGNED also attests that all of the information herein provided and specifically including all surveys, drawings, etc., required of the applicant are true, correct and accurate to the best of his/her knowledge and belief.

Kenneth W. Wire, Wire Gill LLP
Print Name of Applicant or Agent

Signature

700 N. Fairfax Street, Suite 600
Mailing/Street Address

703-677-3129
Telephone # Fax #

Alexandria, VA 22314
City and State Zip Code

kwire@wiregill.com
Email address

Dec. 21, 2022
Date

DO NOT WRITE IN THIS SPACE - OFFICE USE ONLY

Application Received:
Fee Paid and Date:
Received Plans for Completeness:
Received Plans for Preliminary:

ACTION - PLANNING COMMISSION:

ACTION - CITY COUNCIL:

Development SUP # DSUP #2022-10027

ALL APPLICANTS MUST COMPLETE THIS FORM.

Supplemental forms are required for child care facilities, restaurants, automobile oriented uses and freestanding signs requiring special use permit approval.

1. The applicant is: (check one)
   ☑ The Owner ☐ Contract Purchaser ☐ Lessee or ☐ Other: _____ of the subject property.

State the name, address and percent of ownership of any person or entity owning an interest in the applicant, unless the entity is a corporation or partnership in which case identify each owner of more than three percent.
Please see disclosure attachment.

If property owner or applicant is being represented by an authorized agent, such as an attorney, realtor, or other person for which there is some form of compensation, does this agent or the business in which the agent is employed have a business license to operate in the City of Alexandria, Virginia?

X ☐ Yes. Provide proof of current City business license.
☐ No. The agent shall obtain a business license prior to filing application, if required by the City Code.

OWNERSHIP AND DISCLOSURE STATEMENT

Use additional sheets if necessary

1. Applicant. State the name, address and percent of ownership of any person or entity owning an interest in the applicant, unless the entity is a corporation or partnership, in which case identify each owner of more than three percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. See Attached.		
2.		
3.		

2. Property. State the name, address and percent of ownership of any person or entity owning an interest in the property located at 5000 Seminary Road (Lot 502) (address), unless the entity is a corporation or partnership, in which case identify each owner of more than three percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. See Attached.		
2.		
3.		

3. BusinessorFinancialRelationships. Each person or entity listed above (1 and 2), with an ownership interest in the applicant or in the subject property is required to disclose any business or financial relationship, as defined by Section 11-350 of the Zoning Ordinance, existing at the time of this application, or within the12-month period prior to the submission of this application with any member of the Alexandria City Council, Planning Commission, Board of Zoning Appeals or either Boards of Architectural Review.

Name of person or entity	Relationship as defined by Section 11-350 of the Zoning Ordinance	Member of the Approving Body (i.e. City Council, Planning Commission, etc.)
1. None	None	None
2.		
3.		

NOTE: Business or financial relationships of the type described in Sec. 11-350 that arise after the filing of this application and before each public hearing must be disclosed prior to the public hearings.

As the applicant or the applicant's authorized agent, I hereby attest to the best of my ability that the information provided above is true and correct.

Dec. 21, 2022 Kenneth W. Wire, Wire Gill LLP _____

Date Printed Name Signature

Disclosure Attachment

5000 Seminary Road, Lot 502

The following is a list of all individual owners owning a share greater than 3% of Mark Center Residential LLC:

Phillip G. Norton Descendant's Trust UTA
Michael W. Scott, Trustee
1166 Chain Bridge Rd
McLean, VA 22101

PAN Family Trust UTA
Michael W. Scott, Trustee
1166 Chain Bridge Rd
McLean, VA 22101

Phillip G. Norton, Jr.
950 Mackall Farms Lane
McLean, VA 22101

Andrew L. Norton
1423 Harvest Crossing Drive
McLean, VA 22101

Jeremiah O. Norton
1100 Dogwood Drive
McLean, VA 22101

Tambonito LLC
Marwan Bitar, Managing Member
1002 Turkey Run Road
McLean, VA 22101

Stephen L. Clagett Jr.
27 Southgate Ave
Annapolis MD 21401

Javelina Holdings
Austin Lehr
2717 Picardy Place
Charlotte, ND 28209

Thomas J Pellerito Trust
John Pellerito
2305 Welbourne Walk Ct
Ashburn, VA 20148

2. Narrative description. The applicant shall describe below the nature of the request in detail so that the Planning Commission and City Council can understand the nature of the operation and the use, including such items as the nature of the activity, the number and type of patrons, the number of employees, the hours, how parking is to be provided for employees and patrons, and whether the use will generate any noise. If not appropriate to the request, delete pages 6-9. (Attach additional sheets if necessary.)

The Applicant proposes a 367-unit multifamily building on a recently-subdivided 4.5 acre subdivided parcel from the Mark Center Hilton Property in the Beauregard Small Area Plan area. The Property is zoned CDD #4, which was amended in Oct. 2021 to allow for multifamily residential use on the Property. The CDD #4 Amendment permits up to a 2.5 FAR, 420 residential units and a building height of 100 feet. The Applicant's proposal is consistent with the CDD #4 Amendment with a 2.24 FAR and a building height of approx. 84 feet. Additionally, the project is consistent with the applicable Beauregard Small Area Plan guidelines including many urban design and architectural guidelines, one level of underground parking, and high quality open spaces, streetscapes, and landscaping. The proposed plan includes frontage improvements facilitating 4 bus bays directly across from the existing transit center on Mark Center Ave. The Applicant also will provide on-site affordable housing. The Applicant proposes SUPs for a parking reduction, TMP, penthouse to exceed 15' in height and Coordinated Sign Plan.

3. How many patrons, clients, pupils and other such users do you expect? Specify time period (i.e., day, hour, or shift).
Typical for the size of the residential use proposed.

4. How many employees, staff and other personnel do you expect? Specify time period (i.e. day, hour, or shift).
Building management and support staff typical for the size of the residential use proposed.

5. Describe the proposed hours and days of operation of the proposed use:

Day	Hours	Day	Hours
7	24		

6. Describe any potential noise emanating from the proposed use:

A. Describe the noise levels anticipated from all mechanical equipment and patrons.
Typical for a residential building.

B. How will the noise from patrons be controlled?
Building management staff.

7. Describe any potential odors emanating from the proposed use and plans to control them:
None.

8. Provide information regarding trash and litter generated by the use:

A. What type of trash and garbage will be generated by the use?
Typical for a residential building

B. How much trash and garbage will be generated by the use?
Typical amount generated by a 367 unit residential building

C. How often will trash be collected?
1-2 times per week

D. How will you prevent littering on the property, streets and nearby properties?
Building management staff

9. Will any hazardous materials, as defined by the state or federal government, be handled, stored, or generated on the property?

☐ Yes. ☑ No.

If yes, provide the name, monthly quantity, and specific disposal method below:

10. Will any organic compounds (for example: paint, ink, lacquer thinner, or cleaning or degreasing solvent) be handled, stored, or generated on the property?

☑ Yes. ☐ No.

If yes, provide the name, monthly quantity, and specific disposal method below:
Typical cleaning and building maintenance supplies that will be stored and disposed of per manufacture's specifications.

11. What methods are proposed to ensure the safety of residents, employees and patrons?

Fob or key-card building entry and monitoring by building management

ALCOHOL SALES

12. Will the proposed use include the sale of beer, wine or mixed drinks?

☐ Yes. ☑ No.

If yes, describe alcohol sales below, including if the ABC license will include on-premises and/or off-premises sales. Existing uses must describe their existing alcohol sales and/or service and identify any proposed changes in that aspect of the operation.

PARKING AND ACCESS REQUIREMENTS

13. Provide information regarding the availability of off-street parking:

A. How many parking spaces are required for the proposed use pursuant to section 8-200 (A) of the zoning ordinance?

485

B. How many parking spaces of each type are provided for the proposed use:

See DSUP Plans Standard spaces

Compact spaces

Handicapped accessible spaces

Other

C. Where is required parking located? (check one) [✔] on-site [ ] off-site

If the required parking will be located off-site, where will it be located?

_____

Pursuant to section 8-200 (C) of the zoning ordinance, commercial and industrial uses may provide off-site parking within 500 feet of the proposed use, provided that the off-site parking is located on land zoned for commercial or industrial uses. All other uses must provide parking on-site, except that off-street parking may be provided within 300 feet of the use with a special use permit.

D. If a reduction in the required parking is requested, pursuant to section 8-100 (A) (4) or (5) of the zoning ordinance, complete the Parking Reduction Supplemental Application.

14. Provide information regarding loading and unloading facilities for the use:

A. How many loading spaces are required for the use, per section 8-200 (B) of the zoning ordinance? 0

B. How many loading spaces are available for the use? 1

C. Where are off-street loading facilities located? See DSUP plans

D. During what hours of the day do you expect loading/unloading operations to occur?
During residential move-in and move-out

E. How frequently are loading/unloading operations expected to occur, per day or per week, as appropriate?
During initial lease up and as units turn over

15. Is street access to the subject property adequate or are any street improvements, such as a new turning lane, necessary to minimize impacts on traffic flow?
No; the property fronts on two main streets and the CDD#4 did not envision streets through the property

APPLICATION
SPECIAL USE PERMIT

SPECIAL USE PERMIT # _____

PROPERTY LOCATION: 5000 Seminary Road (Lot 502) and Lots 501 & 502 for Coordinated Sign Plan

TAX MAP REFERENCE: 019.02-02-01 **ZONE:** CDD #4

APPLICANT:

Name: Mark Center Residential, LLC; and CRP Mark Center Hotel, LLC (for Coordinated Sign Plan SUP Only)

Address: 1210 Corbin Court, McLean, VA 22101 and 1001 Pennsylvania Ave. NW, Washington DC, 20004

PROPOSED USE: Multifamily Residential Building with SUPs for a parking reduction, TMP, exceed 15' penthouse height limit, and Coordinated Sign Plan

☑ THE UNDERSIGNED, hereby applies for a Special Use Permit in accordance with the provisions of Article XI, Section 4-11-500 of the 1992 Zoning Ordinance of the City of Alexandria, Virginia.

☑ THE UNDERSIGNED, having obtained permission from the property owner, hereby grants permission to the City of Alexandria staff and Commission Members to visit, inspect, and photograph the building premises, land etc., connected with the application.

☑ THE UNDERSIGNED, having obtained permission from the property owner, hereby grants permission to the City of Alexandria to post placard notice on the property for which this application is requested, pursuant to Article IV, Section 4-1404(D)(7) of the 1992 Zoning Ordinance of the City of Alexandria, Virginia.

☑ THE UNDERSIGNED, hereby attests that all of the information herein provided and specifically including all surveys, drawings, etc., required to be furnished by the applicant are true, correct and accurate to the best of their knowledge and belief. The applicant is hereby notified that any written materials, drawings or illustrations submitted in support of this application and any specific oral representations made to the Director of Planning and Zoning on this application will be binding on the applicant unless those materials or representations are clearly stated to be non-binding or illustrative of general plans and intentions, subject to substantial revision, pursuant to Article XI, Section 11-207(A)(10), of the 1992 Zoning Ordinance of the City of Alexandria, Virginia.

Kenneth W. Wire, Wire Gill LLP	[signature]	Dec. 21, 2022
Print Name of Applicant or Agent	Signature	Date
700 N. Fairfax Street, Suite 600	703-677-3129	
Mailing/Street Address	Telephone #	Fax #
Alexandria, VA 22314	kwire@wiregill.com	
City and State Zip Code	Email address	

SUP #_____

PROPERTY OWNER'S AUTHORIZATION

As the property owner of 5000 Seminary (Lot 502), I hereby
(Property Address)

grant the applicant authorization to apply for the special use permit use as
(use)

described in this application.

Name: WILLIAM P. KRZOKOWSKI Phone 202-957-8425
Please Print c/o MARK CENTER RESIDENTIAL, LLC

Address: 1210 CORBIN COURT Email: bkrzokowski@regurityrealestate.com
MCLEAN VA 22101

Signature: _____ **Date:** 11/8/22

1. Floor Plan and Plot Plan. As a part of this application, the applicant is required to submit a floor plan and plot or site plan with the parking layout of the proposed use. The SUP application checklist lists the requirements of the floor and site plans. The Planning Director may waive requirements for plan submission upon receipt of a written request which adequately justifies a waiver.

[X] **Required floor plan and plot/site plan attached.**

[ ] **Requesting a waiver. See attached written request.**

2. The applicant is the *(check one)*:

[X] Owner
[ ] Contract Purchaser
[ ] Lessee or
[ ] Other: _____ of the subject property.

State the name, address and percent of ownership of any person or entity owning an interest in the applicant or owner, unless the entity is a corporation or partnership, in which case identify each owner of more than three percent.

Please see attached disclosure attachment.

SUP # _____

PROPERTY OWNER'S AUTHORIZATION

As the property owner of 5000 Seminary Road (Lot 501), I hereby
(Property Address)

grant the applicant authorization to apply for the Coordinated Sign SUP use as
(use)

described in this application.

Name: JOHN F ADAMS JR c/o CRP MARK CENTER HOTEL, LLC
Please Print

Address: 1001 PENNSYLVANIA AVE NW WASHINGTON, DC 20004

Phone 571-216-9113

Email: jamie.adams@carlyle.com

Signature: _____

Date: 11/9/2022

1. Floor Plan and Plot Plan. As a part of this application, the applicant is required to submit a floor plan and plot or site plan with the parking layout of the proposed use. The SUP application checklist lists the requirements of the floor and site plans. The Planning Director may waive requirements for plan submission upon receipt of a written request which adequately justifies a waiver.

[X] **Required floor plan and plot/site plan attached.**

[ ] **Requesting a waiver. See attached written request.**

2. The applicant is the *(check one)*:

[X] Owner
[ ] Contract Purchaser
[ ] Lessee or
[ ] Other: _____ of the subject property.

State the name, address and percent of ownership of any person or entity owning an interest in the applicant or owner, unless the entity is a corporation or partnership, in which case identify each owner of more than three percent.

Owner: CRP MARK CENTER HOTEL, LLC 100%.

NO OWNERSHIP >3%

See attached disclosure for Applicant entity.

OWNERSHIP AND DISCLOSURE STATEMENT

Use additional sheets if necessary

1. Applicant. State the name, address and percent of ownership of any person or entity owning an interest in the applicant, unless the entity is a corporation or partnership, in which case identify each owner of more than three percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. See page 2 and disclosure attachment.		
2.		
3.		

2. Property. State the name, address and percent of ownership of any person or entity owning an interest in the property located at _____5000 Seminary Road (Lot 501 & Lot 502)_____ (address), unless the entity is a corporation or partnership, in which case identify each owner of more than three percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. See page 2 and 3		
2. and disclosure attachment.		
3.		

3. Business or Financial Relationships. Each person or entity indicated above in sections 1 and 2, with an ownership interest in the applicant or in the subject property are require to disclose **any** business or financial relationship, as defined by Section 11-350 of the Zoning Ordinance, existing at the time of this application, or within the12-month period prior to the submission of this application with any member of the Alexandria City Council, Planning Commission, Board of Zoning Appeals or either Boards of Architectural Review. **All fields must be filled out completely. Do not leave blank. (If there are no relationships please indicated each person or entity and "None" in the corresponding fields).**

For a list of current council, commission and board members, as well as the definition of business and financial relationship, click here.

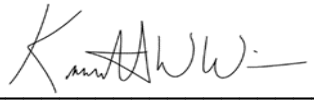
Name of person or entity	Relationship as defined by Section 11-350 of the Zoning Ordinance	Member of the Approving Body (i.e. City Council, Planning Commission, etc.)
1. None (Applicant)	None	None
2. None (Owner)	None	None
3.		

NOTE: Business or financial relationships of the type described in Sec. 11-350 that arise after the filing of this application and before each public hearing must be disclosed prior to the public hearings.

As the applicant or the applicant's authorized agent, I hereby attest to the best of my ability that the information provided above is true and correct.

Dec. 21, 2022 — Date

Kenneth W. Wire, Wire Gill, LLP — Printed Name



Signature

Disclosure Attachment

5000 Seminary Road, Lot 502

The following is a list of all individual owners owning a share greater than 3% of Mark Center Residential LLC:

Phillip G. Norton Descendant's Trust UTA
Michael W. Scott, Trustee
1166 Chain Bridge Rd
McLean, VA 22101

PAN Family Trust UTA
Michael W. Scott, Trustee
1166 Chain Bridge Rd
McLean, VA 22101

Phillip G. Norton, Jr.
950 Mackall Farms Lane
McLean, VA 22101

Andrew L. Norton
1423 Harvest Crossing Drive
McLean, VA 22101

Jeremiah O. Norton
1100 Dogwood Drive
McLean, VA 22101

Tambonito LLC
Marwan Bitar, Managing Member
1002 Turkey Run Road
McLean, VA 22101

Stephen L. Clagett Jr.
27 Southgate Ave
Annapolis MD 21401

Javelina Holdings
Austin Lehr
2717 Picardy Place
Charlotte, ND 28209

Thomas J Pellerito Trust
John Pellerito
2305 Welbourne Walk Ct
Ashburn, VA 20148

If property owner or applicant is being represented by an authorized agent such as an attorney, realtor, or other person for which there is some form of compensation, does this agent or the business in which the agent is employed have a business license to operate in the City of Alexandria, Virginia?

[✓] **Yes.** Provide proof of current City business license

[ ] **No.** The agent shall obtain a business license prior to filing application, if required by the City Code.

NARRATIVE DESCRIPTION

3. The applicant shall describe below the nature of the request **in detail** so that the Planning Commission and City Council can understand the nature of the operation and the use. The description should fully discuss the nature of the activity. (Attach additional sheets if necessary.)

The Applicant proposes a 367-unit multifamily building on a recently-subdivided 4.5 acre subdivided parcel from the Mark Center Hilton Property in the Beauregard Small Area Plan area. The Property is zoned CDD #4, which was amended in Oct. 2021 to allow for multifamily residential use on the Property. The CDD #4 Amendment permits up to a 2.5 FAR, 420 residential units and a building height of 100 feet. The Applicant's proposal is consistent with the CDD #4 Amendment with a 2.24 FAR and a building height of approx. 84 feet. Additionally, the project is consistent with the applicable Beauregard Small Area Plan guidelines including many urban design and architectural guidelines, one level of underground parking, and high quality open spaces, streetscapes, and landscaping. The proposed plan includes frontage improvements facilitating 4 bus bays directly across from the existing transit center on Mark Center Ave. The Applicant also will provide on-site affordable housing. The Applicant proposes SUPs for a parking reduction, TMP, penthouse to exceed 15' height limit, and Coordinated Sign Plan.

USE CHARACTERISTICS

4. The proposed special use permit request is for *(check one):*

[✓] a new use requiring a special use permit,
[ ] an expansion or change to an existing use without a special use permit,
[ ] an expansion or change to an existing use with a special use permit,
[ ] other. Please describe:_____

5. Please describe the capacity of the proposed use:

A. How many patrons, clients, pupils and other such users do you expect?
Specify time period (i.e., day, hour, or shift).
Typical for multifamily residential project of a similar size

B. How many employees, staff and other personnel do you expect?
Specify time period (i.e., day, hour, or shift).
Typical for a multifamily residential project of a similar size

6. Please describe the proposed hours and days of operation of the proposed use:

Day:	Hours:
7 days a week	24 hours/day

7. Please describe any potential noise emanating from the proposed use.

A. Describe the noise levels anticipated from all mechanical equipment and patrons.
Typical for multifamily residential building of a similar size

B. How will the noise be controlled?
City noise ordinance and building management

8. Describe any potential odors emanating from the proposed use and plans to control them:

None anticipated

9. Please provide information regarding trash and litter generated by the use.

A. What type of trash and garbage will be generated by the use? (i.e. office paper, food wrappers)

Typical for a multifamily residential building of a similar size

B. How much trash and garbage will be generated by the use? (i.e. # of bags or pounds per day or per week)

Typical for a multifamily residential building of a similar size

C. How often will trash be collected?

1-2 times per week

D. How will you prevent littering on the property, streets and nearby properties?

Building management

10. Will any hazardous materials, as defined by the state or federal government, be handled, stored, or generated on the property?

[ ] Yes. [✔] No.

If yes, provide the name, monthly quantity, and specific disposal method below:

11. Will any organic compounds, for example paint, ink, lacquer thinner, or cleaning or degreasing solvent, be handled, stored, or generated on the property?

[✓] Yes. [ ] No.

If yes, provide the name, monthly quantity, and specific disposal method below:
Cleaning and building maintenance supplies typical for a multifamily residential building of a similar size.

12. What methods are proposed to ensure the safety of nearby residents, employees and patrons?
Fob or similar controlled access to building and garage

ALCOHOL SALES

13.

A. Will the proposed use include the sale of beer, wine, or mixed drinks?

[ ] Yes [✓] No

If yes, describe existing (if applicable) and proposed alcohol sales below, including if the ABC license will include on-premises and/or off-premises sales.

PARKING AND ACCESS REQUIREMENTS

14. A. How many parking spaces of each type are provided for the proposed use:

See _____ Standard spaces
DSUP _____ Compact spaces
Plan _____ Handicapped accessible spaces.
Set _____ Other.

Planning and Zoning Staff Only
Required number of spaces for use per Zoning Ordinance Section 8-200A_____
Does the application meet the requirement? [ ] Yes [ ] No

B. Where is required parking located? *(check one)*
[✔] on-site
[ ] off-site

If the required parking will be located off-site, where will it be located?

_____

PLEASE NOTE: Pursuant to Section 8-200 (C) of the Zoning Ordinance, commercial and industrial uses may provide off-site parking within 500 feet of the proposed use, provided that the off-site parking is located on land zoned for commercial or industrial uses. All other uses must provide parking on-site, except that off-street parking may be provided within 300 feet of the use with a special use permit.

C. If a reduction in the required parking is requested, pursuant to Section 8-100 (A) (4) or (5) of the Zoning Ordinance, complete the PARKING REDUCTION SUPPLEMENTAL APPLICATION.

[✔] Parking reduction requested; see attached supplemental form

15. Please provide information regarding loading and unloading facilities for the use:

A. How many loading spaces are available for the use? 1

Planning and Zoning Staff Only
Required number of loading spaces for use per Zoning Ordinance Section 8-200_____
Does the application meet the requirement? [ ] Yes [ ] No

B. Where are off-street loading facilities located? See DSUP plan set

C. During what hours of the day do you expect loading/unloading operations to occur?
Daytime business hours

D. How frequently are loading/unloading operations expected to occur, per day or per week, as appropriate?
During initial lease up of rental units and as units turn over

16. Is street access to the subject property adequate or are any street improvements, such as a new turning lane, necessary to minimize impacts on traffic flow?

No new street access guidance from the BSAP; the project is surrounded by streets/access on two sides

SITE CHARACTERISTICS

17. Will the proposed uses be located in an existing building? [ ] Yes [✓] No

Do you propose to construct an addition to the building? [ ] Yes [✓] No

How large will the addition be? _____ square feet.

18. What will the total area occupied by the proposed use be?

_____ sq. ft. (existing) + _____ sq. ft. (addition if any) = 448,801 sq. ft. (total)

19. The proposed use is located in: *(check one)*
[✓] a stand alone building
[ ] a house located in a residential zone
[ ] a warehouse
[ ] a shopping center. Please provide name of the center: _____
[ ] an office building. Please provide name of the building: _____
[ ] other. Please describe:_____

End of Application

Department of Planning & Zoning
Special Use Permit Application Checklist

Supplemental application for the following uses:

- ☐ Automobile Oriented
- ☑ Parking Reduction
- ☐ Signs
- ✔ Substandard Lot

  Lot modifications requested with SUP use

Interior Floor Plan

Include labels to indicate the use of the space (doors, windows, seats, tables, counters, equipment)

If Applicable

- ✔ Plan for outdoor uses

Contextual site image

- ✔ Show subject site, on-site parking area, surrounding buildings, cross streets

SUP # _____

APPLICATION - SUPPLEMENTAL

SIGNS

1. How many signs exist on the property?

None on the subject Property (Lot 502); Building Signs for the hotel (Lot 501)

2. Please provide the size of each existing sign(s), including, length, width and square footage of the sign face, and the height of the sign above grade.

No signs exist on Lot 502 and no changes are proposed to the existing Hilton hotel signs

3. Provide the length of frontage for every street that the subject property touches.

Please see enclosed sign plans on Sheets L2.02 and A-060

4. How many businesses are located on the property?

The proposed multifamily buildings will be owned by a business.

5. How many signs are proposed?

Please see enclosed sign plans on Sheets L2.02 and A-060

6. Provide the size of each proposed sign(s), including, length, width and square footage of the sign face, and the height of the sign above grade.

See enclosed sign plans on Sheets L2.02 and A-060.

7. How will the sign(s) be illuminated?

Please see enclosed sign plans on Sheets L2.02 and A-060

☑ Attach a sign image drawn to scale of the sign you propose. Include color and placement on the building or site.

SUP # _____

APPLICATION - SUPPLEMENTAL

PARKING REDUCTION

Supplemental information to be completed by applicants requesting special use permit approval of a reduction in the required parking pursuant to section 8-100(A)(4) or (5).

1. Describe the requested parking reduction. (e.g. number of spaces, stacked parking, size, off-site location)

The Applicant proposes a parking reduction for residential uses from 485 parking spaces to 410 spaces. The resultant parking ratio is 1.11 spaces per 1 unit. The project is located across Mark Center Avenue from a transit center and the Applicant will be facilitating 4 new bus bays along its frontage. Please see enclosed further justification.

2. Provide a statement of justification for the proposed parking reduction.

The proposed multifamily building is within the Beauregard Small Area Plan, which is envisioned to be a dense, mixed use transit rich environment. The future West End BRT will provide additional transit option for residents, in addition to the transit station buses directly adjacent to the Property. Given a satisfactory levels of parking space is provided through the 1:1.11 ratio, the impacts from this reduction will be minimal.

3. Why is it not feasible to provide the required parking?

Due to property constraints, an additional level of the garage is not possible or feasible. Given the future BRT and location adjacent to an expanding transit center, the Applicant seeks to right-size parking for the overall development as opposed to overbuild parking.

4. Will the proposed reduction reduce the number of available parking spaces below the number of existing parking spaces?

_____ Yes. ____✔____ No.

5. If the requested reduction is for more than five parking spaces, the applicant must submit a *Parking Management Plan* which identifies the location and number of parking spaces both on-site and off-site, the availability of on-street parking, any proposed methods of mitigating negative affects of the parking reduction.

The Applicant has submitted a PMP

6. The applicant must also demonstrate that the reduction in parking will not have a negative impact on the surrounding neighborhood.

Considering the future transit-rich, walkable location of the Property, it is unlikely there will be a negative impact on the parking of the surrounding West End.

Date:	November 2, 2022
To:	City of Alexandria, Department of Planning and Zoning
From:	Kathy Lawson, DCS Design
Subject:	Green Building Policy Compliance, DSUP Submission
Project:	Mark Center Residential

Green Building:

General Approach

__X___ Indicate certification the project will pursue and provide draft scorecard

Response: Mark Center Residential is pursuing EarthCraft Multifamily v6.5 Gold certification. See attached draft scorecard.

Energy

__X___ Narratives addressing load reduction strategies proposed for the following:

- Massing and Orientation
- Basic Envelope Attributes
- Lighting
- Plug and process loads

Response: The building will be designed with below grade parking to reduce urban heat island effect and increased heat loads associated with surface parking. The project will feature three interior courtyards to allow increased natural daylight to the core of the floorplate while providing shading from direct sunlight into interior units. The location of balcony slabs around the perimeter of the building will also provide shading from direct sunlight and reduce heat load in summer months.

The building envelope will meet or exceed IECC 2018 thermal insulation values, including R-20+ exterior wall insulation, R-30+ roof insulation and R-19+ floor slab insulation. Continuous exterior wall insulation will be utilized to reduce thermal bridging. Dwelling unit windows will be EnergyStar rated with U-factors ≤0.32 and SHGC ≤0.27.

High efficacy LED lighting will be specified at dwelling units, common spaces, parking garage, building façade, and site lighting to reduce overall energy load associated with lighting. In addition, occupancy sensors, bi-level lighting, and dimming controls will be utilized throughout the project to further reduce lighting loads.

Plug and process loads will be reduced using EnergyStar qualified dishwashers, refrigerators, and clothes washers.

__X___ Preliminary energy savings estimates

Response: By specifying a high performance building envelope and efficient mechanical, electrical, and plumbing systems, all residential units will achieve a modeled HERS Index less than or equal to the Energy Star Multifamily New Construction Target HERS Index.

__X___ Renewable energy production narrative with output estimates
Response: Renewable energy will not be produced on site at this time. However, the Mark Center Residential project will be solar ready with infrastructure in place to support future photovoltaic panel installations.

__N/A_ For Net Zero:
• Preliminary energy analysis report that demonstrates renewable energy production strategy that offsets projected building energy use
• Evidence that project has been registered for an approved Net Zero Energy Certification
Response: Not applicable. The project is not pursuing Net Zero Energy Certification.

__N/A__ Commissioning
• Confirmation that a Commissioning Agent is contracted for the project
Response: Commissioning is no longer applicable under EarthCraft MF v6.5.

___X__ Metering Strategy Narrative
Response: Whole building energy and water meters will be provided, as well as electric meters for each dwelling unit and submeters for back-of-house areas.

Water
___X__ Proposed outdoor water reduction strategies and percentage of water reduced
___X__ Percent of indoor water use savings and list of proposed strategies
Response: Watersense certified domestic plumbing fixtures will be used throughout the building to achieve a minimum indoor water use reduction of 40%. At the exterior, native and drought-tolerant landscape will be utilized as well as high-efficiency micro-irrigation designed by a WaterSense Irrigation Partner to reduce the overall outdoor water usage by at least 50%.

Indoor Environmental Quality
___X__ Narrative explaining project approach to:
• Daylighting plan and overall percentage of daylit spaces for the project
• Interior Air Quality (IAQ) including reducing Volatile Organic Compounds (VOCs) in interior spaces
• Construction IAQ
• Occupant Thermal Comfort
Response: The common spaces on the perimeter of the building will be designed with daylight sensors to automatically reduce overhead lighting when natural daylighting is available. All dwelling units contain large windows providing access to daylight and views for all occupants. Indoor Air Quality will be improved by specifying low VOC paints, coatings, adhesives, and sealants, and avoiding the use of carpet throughout the project. Occupant thermal comfort will be addressed with programmable thermostats, a dedicated outdoor air system (DOAS), and bi-level or dimmable lighting throughout the dwelling units. During construction, the General Contractor and Subcontractors will be required to develop and implement a Construction IAQ Plan to reduce the potential for contaminants, particulates, and moisture to develop during construction.

TO: Department of Transportation and Environmental Services
City of Alexandria

FROM: Grady Vaughan, PE, PTOE, PTP
Cameron Seger, E.I.T.
Christopher Turnbull

COPY: William Krokowski
Tom Glatzel
Requity Real Estate Group

RE: The Rutherford at Mark Center – 5000 Seminary Road
Parking Reduction Justification
City of Alexandria, Virginia

DATE: December 21 2022

Introduction

This memorandum was prepared in support of The Rutherford at Mark Center development application located at 5000 Seminary Road and provides support for the reduced parking ratio proposed for the residential uses. The development is located within the Westend area of the City of Alexandria and generally bounded by N. Beauregard Street to the west, Seminary Road to the north, Mark Center Avenue to the south, and Mark Center Drive to the east.

As proposed the site would ultimately be comprised of multi-family mid-rise housing. The proposal will turn a hotel and conference center with surface parking into a multimodal, residential development in accordance with the vision of the Beauregard Small Area Plan (BSAP). The site will greatly benefit from the Mark Center Station, also located along Mark Center Avenue across from the proposed site. The development is consistent with the approved recent amendment to CDD #4, which furthers the overall vision of the BSAP.

To align with the proposed residential, transit-oriented development proposed within the application, the developer is seeking a parking reduction for the multi-family housing proposed. A special use permit is requested to reduce minimum parking required for the proposed site. Reduced parking would align with the City's vision of less auto-dependence and allow future residents to rely on the Mark Center Transit Station of the Westend Transit Way (Bus Rapid Transit - BRT).

The following sections describe the parking requirement for the proposed housing and justify the reduction proposed.

Code Parking Requirement

Per the City of Alexandria's Parking Standards for Multi-Family Residential Projects, new multifamily projects must provide a minimum number of off-street parking spaces based on the number of units, unit mix, and applicable reductions. Among the 367 units are 25 affordable housing units that require 0.75 spaces per dwelling unit before reductions. Applying the base parking requirement of 1.0 parking space per bedroom and 0.75 parking spaces per unit for the affordable units would require 510 parking spaces without applicable reductions. The unit breakdown can be observed in Table 1.

The Parking Standards include a set of reductions that can be applied based on the project's location and proximity to multimodal transportation options and amenities. This site qualifies for one (1) of the specific reductions permitted in the Zoning Ordinance: access to four (4) or more bus routes within ¼ mile of the development entrance, allowing a 5% reduction.

When accounting for the reductions described above, a total reduction of 5% can be applied to the parking requirement for the multi-family development. Applying this reduction to the base requirement of 510 spaces would indicate that a minimum of **485 parking spaces** are required to satisfy the City's parking requirement for the proposed multi-family development. Refer to the Table 1 below for the parking requirement.

Table 1
Mark Center Residential
Residential Parking Requirements [1]

Residential Parking					
Market-Rate Units				Spaces	Units
Unit Type	Units	Bedrooms	Ratio	Required	by Percent
Studios	35	35	1.0	35	10%
1 Bedroom units	159	159	1.0	159	46%
2 Bedroom units	137	274	1.0	274	40%
3 Bedroom units [2]	11	33		22	3%
Subtotal	342	501		490	100%
Allowable Residential Credits					
	Four or more bus routes in .25-mile of Development Entrance			5%	
Total Reductions				5%	
Parking Reduction				(24)	spaces
Total Parking Required				466	spaces
Affordable-Rate Units [3]				Spaces	Units
Unit Type @ 60%	Units	Bedrooms	Ratio	Required	by Percent
Studios	3	3	0.75	3	12%
1 Bedroom units	13	13	0.75	10	52%
2 Bedroom units	8	16	0.75	6	32%
3 Bedroom units [2]	1	3	0.75	1	4%
Subtotal	25	35		20	100%
Allowable Residential Credits					
	Four or more bus routes in .25-mile of Development Entrance			5%	
Total Reductions				5%	
Parking Reduction				(1)	spaces
Total Parking Required				19	spaces
Total Residential Parking Required				**485**	**spaces**

Notes:
1. Based off dwelling unit numbers provided by Walter L. Phillips
2. A maximum of 2 parking spaces per dwelling unit required
3. All affordable-rate units are required to have 0.75 spaces per dwelling unit rather than market-rate requirement of 1.0 per bedroom

The current plan includes a total of 410 parking spaces dedicated to the multi-family units. Of those, 405 will be provided in the structured garage and five (5) will be provided in the surface parking lot. Approximately 30% of the spaces will be compact and 11 spaces will be ADA.

Parking Reduction Justification

As described in the previous section, the multi-family portion of the Mark Center Residential development would require 485 parking spaces per the code requirement. The following points provide additional justification for the proposed reduction in parking:

- The development is located within the Beauregard Small Area Plan. This area is envisioned for increased transit-oriented development, consistent with goals for the City. The subject

site is immediately adjacent to the Mark Center Transit Station and will be enhanced as part of the project. The project, along with other new developments in the City, will implement a Transportation Management Plan (TMP) that encourages multimodal transportation options through incentives and infrastructure.

- Residential parking requirements in the City include visitor parking within the ratios. It is typical to assume that 10 to 15% of the required parking for residential uses is designated for visitor parking. This implies that approximately 73 of parking spaces would be assumed within the required parking to serve visitors. Within the site, approximately five off-street, surface parking spaces are proposed which are counted in the parking supply. The Mark Center Residential development will provide 10 on-street parking spaces on Mark Center Drive in addition to the noted parking supply. Mark Center Transit Station provides a convenient way for visitors to access to and from the proposed site via transit.

- The residential units that are seeking a reduction in required parking are for rent units. Potential renters of these units will know how many spaces are available to be reserved prior to signing lease. This information will inform potential renters of their decision and eliminate surprises if they own more vehicles than there are parking spaces provided. Unit prices will reflect the availability of parking, as well.

- In addition to the credited reductions, the City allows for an additional 10 percent reduction for proximity to a Bus Rapid Transit (BRT) and 5 to 10 percent reduction for nearby walkable amenities. Although the BRT is not yet operational, it is planned to operate to the Mark Center Transit Center once open. This would provide for the 10 percent reduction once the BRT system is fully constructed. In addition, with addition of the BRT, it is anticipated that many additional walking or transit trips could occur to nearby amenities, achieving an additional 5 percent reduction.

  The additional 15 percent reduction described above would result in a total of 20 percent when added to the allowable 5 percent reduction for proximity to four or more bus routes to satisfy the requested parking reduction. The 20 percent total reduction would reduce the 510 required spaces by 102 spaces, resulting in 410 spaces, consistent with the proposed parking supply.

Conclusion

Assuming the City of Alexandria's Multifamily Residential Parking Requirements, the proposed 367 dwelling units in The Rutherford at Mark Center development would require 485 parking spaces. The current development plans to include 410 parking spaces. This amount of parking along with the outlined justification included in this memorandum given the site's location and multimodal amenities confirm that adequate parking will be provided.

WELLS + ASSOCIATES

THE RUTHERFORD AT MARK CENTER

TRAFFIC IMPACT STUDY

December 21, 2022

The Rutherford at Mark Center

Traffic Impact Study

Alexandria, Virginia

December 21, 2022

Prepared by:

Wells + Associates

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5000 Seminary Road
Multimodal Transportation Impact Analysis

SECTION 1
INTRODUCTION

Study Scope

This report presents a Multimodal Traffic Impact Analysis (TIA) for the proposed Mark Center Residential development located in the City of Alexandria, Virginia.

The site is located in the northeast quadrant of the Mark Center Avenue/Mark Center Drive intersection. As proposed, the existing site containing a 69-room hotel and conference center would be razed and redeveloped with residential uses consisting of approximately 370 multi-family mid-rise dwelling units. Site access would be consolidated to one (1) location on Mark Center Drive. The driveway would provide access to a surface parking lot and structured parking garage.

The scope of this multimodal traffic study was established in consultation with the City of Alexandria Transportation & Environmental Services (T&ES) and evaluates existing conditions (2022), future conditions (2025) without development, and future conditions (2025) with development, consistent with the requirements for a "Small" study. Based on trip generation estimates, the development would not meet the 5,000-daily vehicle trip threshold requiring a formal VDOT Chapter 870 review.

Based on the proposed number of dwelling units the project would be required to adhere to a Tier 3 Transportation Management Plan (TMP).

Purpose

The purpose of this traffic and parking study is to evaluate the adequacy of the existing transportation network in conjunction with the proposed redevelopment and identify any potential mitigation measures to offset its traffic and parking impacts, if needed.

This study was conducted in accordance with City of Alexandria's Zoning Ordinance, Section 11-700. The study area and scope of the project was determined with City of Alexandria staff based on a review of key study intersections and roadways that would be potentially affected by the proposed redevelopment and the number of new trips expected to be generated by the site. A copy of the agreed scope is included in Appendix A. Given the number of net new peak hour trips,

this study was performed under the Small Development guidelines per the *Transportation Planning Administrative Guidelines*, last updated June 2017.

Study Objective/Methodology

Tasks undertaken in this study included the following:

- Confirmed of the traffic study scope and parameters from the City of Alexandria T&ES staff that must be addressed in this study.
- Reviewed the proposed development plans, development schedule, parking plans, and other background materials.
- Completed a field reconnaissance of the subject site, adjacent properties, surrounding public roadways, and traffic conditions.
- Collected AM and PM peak hour traffic counts on a typical weekday from 6:30 AM to 9:30 AM and from 4:00 PM to 7:00 PM at key off-site intersections.
- Obtained the existing traffic signal phasing/timing plans and electronic analysis files from T&ES staff.
- Compiled an inventory of transit services and other non-auto facilities in the site vicinity.
- Calculated the existing AM and PM peak hour levels of service and 50th and 95th percentile queues at study intersections.
- Identified near-term background traffic volumes for the study area based on the existing traffic counts, ambient traffic growth, and un-built developments (pipeline developments) adjacent to the site.
- Estimated the number of AM and PM peak hour trips that would be generated by the pipeline developments and the proposed development.
- Analyzed future intersection levels of service and 50th and 95th percentile queues in 2025 without and with the proposed development.

Sources of data for this study included information provided by the City of Alexandria; VDOT; traffic data collected and field surveys conducted by Wells + Associates Inc.; Institute of Transportation Engineers (ITE); the Highway Capacity Manual (HCM); Davis Carter Scott; Wire Gill LLP; Walter L. Phillips; and the files of Wells + Associates Inc.

Study Area

This traffic study includes the following existing and planned intersections as agreed to with City staff through the scoping process and are listed below. The traffic impacts were evaluated at these intersections for existing conditions (2022), future conditions (2025) without development, and future conditions (2025) with development.

1. Seminary Road/Southern Towers Driveway/Mark Center Avenue
2. Mark Center Avenue/Hilton Driveway
3. Mark Center Avenue/Mark Center Drive
4. Seminary Road/N. Beauregard Street
5. N. Beauregard Street/Mark Center Drive
6. Mark Center Drive/West Site Driveway
7. Mark Center Avenue/South Site Driveway

As discussed with City staff during the scoping meeting, Intersection 4 – Seminary Road/ Beauregard Street has been provided for informational purposes only.

SECTION 2
BACKGROUND INFORMATION

Description of Proposed Development

The Applicant, Mark Center Residential, LLC, proposes to raze the existing 69 room hotel and conference center to redevelop the site with a residential development consisting of approximately 370 multi-family mid-rise dwelling units.

As mentioned previously, the site is located within the Beauregard Small Area Plan (BSAP) within the City of Alexandria and bounded by the N. Beauregard Street/Seminary Road intersection, as shown on Figure 2-1. The development would be primarily served by one (1) access location on Mark Center Drive. For reference, the site plan is shown on Figure 2-2.

For purposes of this study, the entire development was assumed to be fully constructed and occupied by 2025.

Description of Parcel

The subject site consists of 4.56 acres. The site is currently zoned as part of CDD (Coordinated Development District) #4. The development is consistent with the approved recent amendment to CDD #4, which furthers the overall vision of the BSAP.

Beauregard Small Area Plan

The area of the proposed development plan is located adjacent to two (2) minor arterials; Seminary Road and N Beauregard Street. The subject site is also located within close proximity (approximately 0.20 miles) to Interstate 395. This area of the City of Alexandria consists of a mix of low and high-density land uses.

The overall goal of the Plan is based on the principles of achieving a balanced mix of residents and employees, focus retail in concentrated areas, establish land uses and building heights compatible with the neighborhood, and provided a range of housing opportunities for a diverse population. The proposed development program is generally consistent with the recommendations of the Plan.

Roadway Network

Regional and local access to the subject site is provided by Seminary Rd, N. Beauregard St, Mark Center Drive, and Mark Center Avenue.

Seminary Rd is a four-lane minor arterial with a posted speed of 25 mph in the vicinity of the site. Seminary Road is a north-south route through the City of Alexandria and becomes an access point to the principal arterial Leesburg Pike providing connections to Fairfax County, minor arterial S George Mason Dr providing connections to Arlington County, as well as close access to Interstate 95.

N Beauregard St is a four-lane minor arterial with a posted speed of 25 mph in the vicinity of the site. N Beauregard St is located within the western portion of the City of Alexandria within the Beauregard small area plan. N Beauregard Street is east of the proposed site plan.

Mark Center Drive is a four-lane local street with a posted speed of 25 mph in the vicinity of the site. Mark Center Drive provides local access to the site beginning at the Systems Planning and Analysis Driveway. N. Beauregard St is to the north of the proposed site and Seminary Road is east of the proposed site.

Mark Center Avenue is a four-lane local street with a posted speed of 25 mph in the vicinity of the site. Mark Center Avenue provides local access from Seminary Rd. It is connected to Mark Center Drive which is a local street that is within the proposed site plan.

Refer to Figure 2-3 for the existing lane use and traffic controls at the study intersections.

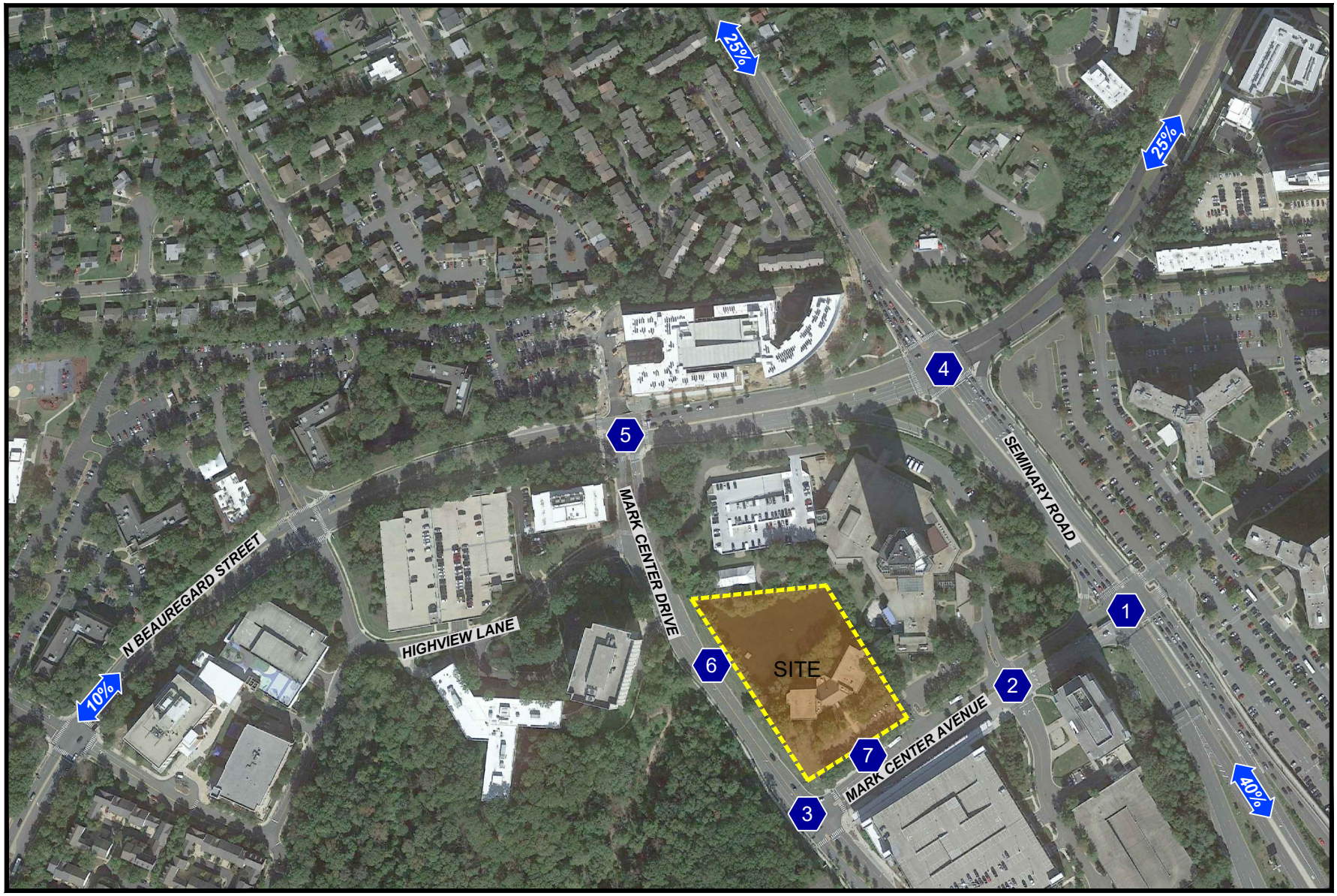

Figure 2-1
Site Location and Study Intersections

X Study Intersection
XX% Directional Trip Distribution

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

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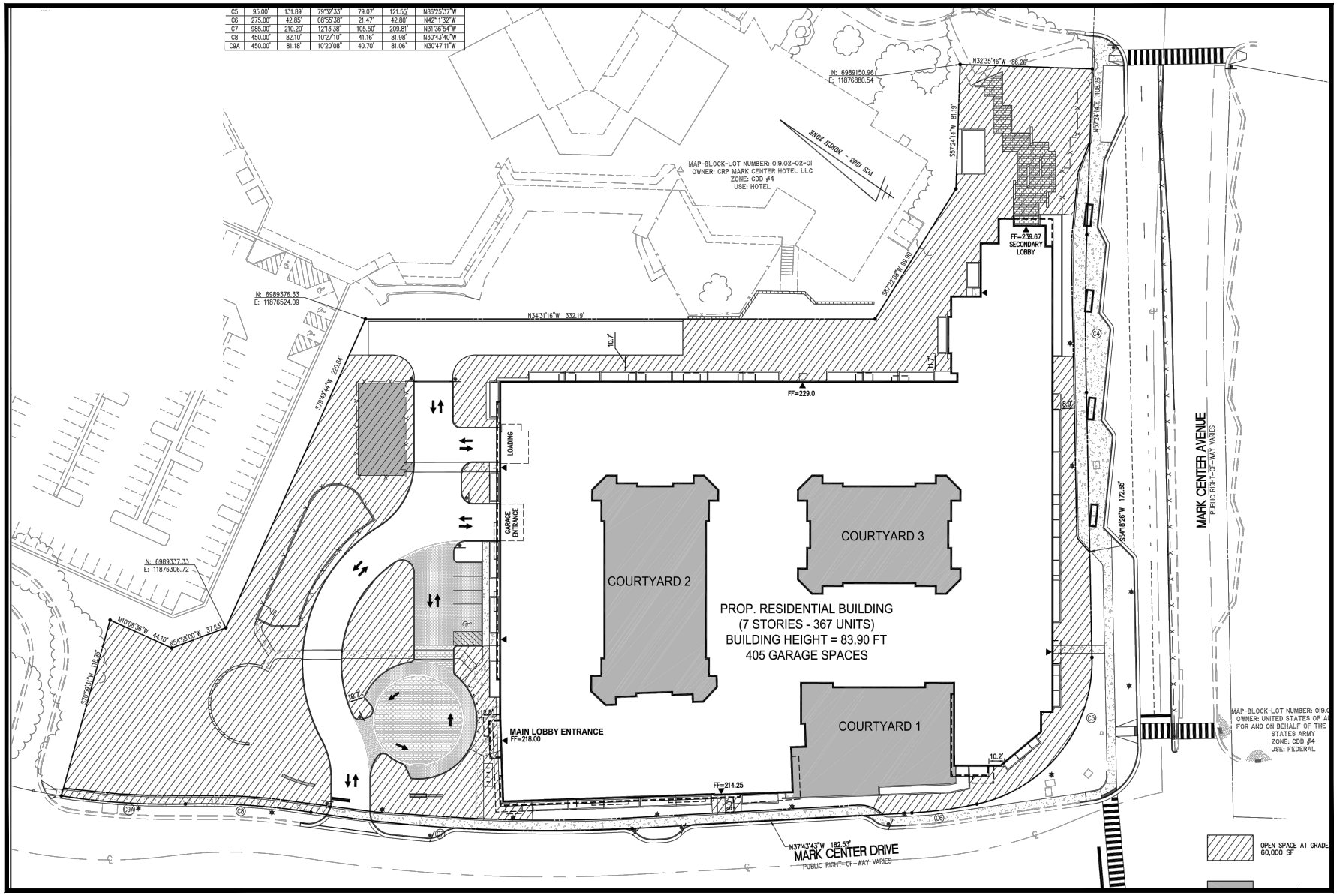

PLAN PROVIDED BY: WALTER L PHILLIPS

Figure 2-2
Site Plan

Proposed Site Access Point

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

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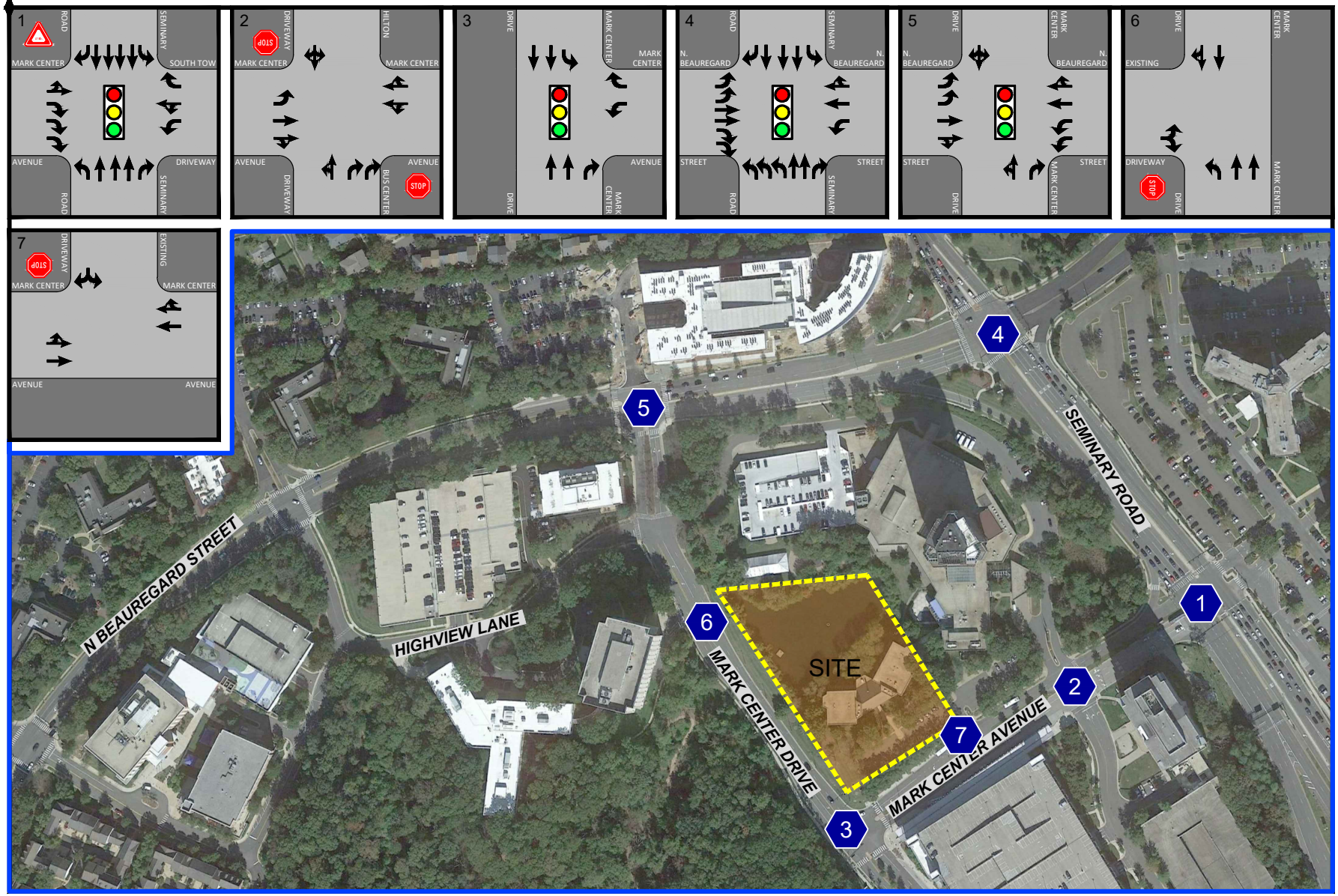

Figure 2-3
Existing Conditions Lane Use and Traffic Controls

Study Intersection
Signalized Intersection
Stop Sign
Yield Sign
Represents One Travel Lane

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

SECTION 3
ANALYSIS OF EXISTING (2022) CONDITIONS

Traffic Volumes

Wells + Associates conducted vehicular, pedestrian, and bicycle counts on Wednesday, September 21, 2022 from 6:30 AM to 9:30 AM and 4:00 PM to 7:00 PM at the following intersections:

- Seminary Road/Southern Towers Driveway/Mark Center Avenue
- Mark Center Avenue/Hilton Driveway
- Mark Center Avenue/Mark Center Drive
- Seminary Road/N. Beauregard Street
- N. Beauregard Street/Mark Center Drive
- Mark Center Drive/West Site Driveway
- Mark Center Avenue/South Site Driveway

The existing peak hour vehicular volumes are shown in Figure 3-1, the existing pedestrian volumes are shown on Figure 3-2, and the existing bicycle volumes are shown on Figure 3-3. For purposes of this traffic impact analysis, individual peak hours were identified among the study intersections and were balanced generally to within ten percent where no breaks in the network occur. The detailed count worksheets are included in Appendix B.

Operational Analysis

Existing peak hour levels of service (LOS) and the 50th and 95th percentile queues were calculated at key study intersections based on the existing lane use and traffic control shown on Figure 2-3, existing traffic signal phasings/timings obtained from T&ES, existing peak hour traffic volumes shown on Figure 3-1, and the HCM 6th edition methodologies, as reported by Synchro version 11. Delays and their corresponding LOS letter are defined below. Signal timing sheets were provided by T&ES and were reviewed and modified to account for on-street parking maneuvers, pedestrian calls, and bus blockages. Additionally, peak hour factors (PHF) of 0.85 or higher were utilized based on the existing peak hour traffic counts.

Level of Service Criteria for Signalized Intersections

Level of Service	Stopped Delay Per Vehicle (sec)
A	≤10.0
B	>10.0 and ≤20.0
C	>20.0 and ≤35.0
D	>35.0 and ≤55.0
E	>55.0 and ≤80.0
F	>80.0

Level of Service Criteria for Stop Sign Controlled Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤10.0
B	>10.0 and ≤15.0
C	>15.0 and ≤25.0
D	>25.0 and ≤35.0
E	>35.0 and ≤50.0
F	>50.0

Levels of Service. The existing LOS results are summarized in Table 3-1 and indicate the following:

- All of the signalized study intersections operate at overall acceptable levels of service (LOS "D" or better) during the AM and PM peak hours. All of the approaches operate at LOS "E" or better during the peak hours with the exception of the following:
    1. Southbound left approach at Seminary Road/Mark Center Avenue intersection during the PM peak hour
    2. Westbound left at Mark Center Avenue/Mark Center Drive intersection during the AM peak hour
    3. Westbound left and northbound left at Seminary Road/N. Beauregard Street intersection during the AM peak hour

- All the approaches at the stop-controlled study intersections currently operate at LOS "E" or better during both the AM and PM hours.

The existing conditions level of service Synchro capacity analysis worksheets are included in Appendix C.

Queues. The 50th and 95th percentile queues of existing conditions are used to establish a datum against which to compare future conditions. The 50th percentile (or average) queue is defined as the maximum back of queue associated with a typical signal cycle. The 95th percentile queue is defined as the maximum back of queue with 95th percentile traffic volumes. The 95th percentile queue is not necessarily ever observed, it is simply based on statistical calculations.

As shown on Table 3-2, peak hour queuing at the study intersections is adequately accommodated within the turn lane storage provided with the exception of the eastbound left-turn (AM and PM peak hour) at the Seminary Road/N. Beauregard Street intersection.

The existing conditions queueing analysis worksheets are included in Appendix C.

Table 3-1
Mark Center Residential
Existing (2022) Conditions Levels of Service Summary [1,2]

Approach/ Lane Group	Existing Conditions			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
1.Seminary Road/Mark Center Avenue/Southern Towers Driveway - Signalized				
EBL - Mark Center Avenue	A	0.0	A	0.0
EBT - Mark Center Avenue	E	63.2	E	65.6
EBR - Mark Center Avenue	D	39.7	D	53.1
WBL - Southern Towers Driveway	E	59.9	E	60.9
WBT - Southern Towers Driveway	E	59.8	E	60.8
WBR - Southern Towers Driveway	D	50.0	E	55.8
NBL - Seminary Road	E	61.4	E	61.5
NBT - Seminary Road	B	17.8	B	10.9
NBR - Seminary Road	B	12.9	A	8.3
SBL - Seminary Road	E	74.7	F	84.6
SBT - Seminary Road	B	15.8	B	11.0
SBR - Seminary Road	A	0.0	A	0.0
Overall	**C**	**25.3**	**C**	**20.5**
2. Mark Center Avenue/Hilton Driveway - Unsignalized				
EBL - Mark Center Avenue	A	7.7	A	7.5
EBT - Mark Center Avenue	A	0.0	A	0.0
EBR - Mark Center Avenue	A	0.0	A	0.0
WBL - Mark Center Avenue	A	5.2	A	2.2
WBT - Mark Center Avenue	A	5.2	A	2.2
WBR - Mark Center Avenue	A	0.0	A	0.0
NBL - Parking Garage Driveway	C	16.8	B	12.6
NBT - Parking Garage Driveway	A	9.6	B	10.4
NBR - Parking Garage Driveway	A	9.6	B	10.4
SBL - Hilton Driveway	C	16.3	C	17.4
SBT - Hilton Driveway	C	16.3	C	17.4
SBR - Hilton Driveway	C	16.3	C	17.4
3. Mark Center Avenue/Mark Center Drive - Signalized				
WBL - Mark Center Avenue	F	81.5	E	66.7
WBR -Mark Center Avenue	D	54.8	D	50.0
NBT - Mark Center Drive	A	0.7	A	4.0
NBR - Mark Center Drive	A	0.0	A	0.0
SBL - Mark Center Drive	E	67.5	E	68.3
SBT - Mark Center Drive	C	33.5	C	32.8
Overall	**D**	**40.4**	**D**	**38.6**
4. Seminary Road/N. Beauregard Street - Signalized				
EBL - N. Beauregard Street	E	76.3	E	68.7
EBT - N. Beauregard Street	E	69.0	E	58.9
EBR - N. Beauregard Street	C	31.0	E	78.6
WBL - N. Beauregard Street	F	84.3	E	64.1
WBT - N. Beauregard Street	E	60.1	E	59.5
WBR - N. Beauregard Street	A	0.0	A	0.0
NBL - Seminary Road	F	81.6	E	67.9
NBT - Seminary Road	A	8.6	B	15.5
NBR - Seminary Road	B	16.3	B	17.8
SBL - Seminary Road	E	65.4	E	63.6
SBT - Seminary Road	C	33.3	C	33.1
SBR - Seminary Road	A	0.0	A	0.0
Overall	**D**	**46.1**	**D**	**43.3**
5. N. Beauregard Street/Mark Center Drive - Signalized				
EBL - N. Beauregard Street	E	68.2	E	68.2
EBT - N. Beauregard Street	A	8.0	A	9.3
EBR - N. Beauregard Street	A	8.3	A	9.5
WBL - N. Beauregard Street	E	60.8	E	58.1
WBT - N. Beauregard Street	A	3.7	A	6.0
WBR - N. Beauregard Street	A	3.7	A	6.0
NBL - Mark Center Drive	E	58.9	D	53.7
NBT - Mark Center Drive	A	0.0	A	0.0
NBR - Mark Center Drive	D	45.8	D	41.7
SBL - Mark Center Drive	E	62.1	E	58.1
SBT - Mark Center Drive	A	0.0	A	0.0
SBR - Mark Center Drive	E	57.0	D	51.2
Overall	**B**	**16.9**	**B**	**14.8**
6. Mark Center Drive/West Driveway - Unsignalized				
EBL - Systems Driveway	B	11.2	A	9.0
EBT - Systems Driveway	Future Approach			
EBR - Systems Driveway	B	11.2	A	9.0
WBL - West Site Driveway	**Future Approach**			
WBT - West Site Driveway				
WBR - West Site Driveway				
NBL - Mark Center Drive	A	8.3	A	0.0
NBT - Mark Center Drive	A	0.0	A	0.0
NBR - Mark Center Drive	Future Approach			
SBL - Mark Center Drive	Future Approach			
SBT - Mark Center Drive	A	0.0	A	0.0
SBR - Mark Center Drive	A	0.0	A	0.0
7.Mark Center Avenue/South Driveway- Unsignalized				
EBL - Mark Center Avenue	A	7.7	A	7.5
EBT - Mark Center Avenue	A	0.0	A	0.0
WBT - Mark Center Avenue	A	0.0	A	0.0
WBR - Mark Center Avenue	A	0.0	A	0.0
SBL - South Site Driveway	A	9.1	A	9.5
SBR - South Site Driveway	A	9.1	A	9.5

Note(s):
1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 11.
2. Maximum V/C ratio reported for all intersections.

Table 3-2
Mark Center Residential
Existing (2022) Conditions Queuing Summary[1, 2, 3]

Approach/ Lane Group	Storage Length (ft)	Existing Conditions			
		AM Peak Hour		PM Peak Hour	
		50th Percentile	95th Pecentile	50th Percentile	95th Pecentile
1.Seminary Road/Mark Center Avenue/Southern Towers Driveway - Signalized					
EBLT - Mark Center Avenue		37	75	29	60
EBR - Mark Center Avenue		0	21	35	50
WBL - Southern Towers Driveway		148	212	75	130
WBLT - Southern Towers Driveway		149	215	76	131
WBR - Southern Towers Driveway		0	0	0	0
NBL - Seminary Road		193	266	68	111
NBT - Seminary Road		273	383	163	270
NBR - Seminary Road	260	0	0	0	6
SBL - Seminary Road	200	18	m35	1	m1
SBT - Seminary Road		142	167	140	225
SBR - Seminary Road		0	m0	0	m0
2. Mark Center Avenue/Hilton Driveway - Unsignalized					
EBL - Mark Center Avenue	90	-	0	-	0
EBT - Mark Center Avenue		-	0	-	0
EBTR - Mark Center Avenue		-	0	-	0
WBLT - Mark Center Avenue		-	9	-	1
WBTR - Mark Center Avenue		-	0	-	0
NBLT - Parking Garage Driveway	65	-	1	-	11
NBR - Parking Garage Driveway		-	1	-	11
SBLTR - Hilton Driveway		-	6	-	6
3. Mark Center Avenue/Mark Center Drive - Signalized					
WBL - Mark Center Avenue		26	59	4	16
WBR -Mark Center Avenue		0	37	0	31
NBT - Mark Center Drive		1	3	5	13
NBR - Mark Center Drive	180	0	11	0	25
SBL - Mark Center Drive		27	47	16	29
SBT - Mark Center Drive	135	8	16	1	3
4. Seminary Road/N. Beauregard Street - Signalized					
EBL - N. Beauregard Street	180	224	#312	160	#232
EBT - N. Beauregard Street		160	210	95	135
EBR - N. Beauregard Street	570	146	179	268	353
WBL - N. Beauregard Street	190	94	#175	122	179
WBT - N. Beauregard Street		109	142	148	182
WBTR - N. Beauregard Street		109	142	148	182
NBL - Seminary Road	325	211	254	78	148
NBT - Seminary Road		57	69	266	261
NBR - Seminary Road	335	0	0	8	0
SBL - Seminary Road	115	17	44	55	97
SBT - Seminary Road		265	348	436	522
SBR - Seminary Road	300	0	0	0	0
5. N. Beauregard Street/Mark Center Drive - Signalized					
EBL - N. Beauregard Street	150	12	34	4	17
EBT - N. Beauregard Street		131	185	76	108
EBTR - N. Beauregard Street		0	0	0	0
WBL - N. Beauregard Street	375	143	192	48	m69
WBT - N. Beauregard Street		3	5	6	101
WBTR - N. Beauregard Street		0	0	0	0
NBLT - Mark Center Drive		36	71	51	92
NBR - Mark Center Drive		32	65	0	39
SBLT - Mark Center Drive		0	0	20	38
SBTR - Mark Center Drive		0	0	20	38
6. Mark Center Drive/West Driveway - Unsignalized					
EBLR/EBLTR - Systems Driveway		-	0	-	0
WBLTR - West Site Driveway			**Future Approach**		
NBL - Mark Center Drive		-	0	-	0
NBT - Mark Center Drive		-	0	-	0
NBTR - Mark Center Drive			**Future Approach**		
SBT/SBLT - Mark Center Drive		-	0	-	0
SBTR - Mark Center Drive		-	0	-	0
7.Mark Center Avenue/South Driveway- Unsignalized					
EBLT - Mark Center Avenue		-	0	-	0
EBT - Mark Center Avenue		-	0	-	0
WBT - Mark Center Avenue		-	0	-	0
WBTR - Mark Center Avenue		-	0	-	0
SBLR - South Driveway		-	0	-	0

Note(s):
1. ~ Volume exceeds capacity, queue is theoretically infinite.
2. # 95th percentile volume exceeds capacity, queue may be longer.
3. m Volume for 95th percentile queue is metered by upstream signal.

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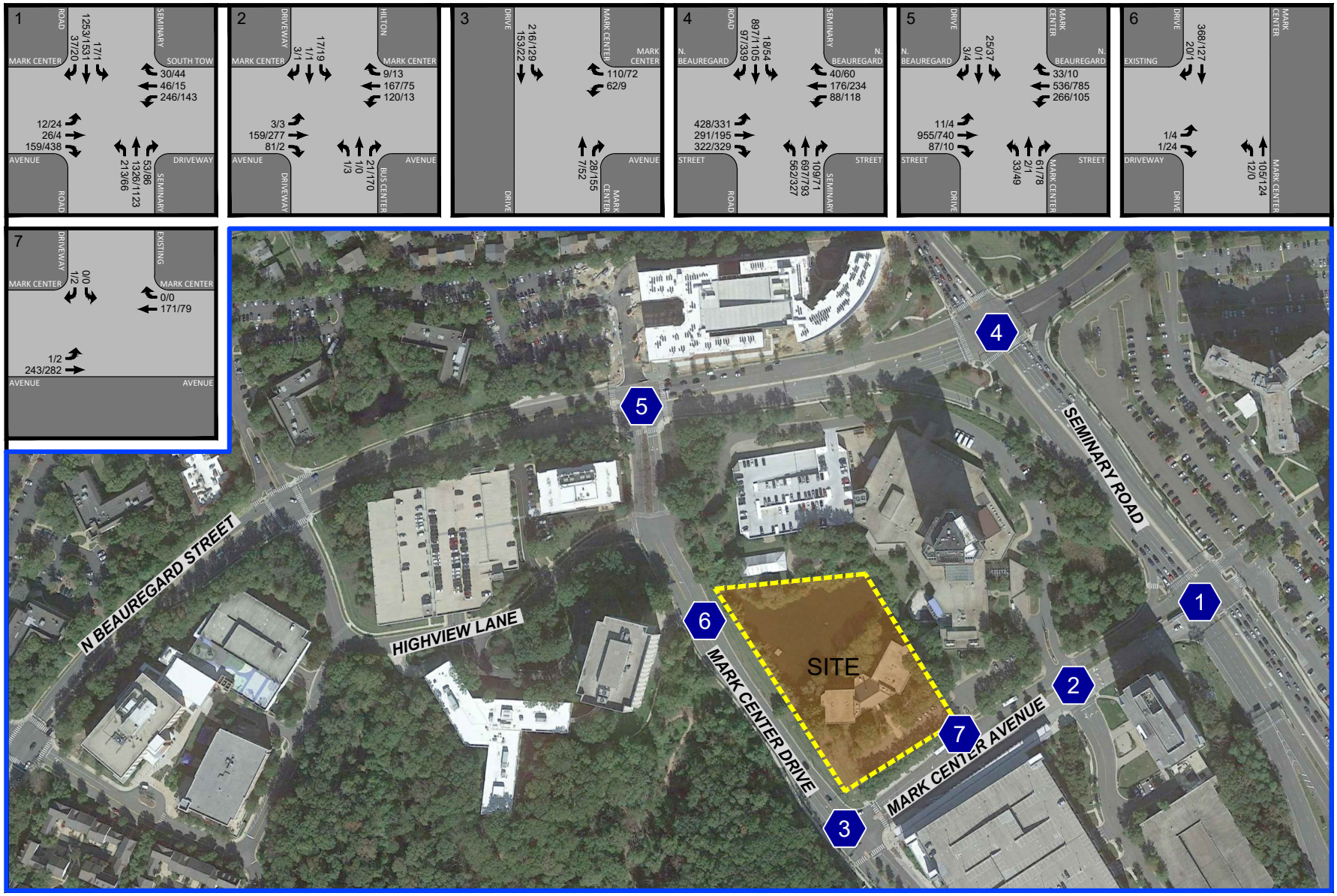

Figure 3-1
Existing (2022) Traffic Volumes

Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

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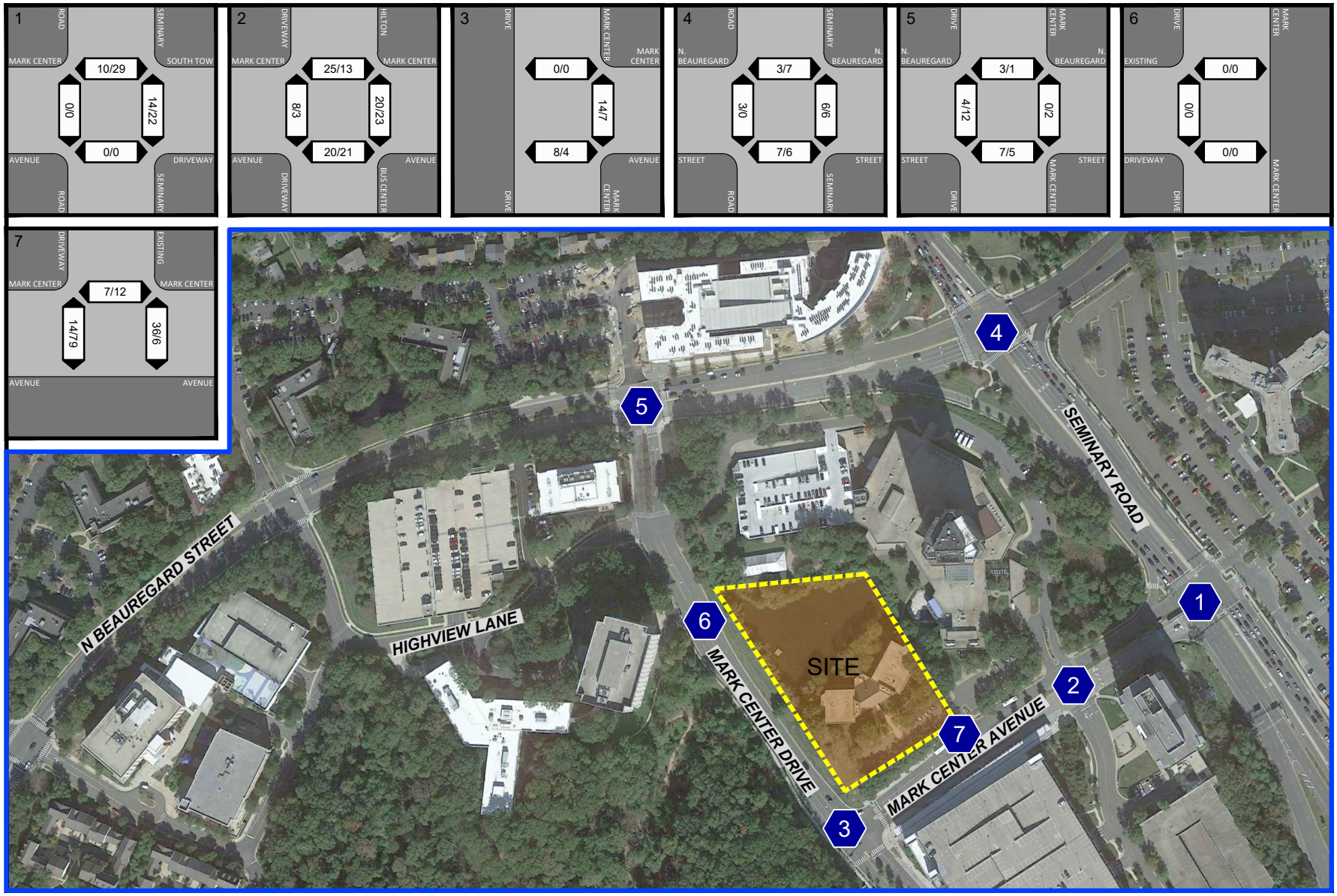

Figure 3-2
Existing (2022) Pedestrian Volumes

X Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

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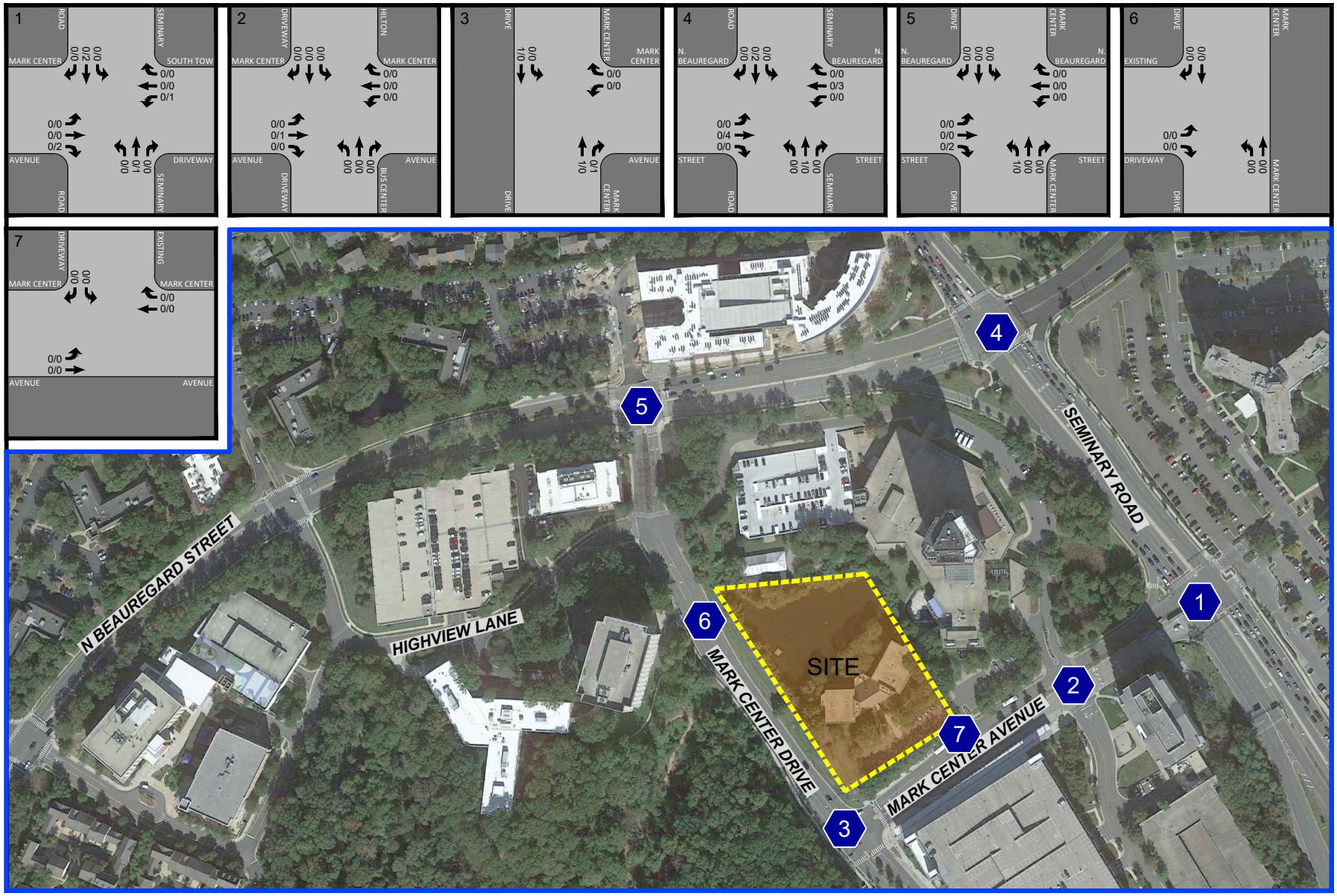

Figure 3-3
Existing (2022) Bicycle Volumes

X Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

SECTION 4
ANALYSIS OF FUTURE CONDITIONS WITHOUT DEVELOPMENT - 2025

Traffic Volumes

This section presents an analysis of future transportation conditions including projections of 2025 future traffic forecasts without the proposed development, as well as capacity and queuing analyses.

Methodology/Assumptions. It was assumed that the proposed development would be complete and fully occupied by 2025, as specified in the traffic scoping document found in Appendix A. Future traffic forecasts without the proposed development were derived based on baseline traffic counts, regional traffic growth, and approved pipeline developments near the site.

Regional Growth. An increase in traffic associated with regional growth from 2022 to 2025 was estimated at 0.5 percent per year compounded annually for all roadways. This conservative growth rate was applied to mainline through movements and accounts for increases in traffic resulting from potential development and influences outside of the immediate study area. Baseline volumes were grown for three (3) years, with the resultant growth in trips are shown on Figure 4-1.

Pipeline Developments. Two (2) pipeline developments were identified during scoping and were included in the future analyses as listed below and shown on Figure 4-2:

1. 2000 N. Beauregard
2. Upland Park

The development program and corresponding vehicle trips are shown on Table 4-1. The vehicle trips were assigned to roadway network using trip distributions from the project's traffic study. The combined pipeline development trips are shown on Figure 4-3.

Future Traffic Volumes without Development. Future traffic forecasts without the proposed development were prepared for 2025 based on existing traffic counts shown on Figure 3-1, regional traffic growth (2022 to 2025) shown on Figure 4-1, and pipeline development trips shown on Figure 4-3. The resulting 2025 future traffic forecasts without development are shown on Figure 4-4.

Operational Analysis

Future peak hour levels of service without the proposed development in 2025 were calculated at the key study intersections based on the existing lane use and traffic control shown on Figure 2-3, the future traffic forecasts without the proposed development shown on Figure 4-4, the existing traffic signal phasings/timings obtained from T&ES, and the HCM methodologies using Synchro 11. Peak hour factors were changed to minimum 0.92 for future conditions.

Levels of Service. The 2025 levels of service results, without the proposed development, assuming the addition of regional growth and pipeline development trips are summarized in Table 4-2 and indicate that the signalized and unsignalized study intersections would continue to operate consistent with existing conditions. Slightly increased delay would be experienced across the network as a result of the increased traffic volumes. Decreased delay at some movements may be experienced across the network due to the peak hour factor increase, but overall delays would increase across the network. The following movements have levels of service that improve due to the increase in peak hour factor:

1. Westbound left at Mark Center Avenue and Mark Center Drive during the AM peak hour goes from an "F" to and "E"
2. Westbound left and northbound left at Seminary Road and N. Beauregard Street during the AM peak hour from an "F" to an "E."
3. Southbound right at N. Beauregard Street and Mark Center Drive intersection during the AM peak hour from an "E" to a "D."
4.

Synchro capacity analyses worksheets for 2025 future conditions without redevelopment are included in Appendix D.

Queues. The 2025 future conditions without redevelopment peak hour queue results are presented in Appendix D and summarized in Table 4-3. As shown in Table 4-3, the queues are consistent those of the existing conditions with only minor increases from regional growth and nearby pipeline developments.

Table 4-1
Mark Center Residential
Pipeline Trip Generation Analysis with Adjustments

Land Use	ITE Land Use Code	Size	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Weekday ADT
UPLAND PARK [1]										
Proposed Use										
Multifamily Housing (Mid-Rise) - Townhouse	221	92	D.U.	8	24	32	25	16	41	500
Non-Auto Adjustment[2]		25%		-2	-6	-8	-6	-4	-10	-125
Total External Mulitfamily Housing Trips				6	18	24	19	12	31	375
THE BLAKE [3]										
Existing Use										
Office	710	102,090	SF	172	23	195	33	160	193	1,126
Proposed Use										
Residential Apartments		295	DU	30	119	149	117	63	180	1,912
Net New Trips				-142	96	-46	84	-97	-13	786
			Total Proposed Trips	***-136***	***114***	***-22***	***103***	***-85***	***18***	***1,161***

Notes:
1. Trip Generation obtained from ITE's Trip Generation Manual, 10th Edition.
2. Non-Auto mode adjustment is based on the U.S. Census data.
3. Trip Generation obtained from ITE's Trip Generation Manual, 9th Edition.

Table 4-2
Mark Center Residential
Background (2025) Conditions Levels of Service Summary [1,2]

Approach/ Lane Group	Existing Conditions				Background (2025) Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
1.Seminary Road/Mark Center Avenue/Southern Towers Driveway - Signalized								
EBL - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0
EBT - Mark Center Avenue	E	63.2	E	65.6	E	63.2	E	65.3
EBR - Mark Center Avenue	D	39.7	D	53.1	D	39.8	D	52.5
WBL - Southern Towers Driveway	E	59.9	E	60.9	E	60.1	E	60.9
WBT - Southern Towers Driveway	E	59.8	E	60.8	E	59.7	E	60.8
WBR - Southern Towers Driveway	D	50.0	E	55.8	D	50.3	E	55.8
NBL - Seminary Road	E	61.4	E	61.5	E	61.5	E	61.5
NBT - Seminary Road	B	17.8	B	10.9	B	16.7	B	10.6
NBR - Seminary Road	B	12.9	A	8.3	B	12.1	A	8.3
SBL - Seminary Road	E	74.7	F	84.6	E	76.4	F	83.9
SBT - Seminary Road	B	15.8	B	11.0	B	15.4	B	10.8
SBR - Seminary Road	A	0.0	A	0.0	A	0.0	A	0.0
Overall	**C**	**25.3**	**C**	**20.5**	**C**	**24.6**	**C**	**20**
2. Mark Center Avenue/Hilton Driveway - Unsignalized								
EBL - Mark Center Avenue	A	7.7	A	7.5	A	7.7	A	7.5
EBT - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0
EBR - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0
WBL - Mark Center Avenue	A	5.2	A	2.2	A	5.2	A	2.0
WBT - Mark Center Avenue	A	5.2	A	2.2	A	5.2	A	2.0
WBR - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0
NBL - Parking Garage Driveway	C	16.8	B	12.6	C	16.7	B	12.3
NBT - Parking Garage Driveway	A	9.6	B	10.4	A	9.5	B	10.3
NBR - Parking Garage Driveway	A	9.6	B	10.4	A	9.5	B	10.3
SBL - Hilton Driveway	C	16.3	C	17.4	C	16.4	C	16.5
SBT - Hilton Driveway	C	16.3	C	17.4	C	16.4	C	16.5
SBR - Hilton Driveway	C	16.3	C	17.4	C	16.4	C	16.5
3. Mark Center Avenue/Mark Center Drive - Signalized								
WBL - Mark Center Avenue	F	81.5	E	66.7	E	75.7	E	65.4
WBR -Mark Center Avenue	D	54.8	D	50.0	D	53.3	D	50.3
NBT - Mark Center Drive	A	0.7	A	4.0	A	0.9	A	3.7
NBR - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0
SBL - Mark Center Drive	E	67.5	E	68.3	E	67.5	E	68.5
SBT - Mark Center Drive	C	33.5	C	32.8	C	34.8	C	32.2
Overall	**D**	**40.4**	**D**	**38.6**	**D**	**41.0**	**D**	**38.6**
4. Seminary Road/N. Beauregard Street - Signalized								
EBL - N. Beauregard Street	E	76.3	E	68.7	E	76.3	E	70.3
EBT - N. Beauregard Street	E	69.0	E	58.9	E	69.5	E	58.2
EBR - N. Beauregard Street	C	31.0	E	78.6	C	30.9	E	77.2
WBL - N. Beauregard Street	F	84.3	E	64.1	**E**	79.9	**E**	63.1
WBT - N. Beauregard Street	E	60.1	E	59.5	E	60.2	E	59.7
WBR - N. Beauregard Street	A	0.0	A	0.0	A	0.0	A	0.0
NBL - Seminary Road	F	81.6	E	67.9	E	74.8	E	65.4
NBT - Seminary Road	A	8.6	B	15.5	A	8.9	B	15.6
NBR - Seminary Road	B	16.3	B	17.8	B	16.1	B	17.5
SBL - Seminary Road	E	65.4	E	63.6	E	65.4	E	63.8
SBT - Seminary Road	C	33.3	C	33.1	C	33.4	C	32.4
SBR - Seminary Road	A	0.0	A	0.0	A	0.0	A	0.0
Overall	**D**	**46.1**	**D**	**43.3**	**D**	**45.1**	**D**	**43.1**
5. N. Beauregard Street/Mark Center Drive - Signalized								
EBL - N. Beauregard Street	E	68.2	E	68.2	E	68.2	E	68.2
EBT - N. Beauregard Street	A	8.0	A	9.3	A	9.6	A	9.5
EBR - N. Beauregard Street	A	8.3	A	9.5	A	9.9	A	9.7
WBL - N. Beauregard Street	E	60.8	E	58.1	E	60.8	E	58.0
WBT - N. Beauregard Street	A	3.7	A	6.0	A	4.9	A	6.5
WBR - N. Beauregard Street	A	3.7	A	6.0	A	4.9	A	6.5
NBL - Mark Center Drive	E	58.9	D	53.7	E	56.0	D	53.2
NBT - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0
NBR - Mark Center Drive	D	45.8	D	41.7	D	42.2	D	41.1
SBL - Mark Center Drive	E	62.1	E	58.1	E	61.1	E	58.1
SBT - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0
SBR - Mark Center Drive	E	57.0	D	51.2	D	54.0	D	50.8
Overall	**B**	**16.9**	**B**	**14.8**	**B**	**18.8**	**B**	**15.3**
6. Mark Center Drive/West Driveway - Unsignalized								
EBL - Systems Driveway	B	11.2	A	9.0	B	11.0	A	9.0
EBT - Systems Driveway	Future Approach				Future Approach			
EBR - Systems Driveway	B	11.2	A	9.0	B	11.0	A	9.0
WBL - West Site Driveway WBT - West Site Driveway WBR - West Site Driveway	**Future Approach**				**Future Approach**			
NBL - Mark Center Drive	A	8.3	A	0.0	A	8.2	A	0.0
NBT - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0
NBR - Mark Center Drive	Future Approach				Future Approach			
SBL - Mark Center Drive	Future Approach				Future Approach			
SBT - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0
SBR - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0
7.Mark Center Avenue/South Driveway- Unsignalized								
EBL - Mark Center Avenue	A	7.7	A	7.5	A	7.6	A	7.5
EBT - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0
WBT - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0
WBR - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0
SBL - South Site Driveway	A	9.1	A	9.5	A	9.0	A	9.5
SBR - South Site Driveway	A	9.1	A	9.5	A	9.0	A	9.5

Note(s):
1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 11.
2. Maximum V/C ratio reported for all intersections.

Table 4-3
Mark Center Residential
Background (2025) Conditions Queuing Summary[1, 2, 3]

Approach/ Lane Group	Storage Length (ft)	Existing Conditions				Background (2026) Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		50th Percentile	95th Pecentile	50th Percentile	95th Pecentile	50th Percentile	95th Pecentile	50th Percentile	95th Pecentile
1.Seminary Road/Mark Center Avenue/Southern Towers Driveway - Signalized									
EBLT - Mark Center Avenue		37	75	29	60	36	74	26	59
EBR - Mark Center Avenue		0	21	35	50	0	21	26	49
WBL - Southern Towers Driveway		148	212	75	130	143	211	75	130
WBLT - Southern Towers Driveway		149	215	76	131	144	212	76	131
WBR - Southern Towers Driveway		0	0	0	0	0	0	0	0
NBL - Seminary Road		193	266	68	111	193	268	68	119
NBT - Seminary Road		273	383	163	270	209	385	150	272
NBR - Seminary Road	260	0	0	0	6	0	0	0	5
SBL - Seminary Road	200	18	m35	1	m1	16	m32	1	m1
SBT - Seminary Road		142	167	140	225	143	167	145	224
SBR - Seminary Road		0	m0	0	m0	0	m0	0	m0
2. Mark Center Avenue/Hilton Driveway - Unsignalized									
EBL - Mark Center Avenue	90	-	0	-	0	-	0	-	0
EBT - Mark Center Avenue		-	0	-	0	-	0	-	0
EBTR - Mark Center Avenue		-	0	-	0	-	0	-	0
WBLT - Mark Center Avenue		-	9	-	1	-	9	-	1
WBTR - Mark Center Avenue		-	0	-	0	-	0	-	0
NBLT - Parking Garage Driveway	65	-	1	-	11	-	1	-	10
NBR - Parking Garage Driveway		-	1	-	11	-	1	-	10
SBLTR - Hilton Driveway		-	6	-	6	-	5	-	5
3. Mark Center Avenue/Mark Center Drive - Signalized									
WBL - Mark Center Avenue		26	59	4	16	24	58	4	16
WBR -Mark Center Avenue		0	37	0	31	0	41	0	35
NBT - Mark Center Drive		1	3	5	13	1	4	5	13
NBR - Mark Center Drive	180	0	11	0	25	0	12	0	24
SBL - Mark Center Drive		27	47	16	29	27	48	15	29
SBT - Mark Center Drive	135	8	16	1	3	8	15	1	3
4. Seminary Road/N. Beauregard Street - Signalized									
EBL - N. Beauregard Street	180	224	#312	160	#232	221	#317	164	#240
EBT - N. Beauregard Street		160	210	95	135	170	222	97	138
EBR - N. Beauregard Street	570	146	179	268	353	166	205	276	353
WBL - N. Beauregard Street	190	94	#175	122	179	88	#175	114	181
WBT - N. Beauregard Street		109	142	148	182	103	146	146	193
WBTR - N. Beauregard Street		109	142	148	182	103	146	146	193
NBL - Seminary Road	325	211	254	78	148	145	254	78	148
NBT - Seminary Road		57	69	266	261	72	67	270	363
NBR - Seminary Road	335	0	0	8	0	0	0	9	0
SBL - Seminary Road	115	17	44	55	97	17	44	53	99
SBT - Seminary Road		265	348	436	522	273	358	406	531
SBR - Seminary Road	300	0	0	0	0	0	0	0	0
5. N. Beauregard Street/Mark Center Drive - Signalized									
EBL - N. Beauregard Street	150	12	34	4	17	12	35	10	31
EBT - N. Beauregard Street		131	185	76	108	125	183	79	110
EBTR - N. Beauregard Street		0	0	0	0	0	0	0	0
WBL - N. Beauregard Street	375	143	192	48	m69	142	192	45	m68
WBT - N. Beauregard Street		3	5	6	101	3	6	7	129
WBTR - N. Beauregard Street		0	0	0	0	0	0	0	0
NBLT - Mark Center Drive		36	71	51	92	35	73	54	100
NBR - Mark Center Drive		32	65	0	39	25	61	0	43
SBLT - Mark Center Drive		0	0	20	38	34	63	24	47
SBTR - Mark Center Drive		0	0	20	38	34	63	24	47
6. Mark Center Drive/West Driveway - Unsignalized									
EBLR/EBLTR - Systems Driveway		-	0	-	0	-	0	-	0
WBLTR - West Site Driveway			**Future Approach**				**Future Approach**		
NBL - Mark Center Drive		-	0	-	0	-	0	-	0
NBT - Mark Center Drive		-	0	-	0	-	0	-	0
NBTR - Mark Center Drive			**Future Approach**				**Future Approach**		
SBT/SBLT - Mark Center Drive		-	0	-	0	-	0	-	0
SBTR - Mark Center Drive		-	0	-	0	-	0	-	0
7.Mark Center Avenue/South Driveway- Unsignalized									
EBLT - Mark Center Avenue		-	0	-	0	-	0	-	0
EBT - Mark Center Avenue		-	0	-	0	-	0	-	0
WBT - Mark Center Avenue		-	0	-	0	-	0	-	0
WBTR - Mark Center Avenue		-	0	-	0	-	0	-	0
SBLR - South Driveway		-	0	-	0	-	0	-	0

Note(s):
1. ~ Volume exceeds capacity, queue is theoretically infinite.
2. # 95th percentile volume exceeds capacity, queue may be longer.
3. m Volume for 95th percentile queue is metered by upstream signal.

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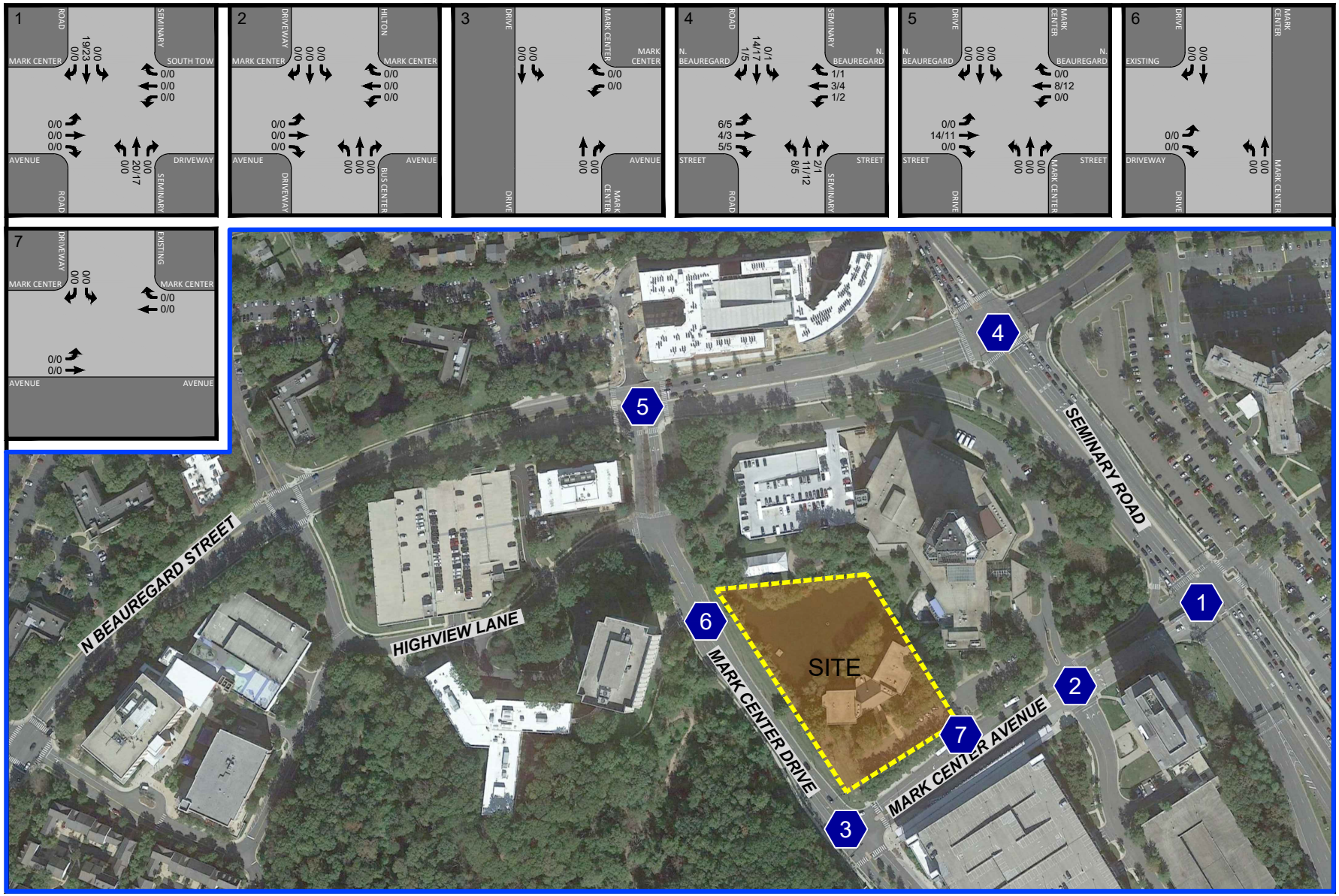

Figure 4-1
Regional Growth (2022-2025)

X Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

Figure 4-2
Site Location and Approved Pipeline Locations

Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

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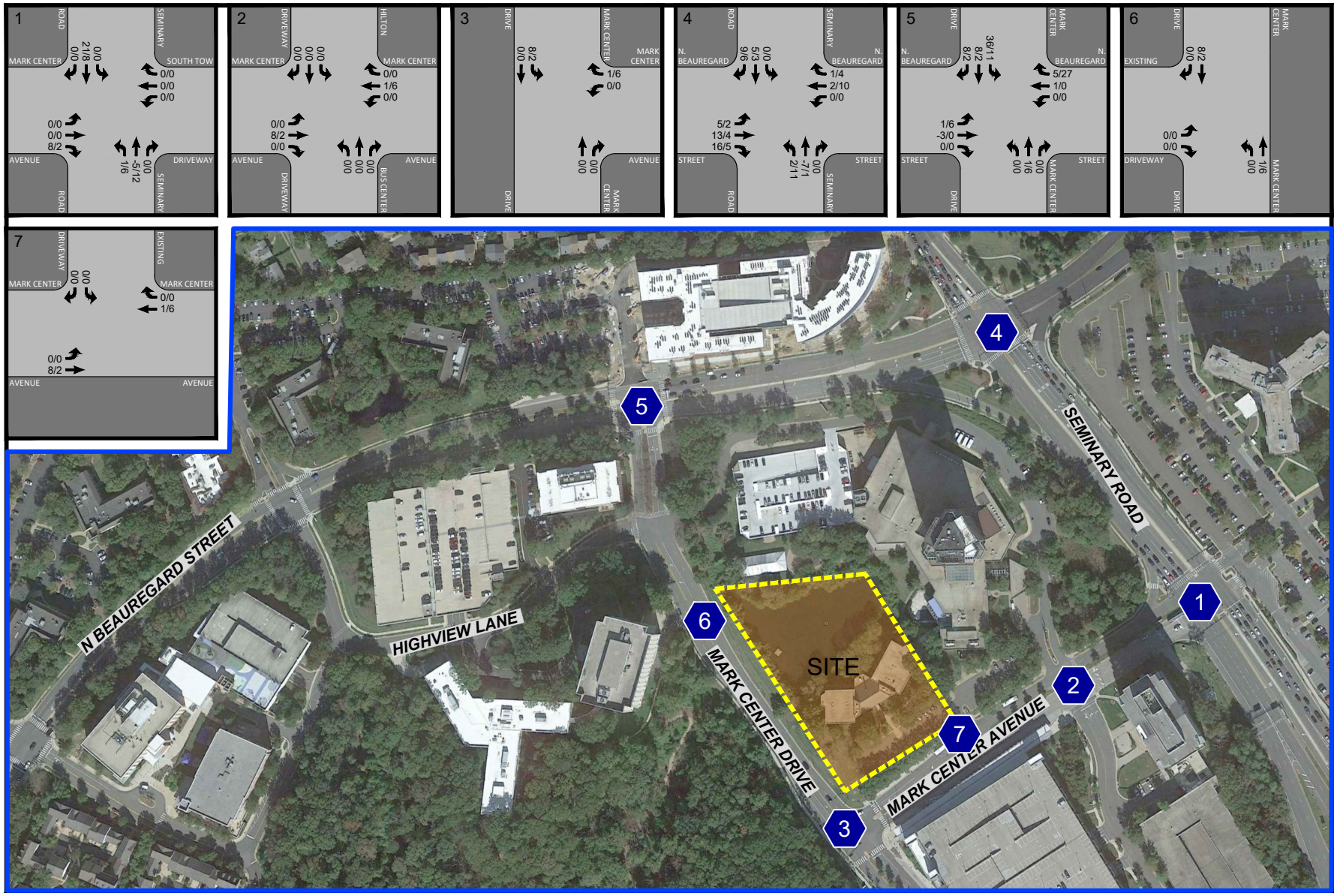

Figure 4-3
Total Pipeline Generated Trips (2025)

Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

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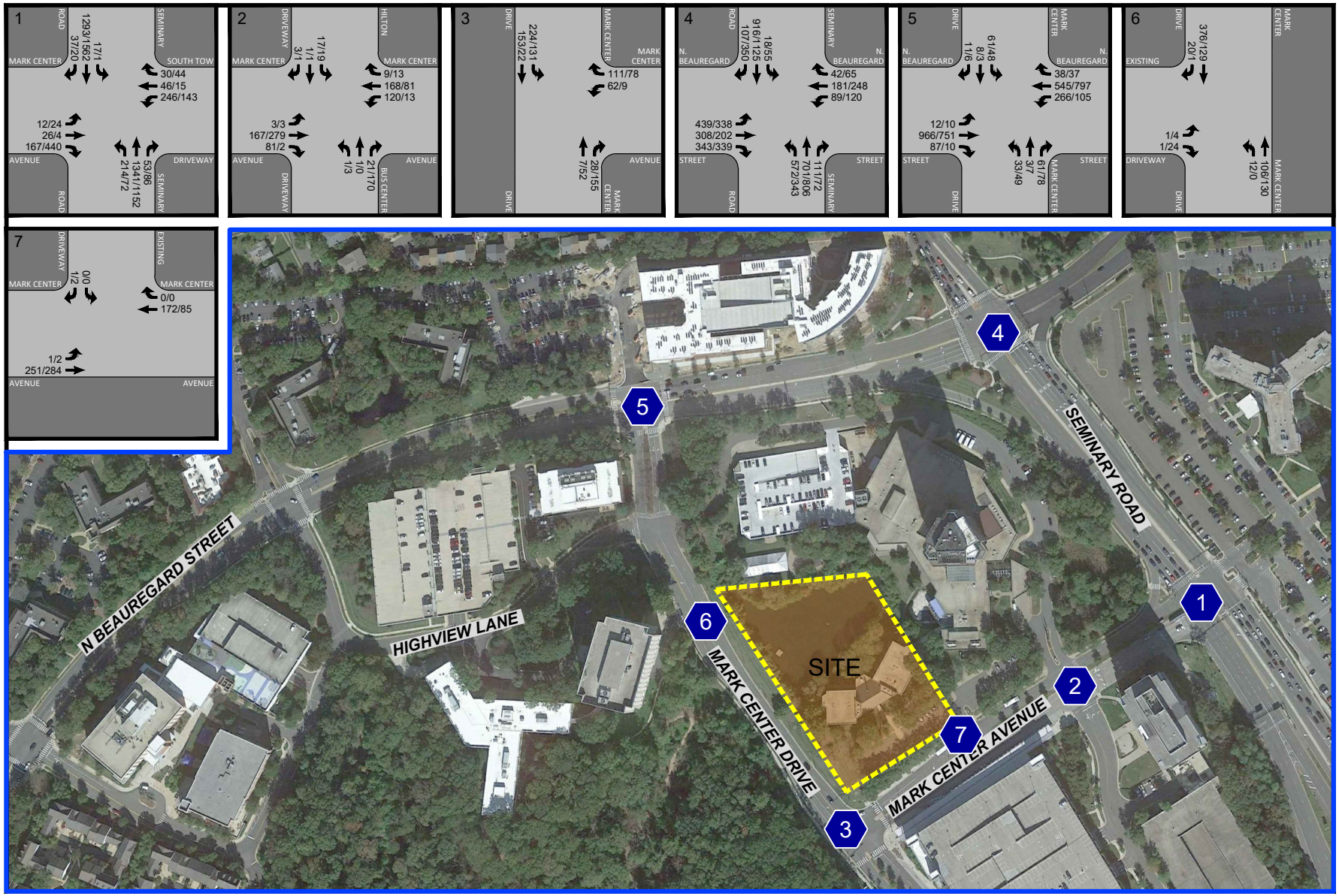

Figure 4-4
Future with No Development (2025) Peak Hour Traffic Forecasts

X Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

SECTION 5
TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

Trip Generation

The number of AM and PM peak hour trips expected to be generated by the proposed development were estimated based on the ITE Trip Generation Manual, 11th Edition trip rates and equations.

As shown in Table 5-1, the proposed 370 dwelling units are expected to generate 105 AM peak hour trips 24 in and 81 out), 102 PM peak hour trips (62 in and 40 out), and 1,203 daily (24-hour) trips after a 30% non-auto reduction was applied, as agreed upon during scoping. When compared to existing uses, the proposal is estimated to generate 87 additional AM peak hour trips and 86 additional PM peak hour trips.

Site Trip Distribution

The distribution of peak hour trips generated by the proposed development was based on a review of the proposed access, existing traffic patterns in the study area, local knowledge, and previously prepared traffic studies in the vicinity. The following distributions for the residential development, as agreed to upon during the scoping process, were used in this study:

Direction (To/From)	Percentage
North on Seminary Road	25 percent
East on N. Beauregard Street	25 percent
South on Seminary Road	40 percent
West on N. Beauregard Street	10 percent
Total	100 percent

Site Access & Circulation

As described previously, the subject site is located in the northeast quadrant of the Mark Center Drive/Mark Center Avenue intersection. Primary access to the site is provided via Mark Center Drive. Once on the site, a surface parking lot is provided for visitors which connects to a structured parking garage for residents.

The Future Lane Use and Traffic Controls with Development is shown on Figure 5-1.

Existing Removed Trips

Existing site trips entering and exiting the site were removed based on the driveway counts collected on September 21, 2022. The peak hour trips were removed from the network by tracking the peak hour trips to their origin and subtracting them off the network. The removed trips from the existing development are shown on Figure 5-2.

Site Trip Assignments

The trips generated by the proposed development, shown on Table 5-1, were assigned to the road network using the site trip distributions listed above. The resulting peak hour traffic forecasts for the site generated trips at the study intersections are shown on Figure 5-3.

Table 5-1
Mark Center Residential
Trip Generation Analysis [1,2]

Land Use	ITE Code	Size	Units	AM Peak Hour IN	AM Peak Hour OUT	AM Peak Hour TOTAL	PM Peak Hour IN	PM Peak Hour OUT	PM Peak Hour TOTAL	Weekday ADT
Existing Uses										
Hotel	310	69	Rooms	15	12	27	12	11	23	324
			Non-Auto Adj. : 30%	(5)	(4)	(9)	(4)	(3)	(7)	(97)
			Total Existing Trips w/ Adj.	10	8	18	8	8	16	227
Proposed Uses										
Multifamily Housing (Mid-Rise)	221	370	DU	35	116	151	88	57	145	1,718
			Non-Auto Adj. : 30%	*(11)*	*(35)*	*(46)*	*(26)*	*(17)*	*(43)*	*(515)*
			Total Proposed Trips w/ Adj.	24	81	105	62	40	102	*1,203*
Comparison										
			Total Existing Trips w/ Adj.	10	8	18	8	8	16	227
			Total Proposed Trips w/ Adj.	24	81	105	62	40	102	1,203
			Difference (Existing vs Proposed)	**14**	**73**	**87**	**54**	**32**	**86**	***976***

Notes:
1. Trips generated using Institute of Transportation Engineers (ITE)Trip Generation Manual, 11th Edition.
2. Non-auto adjustment applied based on site's location and Census data at a 30% adjustment

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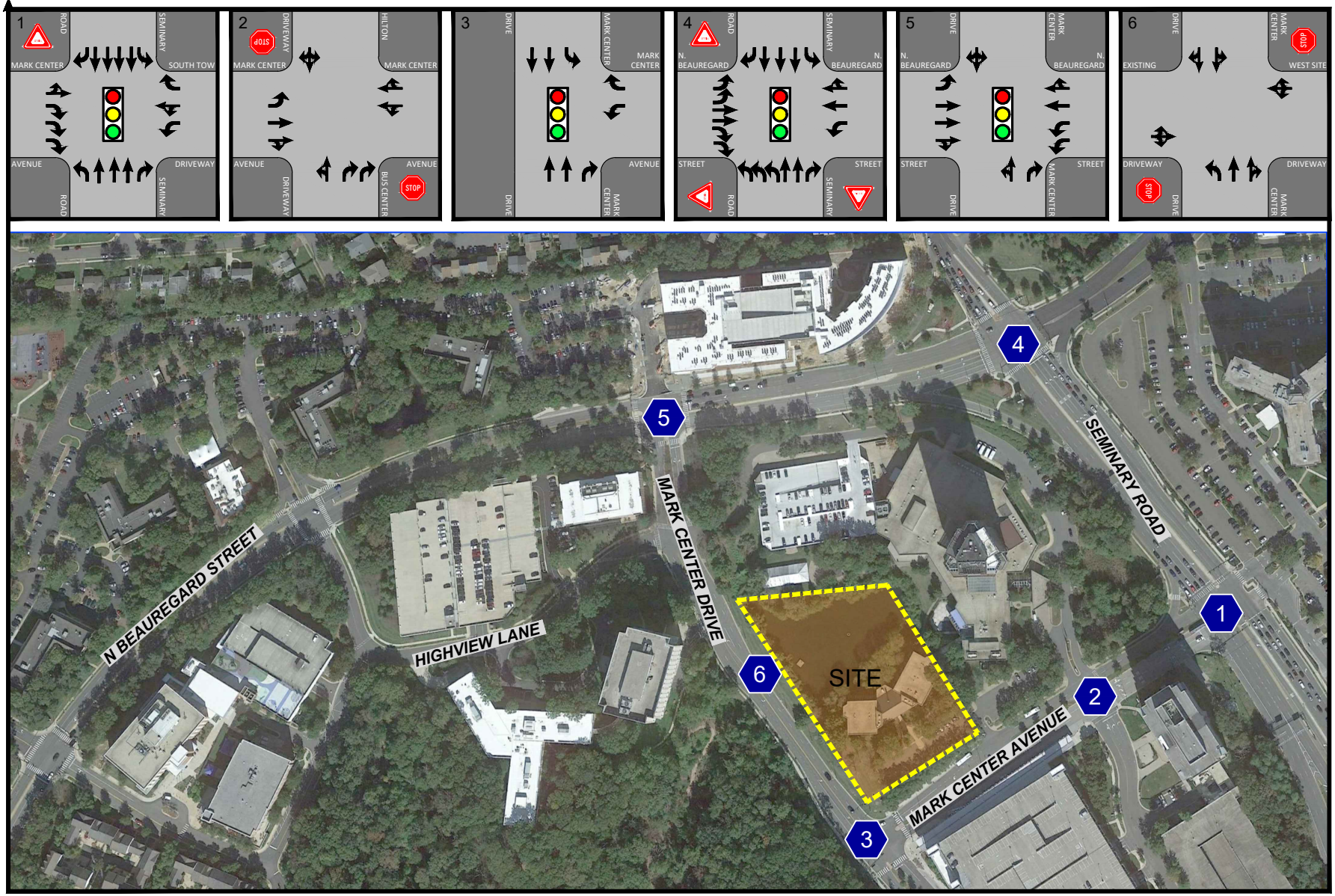

Figure 5-1
Total Future (2025) Lane Use and Traffic Controls

The Rutherford at Mark Center
Alexandria, Virginia

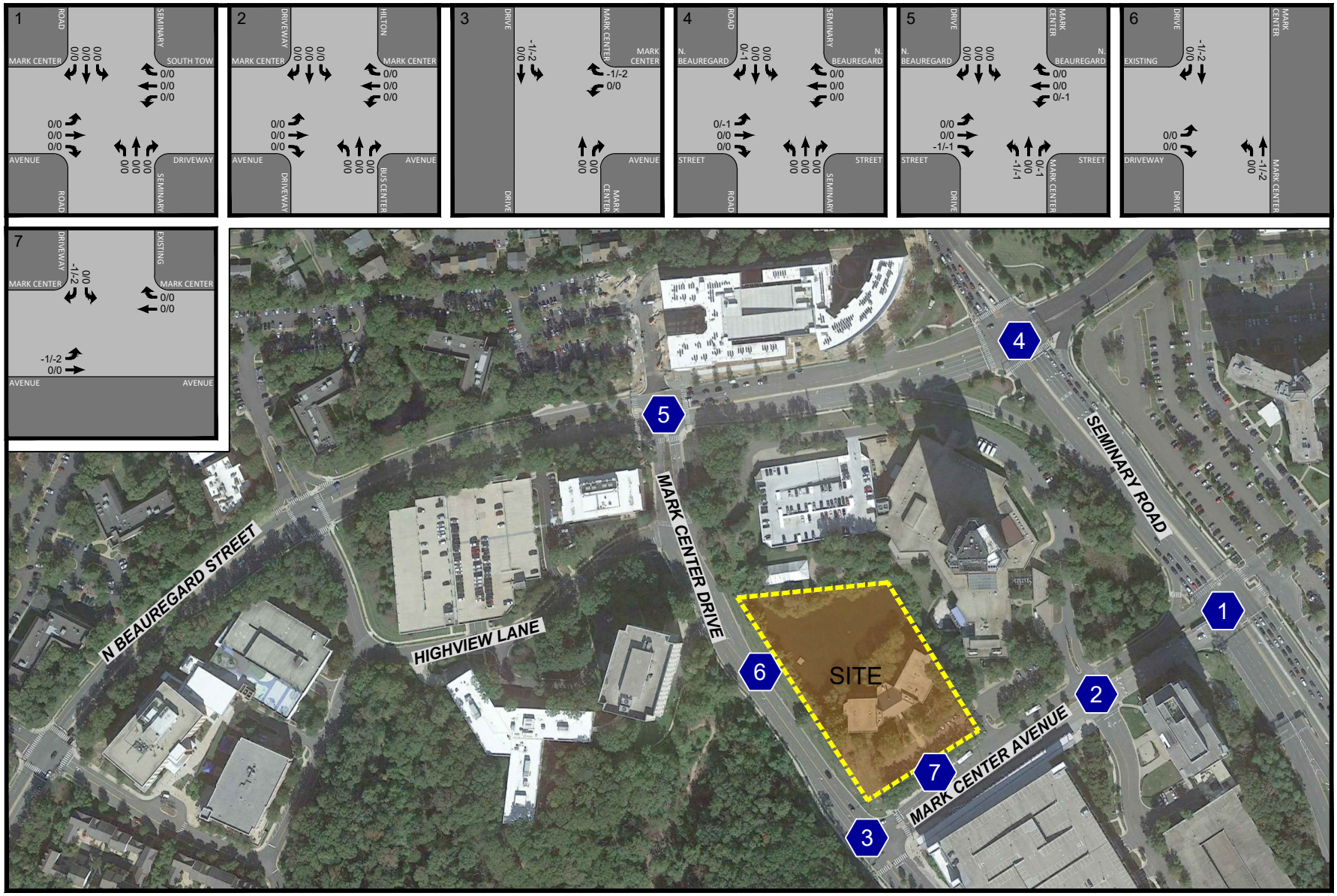

FIgure 5-2
Existing (2022) Site Trips Removed

AM PEAK HOUR
PM PEAK HOUR
000 / 000

Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

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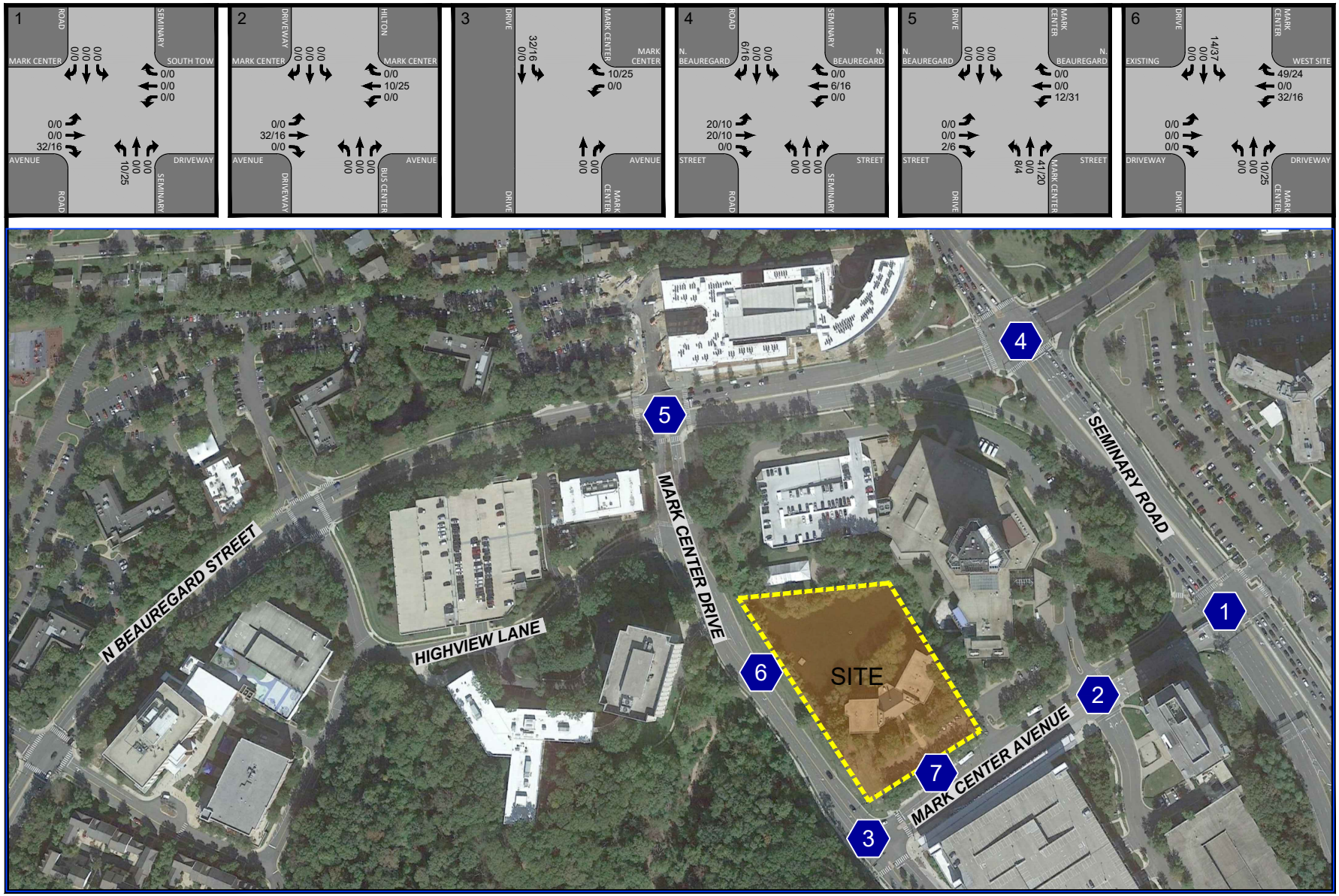

FIgure 5-3
Peak Hour Site Generated Trips

The Rutherford at Mark Center
Alexandria, Virginia

SECTION 6
ANALYSIS OF FUTURE CONDITIONS WITH DEVELOPMENT

Traffic Volumes

Future traffic forecasts with the proposed development were prepared for buildout conditions in 2025. Future forecasts are a composite of the future traffic forecasts without development shown on Figure 4-3, the existing site removed trips shown on Figure 5-2, and the proposed residential site trips shown on Figure 5-3. The resulting future 2025 conditions with development are shown on Figure 6-1.

Capacity Analysis

Future peak hour levels of service with the proposed redevelopment of the site in 2025 were calculated at the key study intersections based on the 2025 total future lane use and traffic controls shown on Figure 5-1, the future traffic forecasts with the proposed redevelopment shown on Figure 6-1, the existing traffic signal phasings/timings obtained from T&ES, and the HCM methodologies, using Synchro 11.

Future peak hour levels of service and 50th and 95th percentile queues with the proposed redevelopment are summarized in Tables 6-1 and 6-2, respectively. Capacity analysis worksheets for 2025 conditions with development are included in Appendix E.

Levels of Service. The 2025 level of service results with the proposed redevelopment are summarized in Table 6-1 and indicate the following:

The 2025 levels of service results, with the proposed development, assuming the addition of the proposed site trips, indicate that the signalized and unsignalized study intersections would continue to generally operate consistently with future without development conditions. Slightly increased delays would be experienced across the network as a result of the increased traffic volumes from the proposed redevelopment.

Synchro capacity analyses worksheets for 2025 future conditions without redevelopment are included in Appendix E.

Queues. The future peak hour queue results with the proposed development are presented in Appendix E and summarized in Table 6-2. The results indicate that queueing would be consistent with conditions without redevelopment at the study intersections. Increases in peak hour queues of one (1) vehicle length or less would be experienced at the study intersections.

Table 6-1
Mark Center Residential
Project (2025) Conditions Levels of Service Summary [1,2]

Approach/ Lane Group	Existing Conditions				Background (2025) Conditions				Project (2025) Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
1.Seminary Road/Mark Center Avenue/Southern Towers Driveway - Signalized												
EBL - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
EBT - Mark Center Avenue	E	63.2	E	65.6	E	63.2	E	65.3	E	63.2	E	65.3
EBR - Mark Center Avenue	D	39.7	D	53.1	D	39.8	D	52.5	D	39.3	D	51
WBL - Southern Towers Driveway	E	59.9	E	60.9	E	60.1	E	60.9	E	60.1	E	60.9
WBT - Southern Towers Driveway	E	59.8	E	60.8	E	59.7	E	60.8	E	59.7	E	60.8
WBR - Southern Towers Driveway	D	50.0	E	55.8	D	50.3	E	55.8	D	50.3	E	55.8
NBL - Seminary Road	E	61.4	E	61.5	E	61.5	E	61.5	E	61.2	E	61.1
NBT - Seminary Road	B	17.8	B	10.9	B	16.7	B	10.6	B	16.7	B	10.6
NBR - Seminary Road	B	12.9	A	8.3	B	12.1	A	8.3	B	12.1	A	8.3
SBL - Seminary Road	E	74.7	F	84.6	E	76.4	F	83.9	E	76.0	F	83.8
SBT - Seminary Road	B	15.8	B	11.0	B	15.4	B	10.8	B	15.7	B	11.8
SBR - Seminary Road	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
Overall	**C**	**25.3**	**C**	**20.5**	**C**	**24.6**	**C**	**20**	**C**	**24.9**	**C**	**20.6**
2. Mark Center Avenue/Hilton Driveway - Unsignalized												
EBL - Mark Center Avenue	A	7.7	A	7.5	A	7.7	A	7.5	A	7.8	A	7.5
EBT - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
EBR - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
WBL - Mark Center Avenue	A	5.2	A	2.2	A	5.2	A	2.0	A	5.2	A	1.7
WBT - Mark Center Avenue	A	5.2	A	2.2	A	5.2	A	2.0	A	5.2	A	1.7
WBR - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
NBL - Parking Garage Driveway	C	16.8	B	12.6	C	16.7	B	12.3	C	17.5	B	12.7
NBT - Parking Garage Driveway	A	9.6	B	10.4	A	9.5	B	10.3	A	9.6	B	10.3
NBR - Parking Garage Driveway	A	9.6	B	10.4	A	9.5	B	10.3	A	9.6	B	10.3
SBL - Hilton Driveway	C	16.3	C	17.4	C	16.4	C	16.5	C	17	C	17.3
SBT - Hilton Driveway	C	16.3	C	17.4	C	16.4	C	16.5	C	17.0	C	17.3
SBR - Hilton Driveway	C	16.3	C	17.4	C	16.4	C	16.5	C	17	C	17.3
3. Mark Center Avenue/Mark Center Drive - Signalized												
WBL - Mark Center Avenue	F	81.5	E	66.7	E	75.7	E	65.4	E	75.7	E	65.4
WBR -Mark Center Avenue	D	54.8	D	50.0	D	53.3	D	50.3	D	53.4	D	50.6
NBT - Mark Center Drive	A	0.7	A	4.0	A	0.9	A	3.7	A	1.0	A	3.7
NBR - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
SBL - Mark Center Drive	E	67.5	E	68.3	E	67.5	E	68.5	E	67.5	E	68.5
SBT - Mark Center Drive	C	33.5	C	32.8	C	34.8	C	32.2	C	34.8	C	32.2
Overall	**D**	**40.4**	**D**	**38.6**	**D**	**41.0**	**D**	**38.6**	**D**	**42.4**	**D**	**39.0**
4. Seminary Road/N. Beauregard Street - Signalized												
EBL - N. Beauregard Street	E	76.3	E	68.7	E	76.3	E	70.3	F	83.5	E	72.0
EBT - N. Beauregard Street	E	69.0	E	58.9	E	69.5	E	58.2	E	67.5	E	57.7
EBR - N. Beauregard Street	C	31.0	E	78.6	C	30.9	E	77.2	C	29.6	E	76.5
WBL - N. Beauregard Street	F	84.3	E	64.1	**E**	79.9	**E**	63.1	E	79.9	E	63.1
WBT - N. Beauregard Street	E	60.1	E	59.5	E	60.2	E	59.7	E	60.3	E	59.4
WBR - N. Beauregard Street	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
NBL - Seminary Road	F	81.6	E	67.9	E	74.8	E	65.4	E	74.7	E	64.9
NBT - Seminary Road	A	8.6	B	15.5	A	8.9	B	15.6	A	8.9	B	16.2
NBR - Seminary Road	B	16.3	B	17.8	B	16.1	B	17.5	B	16.2	B	18.0
SBL - Seminary Road	E	65.4	E	63.6	E	65.4	E	63.8	E	65.4	E	63.8
SBT - Seminary Road	C	33.3	C	33.1	C	33.4	C	32.4	C	33.6	C	33.4
SBR - Seminary Road	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
Overall	**D**	**46.1**	**D**	**43.3**	**D**	**45.1**	**D**	**43.1**	**D**	**46.0**	**D**	**43.6**
5. N. Beauregard Street/Mark Center Drive - Signalized												
EBL - N. Beauregard Street	E	68.2	E	68.2	E	68.2	E	68.2	E	68.2	E	68.2
EBT - N. Beauregard Street	A	8.0	A	9.3	A	9.6	A	9.5	B	10.1	A	9.7
EBR - N. Beauregard Street	A	8.3	A	9.5	A	9.9	A	9.7	B	10.5	A	9.9
WBL - N. Beauregard Street	E	60.8	E	58.1	E	60.8	E	58.0	E	60.5	E	58.5
WBT - N. Beauregard Street	A	3.7	A	6.0	A	4.9	A	6.5	A	5.1	A	6.6
WBR - N. Beauregard Street	A	3.7	A	6.0	A	4.9	A	6.5	A	5.1	A	6.6
NBL - Mark Center Drive	E	58.9	D	53.7	E	56.0	D	53.2	E	55.7	D	53.1
NBT - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
NBR - Mark Center Drive	D	45.8	D	41.7	D	42.2	D	41.1	D	42.6	D	41.4
SBL - Mark Center Drive	E	62.1	E	58.1	E	61.1	E	58.1	E	61.1	E	58.2
SBT - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
SBR - Mark Center Drive	E	57.0	D	51.2	D	54.0	D	50.8	D	53.2	D	50.6
Overall	**B**	**16.9**	**B**	**14.8**	**B**	**18.8**	**B**	**15.3**	**B**	**19.9**	**B**	**16.4**
6. Mark Center Drive/West Driveway - Unsignalized												
EBL - Systems Driveway	B	11.2	A	9.0	B	11.0	A	9.0	B	11.8	A	9.1
EBT - Systems Driveway	Future Approach				Future Approach				B	11.8	A	9.1
EBR - Systems Driveway	B	11.2	A	9.0	B	11.0	A	9.0	B	11.8	A	9.1
WBL - West Site Driveway	**Future Approach**				**Future Approach**				B	10.5	A	9.9
WBT - West Site Driveway									B	10.5	A	9.9
WBR - West Site Driveway									B	10.5	A	9.9
NBL - Mark Center Drive	A	8.3	A	0.0	A	8.2	A	0.0	A	8.2	A	0.0
NBT - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
NBR - Mark Center Drive	Future Approach				Future Approach				A	0.0	A	0.0
SBL - Mark Center Drive	Future Approach				Future Approach				A	7.5	A	7.6
SBT - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.1
SBR - Mark Center Drive	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
7.Mark Center Avenue/South Driveway- Unsignalized												
EBL - Mark Center Avenue	A	7.7	A	7.5	A	7.6	A	7.5	**INTERSECTION CLOSED**			
EBT - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0				
WBT - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0				
WBR - Mark Center Avenue	A	0.0	A	0.0	A	0.0	A	0.0				
SBL - South Site Driveway	A	9.1	A	9.5	A	9.0	A	9.5				
SBR - South Site Driveway	A	9.1	A	9.5	A	9.0	A	9.5				

Note(s):
1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 11.
2. Maximum V/C ratio reported for all intersections.

Table 6-2
Mark Center Residential
Project (2025) Conditions Queuing Summary [1, 2, 3]

Approach/ Lane Group	Storage Length (ft)	Existing Conditions				Background (2026) Conditions				Project (2026) Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		50th Percentile	95th Percentile	50th Percentile	95th Percentile	50th Percentile	95th Percentile	50th Percentile	95th Percentile	50th Percentile	95th Percentile	50th Percentile	95th Percentile
1.Seminary Road/Mark Center Avenue/Southern Towers Driveway - Signalized													
EBLT - Mark Center Avenue		37	75	29	60	36	74	26	59	36	74	26	59
EBR - Mark Center Avenue		0	21	35	50	0	21	26	49	0	22	30	52
WBL - Southern Towers Driveway		148	212	75	130	143	211	75	130	143	211	75	130
WBLT - Southern Towers Driveway		149	215	76	131	144	212	76	131	144	212	76	131
WBR - Southern Towers Driveway		0	0	0	0	0	0	0	0	0	0	0	0
NBL - Seminary Road		193	266	68	111	193	268	68	119	202	278	92	148
NBT - Seminary Road		273	383	163	270	209	385	150	272	209	385	150	272
NBR - Seminary Road	260	0	0	0	6	0	0	0	5	0	0	0	5
SBL - Seminary Road	200	18	m35	1	m1	16	m32	1	m1	16	m32	1	m1
SBT - Seminary Road		142	167	140	225	143	167	145	224	144	168	148	235
SBR - Seminary Road		0	m0	0	m0	0	m0	0	m0	0	m0	0	m0
2. Mark Center Avenue/Hilton Driveway - Unsignalized													
EBL - Mark Center Avenue	90	-	0	-	0	-	0	-	0	-	0	-	0
EBT - Mark Center Avenue		-	0	-	0	-	0	-	0	-	0	-	0
EBTR - Mark Center Avenue		-	0	-	0	-	0	-	0	-	0	-	0
WBLT - Mark Center Avenue		-	9	-	1	-	9	-	1	-	9	-	1
WBTR - Mark Center Avenue		-	0	-	0	-	0	-	0	-	0	-	0
NBLT - Parking Garage Driveway	65	-	1	-	11	-	1	-	10	-	1	-	10
NBR - Parking Garage Driveway		-	1	-	11	-	1	-	10	-	1	-	10
SBLTR - Hilton Driveway		-	6	-	6	-	5	-	5	-	5	-	6
3. Mark Center Avenue/Mark Center Drive - Signalized													
WBL - Mark Center Avenue		26	59	4	16	24	58	4	16	25	59	4	16
WBR -Mark Center Avenue		0	37	0	31	0	41	0	35	0	43	0	40
NBT - Mark Center Drive		1	3	5	13	1	4	5	13	1	4	5	13
NBR - Mark Center Drive	180	0	11	0	25	0	12	0	24	0	12	0	25
SBL - Mark Center Drive		27	47	16	29	27	48	15	29	32	54	17	32
SBT - Mark Center Drive	135	8	16	1	3	8	15	1	3	8	15	1	3
4. Seminary Road/N. Beauregard Street - Signalized													
EBL - N. Beauregard Street	180	224	#312	160	#232	221	#317	164	#240	225	#341	169	#250
EBT - N. Beauregard Street		160	210	95	135	170	222	97	138	180	234	102	143
EBR - N. Beauregard Street	570	146	179	268	353	166	205	276	353	166	203	275	362
WBL - N. Beauregard Street	190	94	#175	122	179	88	#175	114	181	88	#175	114	181
WBT - N. Beauregard Street		109	142	148	182	103	146	146	193	106	149	155	202
WBTR - N. Beauregard Street		109	142	148	182	103	146	146	193	106	149	155	202
NBL - Seminary Road	325	211	254	78	148	145	254	78	148	144	254	78	147
NBT - Seminary Road		57	69	266	261	72	67	270	363	79	67	273	374
NBR - Seminary Road	335	0	0	8	0	0	0	9	0	0	0	9	0
SBL - Seminary Road	115	17	44	55	97	17	44	53	99	17	44	53	99
SBT - Seminary Road		265	348	436	522	273	358	406	531	276	362	418	540
SBR - Seminary Road	300	0	0	0	0	0	0	0	0	0	0	0	0
5. N. Beauregard Street/Mark Center Drive - Signalized													
EBL - N. Beauregard Street	150	12	34	4	17	12	35	10	31	12	35	10	31
EBT - N. Beauregard Street		131	185	76	108	125	183	79	110	130	191	80	114
EBTR - N. Beauregard Street		0	0	0	0	0	0	0	0	0	0	0	0
WBL - N. Beauregard Street	375	143	192	48	m69	142	192	45	m68	150	200	58	m86
WBT - N. Beauregard Street		3	5	6	101	3	6	7	129	4	7	6	135
WBTR - N. Beauregard Street		0	0	0	0	0	0	0	0	0	0	0	0
NBLT - Mark Center Drive		36	71	51	92	35	73	54	100	41	82	57	105
NBR - Mark Center Drive		32	65	0	39	25	61	0	43	58	104	4	50
SBLT - Mark Center Drive		0	0	20	38	34	63	24	47	34	62	24	47
SBTR - Mark Center Drive		0	0	20	38	34	63	24	47	34	62	24	47
6. Mark Center Drive/West Driveway - Unsignalized													
EBLR/EBLTR - Systems Driveway		-	0	-	0	-	0	-	0	-	0	-	3
WBLTR - West Site Driveway			**Future Approach**				**Future Approach**			-	10	-	5
NBL - Mark Center Drive		-	0	-	0	-	0	-	0	-	1	-	0
NBT - Mark Center Drive		-	0	-	0	-	0	-	0	-	0	-	0
NBTR - Mark Center Drive			**Future Approach**				**Future Approach**			-	0	-	0
SBT/SBLT - Mark Center Drive		-	0	-	0	-	0	-	0	-	1	-	2
SBTR - Mark Center Drive		-	0	-	0	-	0	-	0	-	0	-	0
7.Mark Center Avenue/South Driveway- Unsignalized													
EBLT - Mark Center Avenue		-	0	-	0	-	0	-	0	-	0	-	0
EBT - Mark Center Avenue		-	0	-	0	-	0	-	0	-	0	-	0
WBT - Mark Center Avenue		-	0	-	0	-	0	-	0	-	0	-	0
WBTR - Mark Center Avenue		-	0	-	0	-	0	-	0	-	0	-	0
SBLR - South Driveway		-	0	-	0	-	0	-	0	-	0	-	0

Note(s):
1. ~ Volume exceeds capacity, queue is theoretically infinite.
2. # 95th percentile volume exceeds capacity, queue may be longer.
3. m Volume for 95th percentile queue is metered by upstream signal.

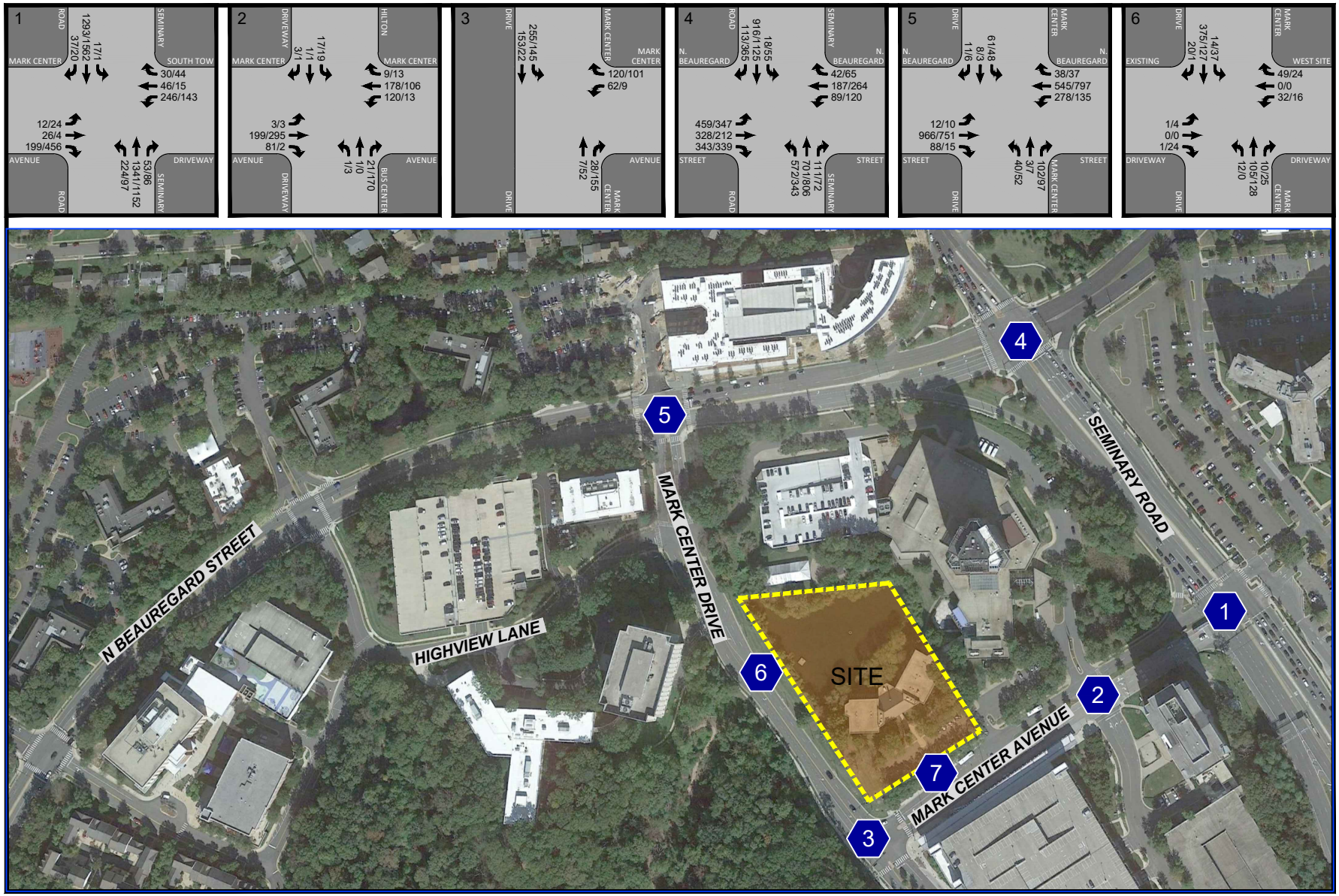

FIgure 6-1
Total Future (2025) Peak Hour Traffic Forecasts

AM PEAK HOUR
PM PEAK HOUR
000 / 000

Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

SECTION 7
NON-AUTO FACILITIES EVALUATION

Introduction

This section evaluates the non-auto facilities within the site vicinity. It summarizes existing pedestrian and bicycle activity at study intersections, identifies transit service in the area, and describes future pedestrian access and site circulation. It is a goal of the City of Alexandria to create an integrated, multimodal transportation system that is accessible and safe for all users, including pedestrians and bicyclists. To help achieve this goal, the City Council adopted a Complete Streets Policy. The term Complete Streets describes a comprehensive, integrated transportation network with infrastructure and design that allows safe and convenient travel along and across streets for all users. The policy is intended to promote equality for pedestrians, bicyclists, riders and drivers of public transportation, as well as drivers of other motor vehicles, and people of all ages and abilities, including children, older adults, and individuals with disabilities.

Public Transit Service

Bus Service. The subject site is served by a few bus lines with bus stops located at Mark Center Transit Station, Seminary Rd & Heritage Ln, Mark Center Drive and N. Beauregard Street, and N. Beauregard Street and Highview Lane. The following provides a summary of the bus lines within close proximity of the site and Figure 7-1 shows the location of nearby bus stops and bus lines providing service to those stops.

DASH/WMATA/Fairfax Connector Bus Stop 1 This stop is located on Mark Center Drive & Mark Center Avenue. The stop contains bus lines 7M, 25B, 8W, D-400, 35, 36A, 36B, and 102. 7M provides direct access to Pentagon Transit Center, 25B provides direct access to Ballston, 8W provides access to Pentagon Transit Center, D-400 provides access to Dale City, 35 runs from Van Dorn to Pentagon, 36A and 36B run to Potomac Yards Shopping Center, and 102 operates from King Street to Mark Center.

DASH Bus Stop 2 This stop is located on N. Beauregard Street and Mark Center Drive. The stop contains bus lines 35, 36A, and 36B. Route 35 runs from Van Dorn to the Pentagon while 36A and 36B provide access to Potomac Yards Shopping Center.

WMATA Bus Stop 3 This stop is located on Mark Center Drive and Beauregard Street. This stop contains bus lines 7M and 8W. Both 7M and 8W run to Pentagon Transit Center.

WMATA Bus Stop 4 This stop is located on Beauregard St next to Heritage Lane. The stop contains bus line 28F.28F provides access to the Pentagon.

Pedestrian Traffic Volumes

Pedestrian counts were conducted on Wednesday, September 21, 2022 from 6:30 AM to 9:30 AM and 4:00 PM to 7:00 PM at each study intersection. Existing peak hour pedestrian volumes are shown in Figure 3-2 and are detailed in Appendix B.

Bicycle/Pedestrian Access

As stated previously, the site is located within a proposed redevelopment area that focuses on improving and enhancing bicycle and pedestrian safety and access within the Beauregard Small Area Plan. An efficient transit system and connected pedestrian network (sidewalks and signalized marked crossings), along with planned future improvements for the Bus Rapid Transit Line along N. Beauregard Street and eventual redevelopment throughout this area will promote the multimodal nature intended for this district. Existing pedestrian facilities can be seen in Figure 7-2.

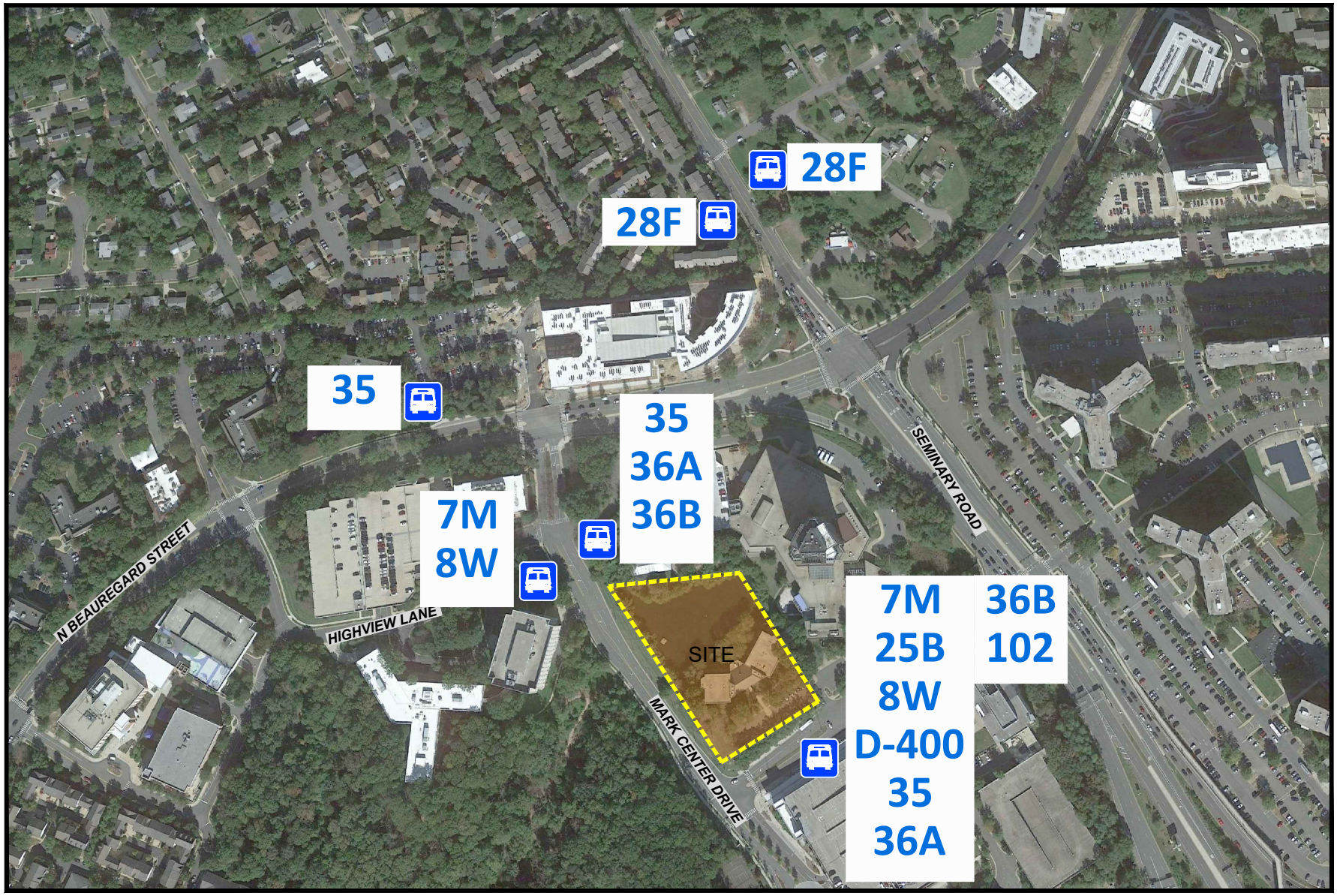

Figure 7-1
Bus Stop Locations

Study Intersection
Bus Stop

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

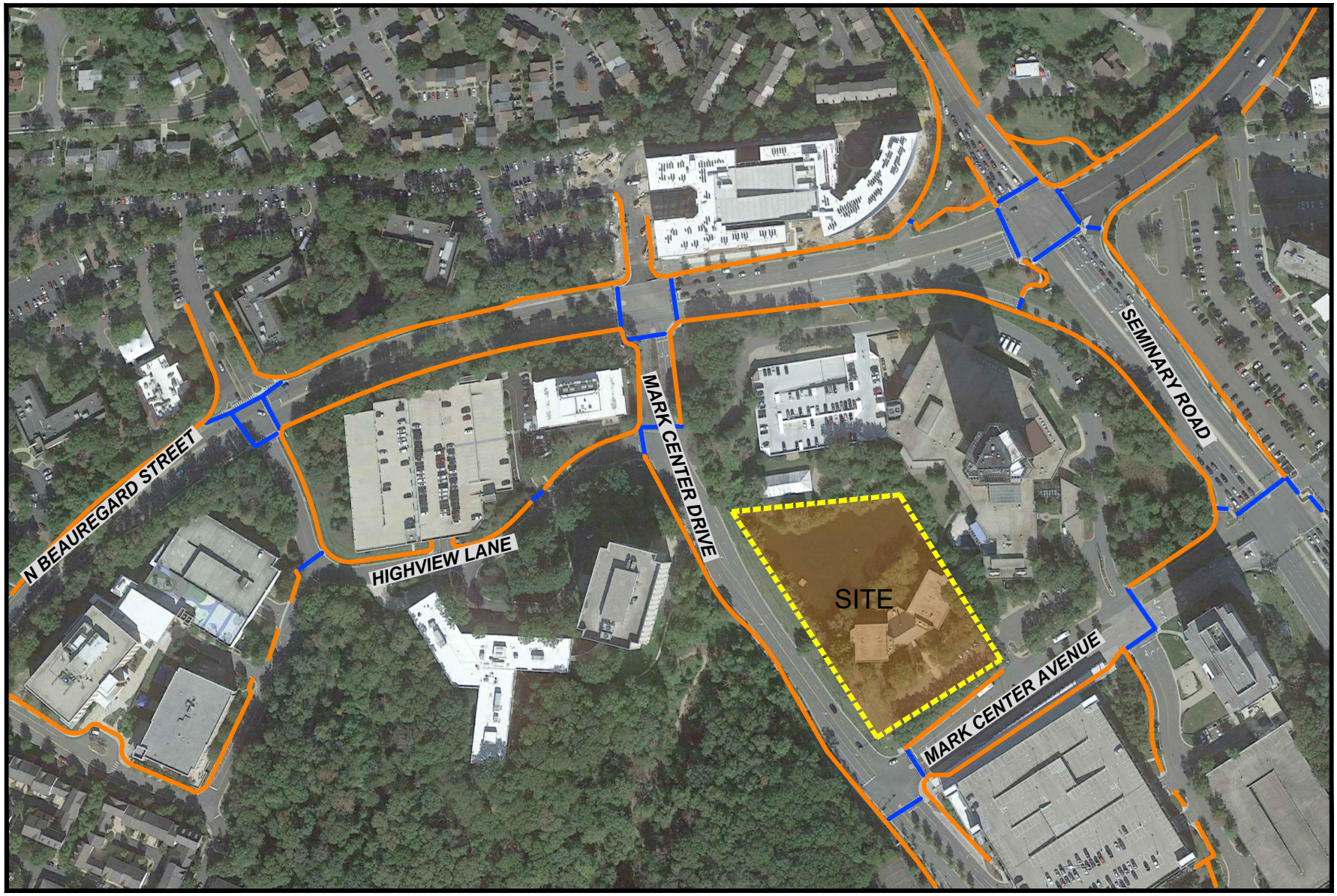

Figure 7-2
Existing Multimodal Facilities

Study Intersection
Existing Crosswalk
Existing Sidewalk

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

SECTION 8
TRANSPORTATION MANAGEMENT PLAN (TMP)

Introduction

This section presents a Transportation Management Plan (TMP) for the proposed residential development at Upland Park. In accordance with the City of Alexandria Zoning Ordinance, Article XI, Section 11-700, this TMP is required to implement strategies to persuade residents to use public transportation, walk, bike, or share a ride as opposed to driving alone.

TMP Conditions and Requirements

The following is a description of the conditions and requirements that would be implemented in order to result in a successful TMP. Based on the size of the proposed development the proposal would need to comply with Tier 3 requirement (Create a Standalone Program). The TMP will comply with reporting requirements as called for in the Zoning Ordinance.

TMP Coordinator. The developer will designate a TMP Coordinator. This person will be the point of contact with the City's Transportation Planning Division. The Coordinator will work with the City staff and will have the authority, knowledge, and capability to implement the TMP. The duties of the TMP Coordinator include maintaining updated contact information with the Transportation Planning Division, distributing annual electronic surveys, managing and accounting the TMP fund, submitting reports to the City, and administering the program.

TMP Contribution. The developer will contribute to the program fund based on the applicable annual rate at the time of the certificate of occupancy. The base assessment rate will be adjusted on an annual basis on July 1 of each year in accordance with the Consumers Price Index (CPI-U) as reported by the United States Department of Labor, Bureau of Labor Statistics. The base assessment rate in effect at the time of the project's first certificate of occupancy permit (CO) is the applicable rate for the project.

SECTION 9
CONCLUSIONS AND RECOMMENDATIONS

The conclusions of this traffic impact study are as follows:

1. All of the existing signalized study intersections currently operate at levels of service "E" or better during the AM and PM peak hours under existing conditions. All the approaches at the stop-controlled study intersections currently operate at LOS "E" or better during both the AM and PM hours except the northbound approach during the PM peak hour and the southbound approach during the AM and PM peak hour at the Seminary Road/Fairbanks Avenue intersection.

2. Under the 2024 future conditions without the proposed development, all signalized and unsignalized study intersection approaches would continue to operate consistent to existing conditions.

3. The proposed 370 multifamily units are estimated to generate 87 additional AM peak hour trips, 86 additional PM peak hour trips, and 976 daily trips upon completion by 2025 when compared to existing uses.

4. In 2024 future conditions with the residential development, all signalized and unsignalized study intersection approaches would continue to operate consistent to future conditions without development.

5. The results of the traffic analyses indicate that the additional vehicle trips generated by the proposed residential development would have a negligible impact to the roadway network, with only minor increases in overall intersection and turning movement delays.

6. Per the City guidelines the proposed development meets Tier 3 TMP requirements. The elements of the TMP would encourage transit use and reduce both peak hour trips and the demand for parking.

APPENDIX A
SCOPING AGREEMENT

City of Alexandria
Transportation Scoping Intake Form

Date: August 11, 2022
Project Name: Mark Center Residential
Property Address: 5000 Seminary Road, City of Alexandria, Virginia
Application # if available: CSDP 2022-00005
Point of contact name: Grady P. Vaughan, PE, PTOE, PTP, Wells + Associates
Phone: 703-676-3627 (Wells + Associates)
Email: gpvaughan@wellsandassociates.com

Existing uses	**No. of Units**	**Units**	**Proposed uses**	**No. of Units**	**Units**
Use 1: Hotel	69	Rooms	Use 1: Multifamily Residential	370	DU
Use 2:			Use 2:		
Use 3:			Use 3:		

Project Description:
The Applicant proposes to redevelop the existing hotel uses and stormwater pond with approximately 370 dweliing units served by 445 parking spaces.

			AM Peak Hour			PM Peak Hour			Daily
Existing Use									
1. Hotel - Retreat Building	310	69	15	12	27	12	11	23	324
Non Auto Adj. : 30%			(5)	(4)	(9)	(4)	(3)	(7)	(97)
Total Existing Trips			*10*	*8*	*18*	*8*	*8*	*16*	*227*
Proposed Uses									
1. Multifamily (Midrise)	221	370	35	116	151	88	57	145	1,718
Non Auto Adj. : 30%			(11)	(35)	(46)	(26)	(17)	(43)	(516)
Total Proposed Trips			*24*	*81*	*105*	*62*	*40*	*102*	*1,202*
Net New Site Trips			**14**	**73**	**87**	**53**	**32**	**86**	**975**

Note: (1) Trips generated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition.

Horizon Years — Existing Year: 2022* — Buildout: 2025

Proposed Study Area Boundaries (Attach map)
North: N Beauregard Street — East: Seminary Road
South: Mark Center Drive — West: N Highview Lane

Study Intersections: [1]

1. Seminary Road/Mark Center Avenue
2. Mark Center Avenue/Hilton-Brac Access
3. Mark Center Avenue/Mark Center Drive
4. N Beauregard Street/Seminary Road
5. N Beauregard Street/Mark Center Drive
6. Two (2) Site Entrances

***See Figure 1.**

Parking Occupancy Counts:
On-Street Parking: N/A — Weekday: N/A

City of Alexandria
Transportation Scoping Intake Form

Background Development Projects:
1. Upland Park
2. Monday Properties (The Blake)

Roadway Improvements:
1. None assumed.

Trip Distribution (attach a map): **See Figure 1**

North:	25%	(to/from N Beauregard Street)	West:	25%	(to/from Seminary Road)
South:	10%	(to/from N Beauregard Street)	East:	40%	(to/from Seminary Road)

Proposed Access Points (attach site map): ***See Figure 2.**

Annual Growth Rate: 0.5% ***See Table 1**. Negative regional growth from public data. The proposed growth rate will conservatively increase background traffic. This rate is only applied to through movements along Beauregard Street and Seminary Road and all movements at the intersection of Beauregard and Seminary

Methodology to be used: Synchro 10 (HCM 2000)

Trip Reduction:
Modal split/transit: 30% ***See Table 2**

Internal capture: No

Pass-by trips: No

Parking: A special use permit requested for parking reduction for proximity to future BRT is anticipated.

Parking spaces required by Code:	TBD	Approximately 445 spaces
Is a parking modification requested?	Yes	-

TMP category based on project size			TMP options available
	Tier 1		Join Citywide TDM Program - As directed by City Staff
TBD based on final DU count	Tier 2		Partner with adjacent TMPs or join Citywide TDM Program
	Tier 3	X*	Create stand-alone TMP or partner with adjacent TMPs

Additional Studies Required
____ Signal Warrant Analysis
__X__ Queuing Analysis
__X__ Signal Timing/Phasing Improvements
__X__ Parking Study
____ Other

Notes:
1. Existing site trips will be account for by forcasting the net new trips onto the network.
2. A full discussion of site access points, site circulation, pick-up/drop-off, and alternative modes of transportation will be discussed in depth in the body of the report.
3. The area adjacent to the site, based on a small study area, will be included in the transit assessment and be in compliance with City requirements. The streets included in the study area will generally include where the site has frontage on a public street.

Ryan Knight — City Staff Signature — 8/12/2022 Date

Applicant Signature — 8/11/2022 Date

Table 1
Growth Rate Report

Growth Rate*

Year	Seminary Road Beauregard to I-395 Volume	Difference	% change
2017	54000		
		3000	5.6%
2018	57000		
		-10000	-17.5%
2019	47000		
		-11000	-23.4%
2020	36000		
		5000	13.9%
2021	41000		
	% change per year		-5.376%

* AADT volumes obtained from VDOT [lastest 5-year data available]

Growth Rate*

Year	N. Beauregard Street WCL Alexandria to Braddock Road Volume	Difference	% change
2017	18000		
		-2000	-11.1%
2018	16000		
		0	0.0%
2019	16000		
		-4000	-25.0%
2020	12000		
		0	0.0%
2021	12000		
	% change per year		-9.028%

* AADT volumes obtained from VDOT [lastest 5-year data available]

Table 2

Mark Center Residential

Trip Generation Analysis [1,2]

Land Use	ITE Code	Size	Units	AM Peak Hour IN	AM Peak Hour OUT	AM Peak Hour TOTAL	PM Peak Hour IN	PM Peak Hour OUT	PM Peak Hour TOTAL	Weekday ADT
Existing Uses										
Hotel	310	69	Rooms	15	12	27	12	11	23	324
			Non-Auto Adj. : 30%	(5)	(4)	(9)	(4)	(3)	(7)	(97)
			Total Existing Trips w/ Adj.	10	8	18	8	8	16	227
Proposed Uses										
Multifamily Housing (Mid-Rise)	221	370	DU	35	116	151	88	57	145	1,718
			Non-Auto Adj. : 30%	*(11)*	*(35)*	*(46)*	*(26)*	*(17)*	*(43)*	*(516)*
			Total Proposed Trips w/ Adj.	24	81	105	62	40	102	*1,202*
Comparison										
			Total Existing Trips w/ Adj.	10	8	18	8	8	16	227
			Total Proposed Trips w/ Adj.	24	81	105	62	40	102	1,202
			Difference (Existing vs Proposed)	**14**	**73**	**87**	**53**	**32**	**86**	***975***

Notes:

1. Trips generated using Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition.
2. Non-auto adjustment applied based on site's location and Census data at a 30% adjustment

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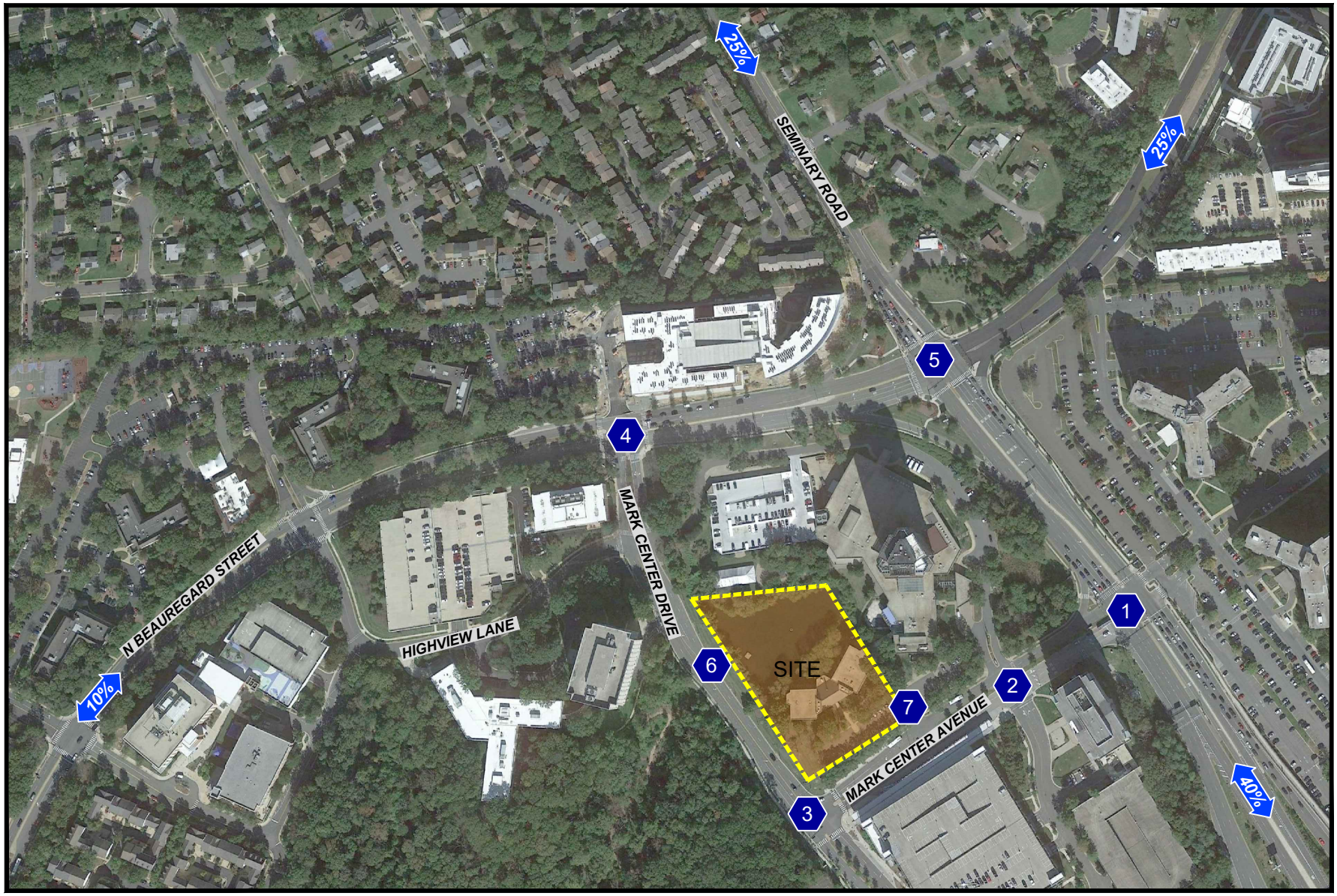


Figure 1

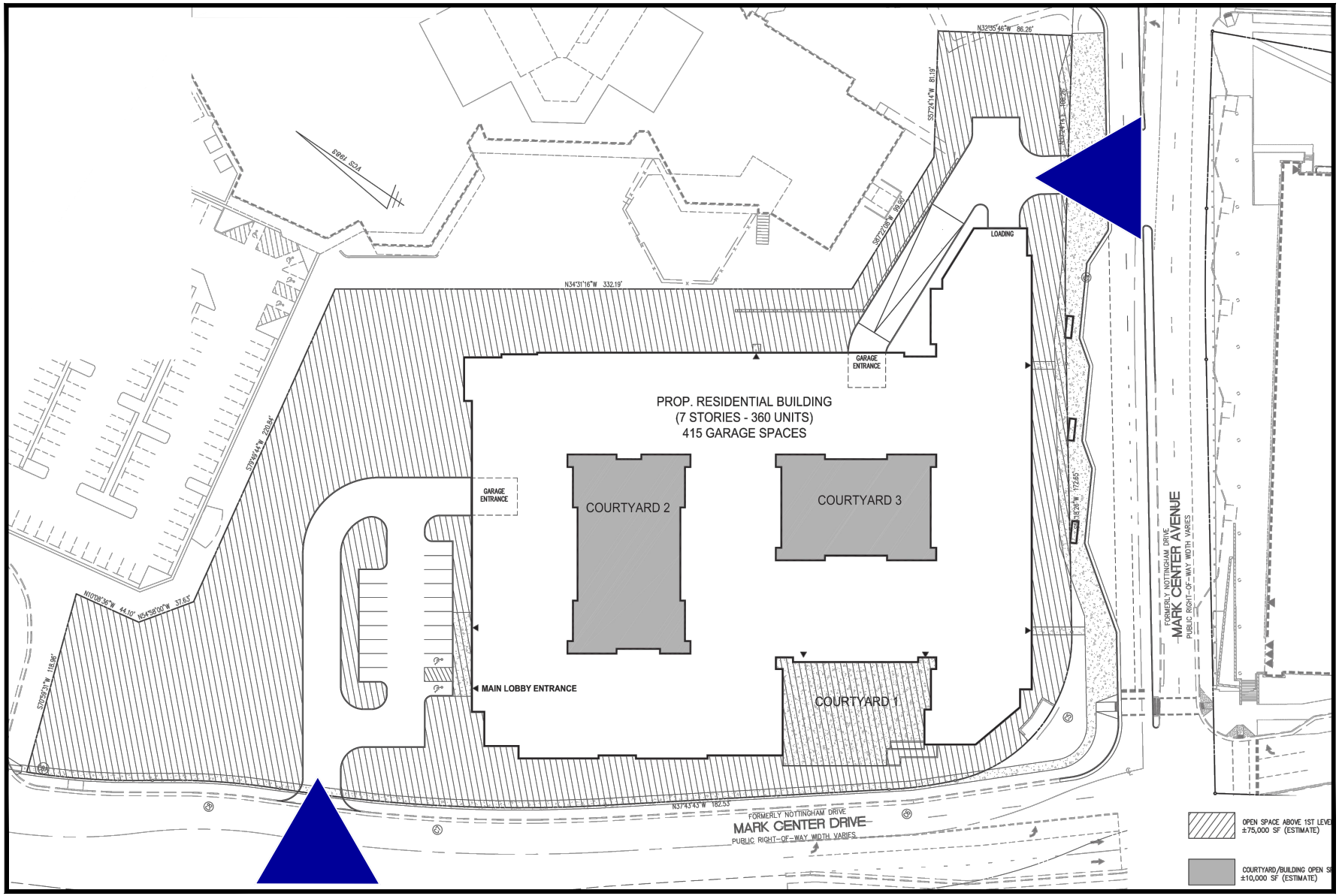
Site Location, Study Intersection and Site Trip Distribution

X Study Intersection

XX% Directional Trip Distribution

NORTH

Mark Center Residential
Alexandria, Virginia



PLAN PROVIDED BY: WALTER L PHILLIPS

Figure 2
Site Plan

Proposed Site Access Point

NORTH

Mark Center Residential
Alexandria, Virginia

APPENDIX B
EXISTING TRAFFIC COUNT WORKSHEETS

Wells + Associates,Inc

Tysons, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Seminary Rd. & Mark Center Ave.
LOCATION: City of Alexandria,VA

DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Majda & Michael
INPUTED BY: agan

SOUTHBOUND ROAD: Seminary Road
NORTHBOUND ROAD: Seminary Road
WESTBOUND ROAD: Mark Center Avenue
EASTBOUND ROAD: Mark Center Avenue

Time Period	Southbound Seminary Road						Westbound Mark Center Avenue						Northbound Seminary Road						Eastbound Mark Center Avenue						North & South	East & West	Total
	Right	Thru	Left	I-Turn	Total	PHF	Right	Thru	Left	I-Turn	Total	PHF	Right	Thru	Left	I-Turn	Total	PHF	Right	Thru	Left	I-Turn	Total	PHF			
15 Minute Volumes																											
6:30 AM - 6:45 AM	9	200	2	0	211		6	12	36	0	54		8	228	19	0	255		28	1	3	0	32		466	86	552
6:45 AM - 7:00 AM	14	210	0	0	224		7	14	41	0	62		12	286	35	0	333		29	4	3	0	36		557	98	655
7:00 AM - 7:15 AM	6	267	3	0	276		9	13	43	0	65		13	318	42	0	373		22	5	3	0	30		649	95	744
7:15 AM - 7:30 AM	7	265	4	0	276		8	14	59	0	81		10	303	36	0	349		18	5	0	0	23		625	104	729
7:30 AM - 7:45 AM	6	284	1	0	291		8	12	61	0	81		12	356	37	0	405		35	4	1	0	40		696	121	817
7:45 AM - 8:00 AM	7	348	6	0	361		6	18	66	0	90		14	310	28	0	352		36	6	0	0	42		713	132	845
8:00 AM - 8:15 AM	4	322	7	0	333		9	8	61	0	78		13	331	60	0	404		33	10	2	0	45		737	123	860
8:15 AM - 8:30 AM	13	299	3	0	315		7	8	58	0	73		14	329	49	0	392		35	6	8	0	49		707	122	829
8:30 AM - 8:45 AM	8	263	4	0	275		11	10	53	0	74		22	331	33	0	386		38	4	3	0	45		661	119	780
8:45 AM - 9:00 AM	14	253	3	0	270		8	2	45	0	55		8	335	33	0	376		32	3	5	0	40		646	95	741
9:00 AM - 9:15 AM	7	220	5	0	232		7	49	31	0	87		9	302	32	0	343		23	2	5	0	30		575	117	692
9:15 AM - 9:30 AM	3	224	6	0	233		9	6	42	0	57		26	327	26	0	379		18	5	3	0	26		612	83	695
4:00 PM - 4:15 PM	3	363	0	0	366		9	1	39	0	49		23	326	11	0	360		123	1	6	0	130		726	179	905
4:15 PM - 4:30 PM	4	344	0	0	348		17	1	33	0	51		20	265	6	0	291		103	0	3	0	106		639	157	796
4:30 PM - 4:45 PM	2	364	1	0	367		9	6	34	0	49		19	273	10	0	302		79	3	7	0	89		669	138	807
4:45 PM - 5:00 PM	2	396	0	0	398		9	7	37	0	53		24	244	9	0	277		85	0	5	0	90		675	143	818
5:00 PM - 5:15 PM	3	340	0	0	343		10	7	31	0	48		22	238	8	0	268		108	0	10	0	118		611	166	777
5:15 PM - 5:30 PM	2	426	0	0	428		12	4	45	0	61		24	309	6	0	339		79	3	10	0	92		767	153	920
5:30 PM - 5:45 PM	3	346	1	0	350		8	6	33	0	47		36	284	7	0	327		73	0	6	0	79		677	126	803
5:45 PM - 6:00 PM	5	373	1	0	379		18	5	28	0	51		26	260	8	0	294		51	1	4	0	56		673	107	780
6:00 PM - 6:15 PM	3	363	0	0	366		8	6	40	0	54		33	266	8	0	307		56	1	3	0	60		673	114	787
6:15 PM - 6:30 PM	3	332	0	0	335		11	4	35	0	50		28	306	3	0	337		54	2	5	0	61		672	111	783
6:30 PM - 6:45 PM	1	342	0	0	343		8	8	49	0	65		45	312	2	0	359		42	0	3	0	45		702	110	812
6:45 PM - 7:00 PM	2	301	0	0	303		5	4	22	0	31		38	260	8	0	306		30	1	5	0	36		609	67	676
7:00 PM - 7:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
7:15 PM - 7:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
Total	131	###	47	0	###		219	225	###	0	###		499	###	516	0	###		###	67	103	0	###		###	###	###
One Hour Volumes																											
6:30 AM - 7:30 AM	36	942	9	0	987	0.9	30	53	179	0	262	0.8	43	###	132	0	###	0.9	97	15	9	0	121	0.8	###	383	###
6:45 AM - 7:45 AM	33	###	8	0	###	0.9	32	53	204	0	289	0.9	47	###	150	0	###	0.9	104	18	7	0	129	0.8	###	418	###
7:00 AM - 8:00 AM	26	###	14	0	###	0.8	31	57	229	0	317	0.9	49	###	143	0	###	0.9	111	20	4	0	135	0.8	###	452	###
7:15 AM - 8:15 AM	24	###	18	0	###	0.9	31	52	247	0	330	0.9	49	###	161	0	###	0.9	122	25	3	0	150	0.8	###	480	###
7:30 AM - 8:30 AM	30	###	17	0	###	0.9	30	46	246	0	322	0.9	53	###	174	0	###	1	139	26	11	0	176	0.9	###	498	###
7:45 AM - 8:45 AM	32	###	20	0	###	0.9	33	44	238	0	315	0.9	63	###	170	0	###	0.9	142	26	13	0	181	0.9	###	496	###
8:00 AM - 9:00 AM	39	###	17	0	###	0.9	35	28	217	0	280	0.9	57	###	175	0	###	1	138	23	18	0	179	0.9	###	459	###
8:15 AM - 9:15 AM	42	###	15	0	###	0.9	33	69	187	0	289	0.8	53	###	147	0	###	1	128	15	21	0	164	0.8	###	453	###
8:30 AM - 9:30 AM	32	960	18	0	###	0.9	35	67	171	0	273	0.8	65	###	124	0	###	1	111	14	16	0	141	0.8	###	414	###
4:00 PM - 5:00 PM	11	###	1	0	###	0.9	44	15	143	0	202	1	86	###	36	0	###	0.9	390	4	21	0	415	0.8	###	617	###
4:15 PM - 5:15 PM	11	###	1	0	###	0.9	45	21	135	0	201	0.9	85	###	33	0	###	0.9	375	3	25	0	403	0.9	###	604	###
4:30 PM - 5:30 PM	9	###	1	0	###	0.9	40	24	147	0	211	0.9	89	###	33	0	###	0.9	351	6	32	0	389	0.8	###	600	###
4:45 PM - 5:45 PM	10	###	1	0	###	0.9	39	24	146	0	209	0.9	106	###	30	0	###	0.9	345	3	31	0	379	0.8	###	588	###
5:00 PM - 6:00 PM	13	###	2	0	###	0.9	48	22	137	0	207	0.8	108	###	29	0	###	0.9	311	4	30	0	345	0.7	###	552	###
5:15 PM - 6:15 PM	13	###	2	0	###	0.9	46	21	146	0	213	0.9	119	###	29	0	###	0.9	259	5	23	0	287	0.8	###	500	###
5:30 PM - 6:30 PM	14	###	2	0	###	0.9	45	21	136	0	202	0.9	123	###	26	0	###	0.9	234	4	18	0	256	0.8	###	458	###
5:45 PM - 6:45 PM	12	###	1	0	###	0.9	45	23	152	0	220	0.8	132	###	21	0	###	0.9	203	4	15	0	222	0.9	###	442	###
6:00 PM - 7:00 PM	9	###	0	0	###	0.9	32	22	146	0	200	0.8	144	###	21	0	###	0.9	182	4	16	0	202	0.8	###	402	###
6:15 PM - 7:15 PM	6	975	0	0	981	0.7	24	16	106	0	146	0.6	111	878	13	0	###	0.7	126	3	13	0	142	0.6	###	288	###
6:30 PM - 7:30 PM	3	643	0	0	646	0.5	13	12	71	0	96	0.4	83	572	10	0	665	0.5	72	1	8	0	81	0.5	###	177	###

Wells + Associates, Inc.

Tysons, Virginia

Turning Movement Count - Bicycles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Seminary Rd. & Mark Center Ave
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Majda
INPUTED BY: agan
OUTHBOUND ROAD: Seminary Road
ORTHBOUND ROAD: Seminary Road
WESTBOUND ROAD: Mark Center Avenue
EASTBOUND ROAD: Mark Center Avenue

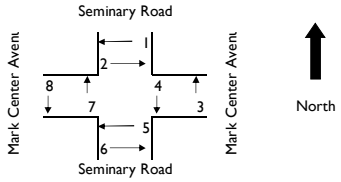
Time Period	Southbound Seminary Road				Westbound Mark Center Avenue				Northbound Seminary Road				Eastbound Mark Center Avenue				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0				0				0				0	0	0	0
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0				0		1		1				0	1	0	1
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0		1		1				0				0	0	1	1
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM				0				0				0	2			2	0	2	2
4:30 PM - 4:45 PM		1		1				0				0				0	1	0	1
4:45 PM - 5:00 PM		1		1			1	1				0				0	1	1	2
5:00 PM - 5:15 PM		1		1				0				0	1			1	1	1	2
5:15 PM - 5:30 PM				0				0		1		1	1		1	2	1	2	3
5:30 PM - 5:45 PM				0				0				0	1		1	2	0	2	2
5:45 PM - 6:00 PM				0				0	1	1		2				0	2	0	2
6:00 PM - 6:15 PM		1		1				0	1			1				0	2	0	2
6:15 PM - 6:30 PM				0				0		1		1				0	1	0	1
6:30 PM - 6:45 PM				0				0				0	1			1	0	1	1
6:45 PM - 7:00 PM		1		1				0		1		1				0	2	0	2
Total	0	5	0	5	0	1	1	2	2	5	0	7	6	0	2	8	12	10	22
One Hour Volumes																			
6:30 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
8:15 AM - 9:15 AM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	1	1	2
8:30 AM - 9:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
4:00 PM - 5:00 PM	0	2	0	2	0	0	1	1	0	0	0	0	2	0	0	2	2	3	5
4:15 PM - 5:15 PM	0	3	0	3	0	0	1	1	0	0	0	0	3	0	0	3	3	4	7
4:30 PM - 5:30 PM	0	3	0	3	0	0	1	1	0	1	0	1	2	0	1	3	4	4	8
4:45 PM - 5:45 PM	0	2	0	2	0	0	1	1	0	1	0	1	3	0	2	5	3	6	9
5:00 PM - 6:00 PM	0	1	0	1	0	0	0	0	1	2	0	3	3	0	2	5	4	5	9
5:15 PM - 6:15 PM	0	1	0	1	0	0	0	0	2	2	0	4	2	0	2	4	5	4	9
5:30 PM - 6:30 PM	0	1	0	1	0	0	0	0	2	2	0	4	1	0	1	2	5	2	7
5:45 PM - 6:45 PM	0	1	0	1	0	0	0	0	2	2	0	4	1	0	0	1	5	1	6
6:00 PM - 7:00 PM	0	2	0	2	0	0	0	0	1	2	0	3	1	0	0	1	5	1	6

Wells + Associates, Inc.

Tysons, Virginia

Pedestrian Volume Survey

PROJECT: Mark Residental
W + A JOB NO: 8849
INTERSECTION: Seminary Rd. & Mark Center Ave.
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Michael
INPUTED BY: agan



Time Period		Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes														
6:30 AM	- 6:45 AM		1	3	3					1	6	0	0	7
6:45 AM	- 7:00 AM	1			1					1	1	0	0	2
7:00 AM	- 7:15 AM	1		5						1	5	0	0	6
7:15 AM	- 7:30 AM	6	1	4	2					7	6	0	0	13
7:30 AM	- 7:45 AM	2		2	1					2	3	0	0	5
7:45 AM	- 8:00 AM	3		4	2					3	6	0	0	9
8:00 AM	- 8:15 AM	1	2	1	1					3	2	0	0	5
8:15 AM	- 8:30 AM	2		2	1					2	3	0	0	5
8:30 AM	- 8:45 AM	2		2	1					2	3	0	0	5
8:45 AM	- 9:00 AM	2			1					2	1	0	0	3
9:00 AM	- 9:15 AM	1	1	2						2	2	0	0	4
9:15 AM	- 9:30 AM	1	4	2						5	2	0	0	7
4:00 PM	- 4:15 PM	1	11	1	12					12	13	0	0	25
4:15 PM	- 4:30 PM		4		3					4	3	0	0	7
4:30 PM	- 4:45 PM		3							3	0	0	0	3
4:45 PM	- 5:00 PM	1	9		6					10	6	0	0	16
5:00 PM	- 5:15 PM	1	7		4					8	4	0	0	12
5:15 PM	- 5:30 PM	2	2	1	3			1		4	4	0	1	9
5:30 PM	- 5:45 PM		6	2	1					6	3	0	0	9
5:45 PM	- 6:00 PM	1	3	2	3					4	5	0	0	9
6:00 PM	- 6:15 PM		3		1					3	1	0	0	4
6:15 PM	- 6:30 PM	2	1	3	1					3	4	0	0	7
6:30 PM	- 6:45 PM		1	2	3					1	5	0	0	6
6:45 PM	- 7:00 PM	1		2	2					1	4	0	0	5
Total		31	59	40	52	0	0	1	0	90	92	0	1	183
One Hour Volumes														
6:30 AM	- 7:30 AM	8	2	12	6	0	0	0	0	10	18	0	0	28
6:45 AM	- 7:45 AM	10	1	11	4	0	0	0	0	11	15	0	0	26
7:00 AM	- 8:00 AM	12	1	15	5	0	0	0	0	13	20	0	0	33
7:15 AM	- 8:15 AM	12	3	11	6	0	0	0	0	15	17	0	0	32
7:30 AM	- 8:30 AM	8	2	9	5	0	0	0	0	10	14	0	0	24
7:45 AM	- 8:45 AM	8	2	9	5	0	0	0	0	10	14	0	0	24
8:00 AM	- 9:00 AM	7	2	5	4	0	0	0	0	9	9	0	0	18
8:15 AM	- 9:15 AM	7	1	6	3	0	0	0	0	8	9	0	0	17
8:30 AM	- 9:30 AM	6	5	6	2	0	0	0	0	11	8	0	0	19
4:00 PM	- 5:00 PM	2	27	1	21	0	0	0	0	29	22	0	0	51
4:15 PM	- 5:15 PM	2	23	0	13	0	0	0	0	25	13	0	0	38
4:30 PM	- 5:30 PM	4	21	1	13	0	0	1	0	25	14	0	1	40
4:45 PM	- 5:45 PM	4	24	3	14	0	0	1	0	28	17	0	1	46
5:00 PM	- 6:00 PM	4	18	5	11	0	0	1	0	22	16	0	1	39
5:15 PM	- 6:15 PM	3	14	5	8	0	0	1	0	17	13	0	1	31
5:30 PM	- 6:30 PM	3	13	7	6	0	0	0	0	16	13	0	0	29
5:45 PM	- 6:45 PM	3	8	7	8	0	0	0	0	11	15	0	0	26
6:00 PM	- 7:00 PM	3	5	7	7	0	0	0	0	8	14	0	0	22

Wells + Associates,Inc

Tysons, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Mark Center Ave. & Hilton - Brac Access
LOCATION: City of Alexandria,VA

DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan

SOUTHBOUND ROAD: Hilton - Brac Access
NORTHBOUND ROAD: Driveway
WESTBOUND ROAD: Mark Center Avenue
EASTBOUND ROAD: Mark Center Avenue

Time Period	Southbound Hilton - Brac Access						Westbound Mark Center Avenue						Northbound Driveway						Eastbound Mark Center Avenue						North & South	East & West	Total
	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF			
15 Minute Volumes																											
6:30 AM - 6:45 AM	0	0	5	0	5		2	17	22	0	41		4	0	0	0	4		17	26	1	0	44		9	85	94
6:45 AM - 7:00 AM	0	1	2	0	3		4	19	42	0	65		7	0	0	0	7		16	27	1	0	44		10	109	119
7:00 AM - 7:15 AM	0	1	7	0	8		6	23	41	0	70		1	1	0	0	2		14	25	1	0	40		10	110	120
7:15 AM - 7:30 AM	0	1	2	0	3		1	28	33	0	62		0	0	0	0	0		18	23	2	0	43		3	105	108
7:30 AM - 7:45 AM	1	0	4	0	5		5	39	29	0	73		5	0	0	0	5		18	35	2	0	55		10	128	138
7:45 AM - 8:00 AM	0	0	4	0	4		3	31	25	0	59		4	0	0	0	4		26	43	0	0	69		8	128	136
8:00 AM - 8:15 AM	1	1	5	0	7		1	39	36	0	76		5	0	0	0	5		19	38	1	0	58		12	134	146
8:15 AM - 8:30 AM	1	0	4	0	5		0	42	30	0	72		7	1	1	0	9		18	39	0	0	57		14	129	143
8:30 AM - 8:45 AM	0	0	2	0	2		1	25	32	0	58		9	0	0	0	9		17	35	1	0	53		11	111	122
8:45 AM - 9:00 AM	0	0	2	0	2		4	32	34	0	70		7	0	1	0	8		26	29	2	0	57		10	127	137
9:00 AM - 9:15 AM	0	0	3	0	3		5	23	23	0	51		3	0	0	0	3		12	23	4	0	39		6	90	96
9:15 AM - 9:30 AM	1	0	8	0	9		2	21	15	0	38		2	0	0	0	2		14	21	1	0	36		11	74	85
4:00 PM - 4:15 PM	0	0	4	0	4		3	15	1	0	19		50	0	0	0	50		1	81	1	0	83		54	102	156
4:15 PM - 4:30 PM	0	1	4	0	5		3	8	4	0	15		42	0	1	0	43		1	67	0	0	68		48	83	131
4:30 PM - 4:45 PM	1	0	5	0	6		3	13	6	0	22		38	0	2	0	40		0	63	1	0	64		46	86	132
4:45 PM - 5:00 PM	0	0	6	0	6		4	17	2	0	23		40	0	0	0	40		0	59	1	0	60		46	83	129
5:00 PM - 5:15 PM	0	0	5	0	5		2	15	0	0	17		43	0	1	0	44		0	70	1	0	71		49	88	137
5:15 PM - 5:30 PM	0	0	7	0	7		3	12	6	0	21		37	0	0	0	37		1	57	0	0	58		44	79	123
5:30 PM - 5:45 PM	0	0	9	0	9		3	13	5	0	21		21	0	0	0	21		0	58	2	0	60		30	81	111
5:45 PM - 6:00 PM	1	1	9	0	11		4	23	3	0	30		23	0	0	0	23		0	45	3	0	48		34	78	112
6:00 PM - 6:15 PM	1	0	9	0	10		8	16	5	0	29		15	0	0	0	15		1	39	1	0	41		25	70	95
6:15 PM - 6:30 PM	3	0	9	0	12		8	8	2	0	18		12	0	0	0	12		0	43	2	0	45		24	63	87
6:30 PM - 6:45 PM	2	0	6	0	8		2	11	4	0	17		14	0	0	0	14		0	31	1	0	32		22	49	71
6:45 PM - 7:00 PM	3	0	12	0	15		7	12	1	0	20		5	0	0	0	5		0	25	0	0	25		20	45	65
7:00 PM - 7:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
7:15 PM - 7:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
Total	15	6	133	0	154		84	502	401	0	987		394	2	6	0	402		219	###	29	0	###		556	###	###
One Hour Volumes																											
6:30 AM - 7:30 AM	0	3	16	0	19	0.6	13	87	138	0	238	0.9	12	1	0	0	13	0.5	65	101	5	0	171	1	32	409	441
6:45 AM - 7:45 AM	1	3	15	0	19	0.6	16	109	145	0	270	0.9	13	1	0	0	14	0.5	66	110	6	0	182	0.8	33	452	485
7:00 AM - 8:00 AM	1	2	17	0	20	0.6	15	121	128	0	264	0.9	10	1	0	0	11	0.6	76	126	5	0	207	0.8	31	471	502
7:15 AM - 8:15 AM	2	2	15	0	19	0.7	10	137	123	0	270	0.9	14	0	0	0	14	0.7	81	139	5	0	225	0.8	33	495	528
7:30 AM - 8:30 AM	3	1	17	0	21	0.8	9	151	120	0	280	0.9	21	1	1	0	23	0.6	81	155	3	0	239	0.9	44	519	563
7:45 AM - 8:45 AM	2	1	15	0	18	0.6	5	137	123	0	265	0.9	25	1	1	0	27	0.8	80	155	2	0	237	0.9	45	502	547
8:00 AM - 9:00 AM	2	1	13	0	16	0.6	6	138	132	0	276	0.9	28	1	2	0	31	0.9	80	141	4	0	225	1	47	501	548
8:15 AM - 9:15 AM	1	0	11	0	12	0.6	10	122	119	0	251	0.9	26	1	2	0	29	0.8	73	126	7	0	206	0.9	41	457	498
8:30 AM - 9:30 AM	1	0	15	0	16	0.4	12	101	104	0	217	0.8	21	0	1	0	22	0.6	69	108	8	0	185	0.8	38	402	440
4:00 PM - 5:00 PM	1	1	19	0	21	0.9	13	53	13	0	79	0.9	170	0	3	0	173	0.9	2	270	3	0	275	0.8	194	354	548
4:15 PM - 5:15 PM	1	1	20	0	22	0.9	12	53	12	0	77	0.8	163	0	4	0	167	0.9	1	259	3	0	263	0.9	189	340	529
4:30 PM - 5:30 PM	1	0	23	0	24	0.9	12	57	14	0	83	0.9	158	0	3	0	161	0.9	1	249	3	0	253	0.9	185	336	521
4:45 PM - 5:45 PM	0	0	27	0	27	0.8	12	57	13	0	82	0.9	141	0	1	0	142	0.8	1	244	4	0	249	0.9	169	331	500
5:00 PM - 6:00 PM	1	1	30	0	32	0.7	12	63	14	0	89	0.7	124	0	1	0	125	0.7	1	230	6	0	237	0.8	157	326	483
5:15 PM - 6:15 PM	2	1	34	0	37	0.8	18	64	19	0	101	0.8	96	0	0	0	96	0.6	2	199	6	0	207	0.9	133	308	441
5:30 PM - 6:30 PM	5	1	36	0	42	0.9	23	60	15	0	98	0.8	71	0	0	0	71	0.8	1	185	8	0	194	0.8	113	292	405
5:45 PM - 6:45 PM	7	1	33	0	41	0.9	22	58	14	0	94	0.8	64	0	0	0	64	0.7	1	158	7	0	166	0.9	105	260	365
6:00 PM - 7:00 PM	9	0	36	0	45	0.8	25	47	12	0	84	0.7	46	0	0	0	46	0.8	1	138	4	0	143	0.8	91	227	318
6:15 PM - 7:15 PM	8	0	27	0	35	0.6	17	31	7	0	55	0.7	31	0	0	0	31	0.6	0	99	3	0	102	0.6	66	157	223
6:30 PM - 7:30 PM	5	0	18	0	23	0.4	9	23	5	0	37	0.5	19	0	0	0	19	0.3	0	56	1	0	57	0.4	42	94	136

Wells + Associates, Inc.

Tysons, Virginia

Turning Movement Count - Bicycles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Mark Center Ave. & Hilton Road
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan
OUTHBOUND ROAD: Hilton - Brac Access
ORTHBOUND ROAD: Driveway
WESTBOUND ROAD: Mark Center Avenue
EASTBOUND ROAD: Mark Center Avenue

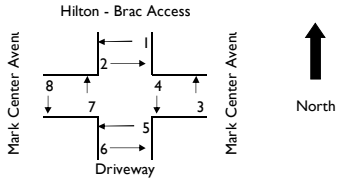
Time Period	Southbound Hilton - Brac Access				Westbound Mark Center Avenue				Northbound Driveway				Eastbound Mark Center Avenue				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0		1		1				0				0	0	1	1
7:00 AM - 7:15 AM				0		1		1				0				0	0	1	1
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0			1	1				0				0	0	1	1
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM				0				0				0		1		1	0	1	1
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0				0				0				0	0	0	0
5:00 PM - 5:15 PM				0				0	1			1				0	1	0	1
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM				0				0	1			1				0	1	0	1
5:45 PM - 6:00 PM				0	1			1				0				0	0	1	1
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	0	0	0	0	1	2	1	4	2	0	0	2	0	1	0	1	2	5	7
One Hour Volumes																			
6:30 AM - 7:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
6:45 AM - 7:45 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
7:00 AM - 8:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 9:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1
8:30 AM - 9:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1	1	2
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	1
4:45 PM - 5:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2	0	2
5:00 PM - 6:00 PM	0	0	0	0	1	0	0	1	2	0	0	2	0	0	0	0	2	1	3
5:15 PM - 6:15 PM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	1	1	2
5:30 PM - 6:30 PM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	1	1	2
5:45 PM - 6:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Wells + Associates, Inc.

Tysons, Virginia

Pedestrian Volume Survey

PROJECT: Mark Residental
W + A JOB NO: 8849
INTERSECTION: Mark Center Ave. & Hilton - Brac
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan



Time Period		Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes														
6:30 AM	- 6:45 AM	1		1	1	1	1			1	2	2	0	5
6:45 AM	- 7:00 AM	1			3	3			1	1	3	3	1	8
7:00 AM	- 7:15 AM	1	3		8	7				4	8	7	0	19
7:15 AM	- 7:30 AM	4	1		8	15			1	5	8	15	1	29
7:30 AM	- 7:45 AM	5	3		11	11		1	2	8	11	11	3	33
7:45 AM	- 8:00 AM	3	3		2	2			5	6	2	2	5	15
8:00 AM	- 8:15 AM	4	1		3	3				5	3	3	0	11
8:15 AM	- 8:30 AM	4	2		4	4				6	4	4	0	14
8:30 AM	- 8:45 AM	1	2		3	3				3	3	3	0	9
8:45 AM	- 9:00 AM	2	1		4	4	2			3	4	6	0	13
9:00 AM	- 9:15 AM		1		1	1	1	1		1	1	2	1	5
9:15 AM	- 9:30 AM				2	2	3			0	2	5	0	7
4:00 PM	- 4:15 PM		3	8			6			3	8	6	0	17
4:15 PM	- 4:30 PM	2	1	2			3		1	3	2	3	1	9
4:30 PM	- 4:45 PM		3	2			2		1	3	2	2	1	8
4:45 PM	- 5:00 PM	3	1	11			10	1		4	11	10	1	26
5:00 PM	- 5:15 PM	1	1	3	2	2	3			2	5	5	0	12
5:15 PM	- 5:30 PM			2	2		2	2		0	4	2	2	8
5:30 PM	- 5:45 PM	1	5				2	4		6	0	2	4	12
5:45 PM	- 6:00 PM	1	1	4			3	1		2	4	3	1	10
6:00 PM	- 6:15 PM			1			1	1		0	1	1	1	3
6:15 PM	- 6:30 PM	1	1				1	1		2	0	1	1	4
6:30 PM	- 6:45 PM	2	6		5					8	5	0	0	13
6:45 PM	- 7:00 PM	3								3	0	0	0	3
Total		40	39	34	59	58	40	12	11	79	93	98	23	293
One Hour Volumes														
6:30 AM	- 7:30 AM	7	4	1	20	26	1	0	2	11	21	27	2	61
6:45 AM	- 7:45 AM	11	7	0	30	36	0	1	4	18	30	36	5	89
7:00 AM	- 8:00 AM	13	10	0	29	35	0	1	8	23	29	35	9	96
7:15 AM	- 8:15 AM	16	8	0	24	31	0	1	8	24	24	31	9	88
7:30 AM	- 8:30 AM	16	9	0	20	20	0	1	7	25	20	20	8	73
7:45 AM	- 8:45 AM	12	8	0	12	12	0	0	5	20	12	12	5	49
8:00 AM	- 9:00 AM	11	6	0	14	14	2	0	0	17	14	16	0	47
8:15 AM	- 9:15 AM	7	6	0	12	12	3	1	0	13	12	15	1	41
8:30 AM	- 9:30 AM	3	4	0	10	10	6	1	0	7	10	16	1	34
4:00 PM	- 5:00 PM	5	8	23	0	0	21	1	2	13	23	21	3	60
4:15 PM	- 5:15 PM	6	6	18	2	2	18	1	2	12	20	20	3	55
4:30 PM	- 5:30 PM	4	5	18	4	2	17	3	1	9	22	19	4	54
4:45 PM	- 5:45 PM	5	7	16	4	2	17	7	0	12	20	19	7	58
5:00 PM	- 6:00 PM	3	7	9	4	2	10	7	0	10	13	12	7	42
5:15 PM	- 6:15 PM	2	6	7	2	0	8	8	0	8	9	8	8	33
5:30 PM	- 6:30 PM	3	7	5	0	0	7	7	0	10	5	7	7	29
5:45 PM	- 6:45 PM	4	8	5	5	0	5	3	0	12	10	5	3	30
6:00 PM	- 7:00 PM	6	7	1	5	0	2	2	0	13	6	2	2	23

Wells + Associates,Inc

Tysons, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Mark Center Ave. & Mark Center Dr.
LOCATION: City of Alexandria,VA

DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan

SOUTHBOUND ROAD: Mark Center Drive
NORTHBOUND ROAD: Mark Center Drive
WESTBOUND ROAD: Mark Center Avenue
EASTBOUND ROAD: 0

Time	Southbound Mark Center Drive					Westbound Mark Center Avenue					Northbound Mark Center Drive					Eastbound 0					North & South	East & West	Total
Period	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF			
15 Minute Volumes																											
6:30 AM - 6:45 AM	0	17	37	0	54		7	0	12	0	19		6	0	0	0	6		0	0	0	0	0		60	19	79
6:45 AM - 7:00 AM	0	27	37	0	64		6	0	11	0	17		7	1	0	0	8		0	0	0	0	0		72	17	89
7:00 AM - 7:15 AM	0	34	38	0	72		11	0	11	0	22		3	1	0	0	4		0	0	0	0	0		76	22	98
7:15 AM - 7:30 AM	0	36	44	0	80		16	0	10	0	26		6	0	0	0	6		0	0	0	0	0		86	26	112
7:30 AM - 7:45 AM	0	29	49	0	78		26	0	22	0	48		6	3	0	0	9		0	0	0	0	0		87	48	135
7:45 AM - 8:00 AM	0	44	57	0	101		27	0	7	0	34		11	0	0	0	11		0	0	0	0	0		112	34	146
8:00 AM - 8:15 AM	0	41	56	0	97		26	0	14	0	40		4	3	0	0	7		0	0	0	0	0		104	40	144
8:15 AM - 8:30 AM	0	39	54	0	93		31	0	19	0	50		7	1	0	0	8		0	0	0	0	0		101	50	151
8:30 AM - 8:45 AM	0	49	41	0	90		15	0	10	0	25		10	1	0	0	11		0	0	0	0	0		101	25	126
8:45 AM - 9:00 AM	0	46	49	0	95		11	0	21	0	32		7	3	0	0	10		0	0	0	0	0		105	32	137
9:00 AM - 9:15 AM	0	44	26	0	70		16	0	8	0	24		14	0	0	0	14		0	0	0	0	0		84	24	108
9:15 AM - 9:30 AM	0	25	26	0	51		11	0	11	0	22		9	2	0	0	11		0	0	0	0	0		62	22	84
4:00 PM - 4:15 PM	0	11	40	0	51		16	0	3	0	19		43	7	0	0	50		0	0	0	0	0		101	19	120
4:15 PM - 4:30 PM	0	3	27	0	30		9	0	2	0	11		40	15	0	0	55		0	0	0	0	0		85	11	96
4:30 PM - 4:45 PM	0	6	26	0	32		16	0	1	0	17		39	12	0	0	51		0	0	0	0	0		83	17	100
4:45 PM - 5:00 PM	0	2	36	0	38		19	0	3	0	22		33	9	0	0	42		0	0	0	0	0		80	22	102
5:00 PM - 5:15 PM	0	3	30	0	33		12	0	4	0	16		33	10	0	0	43		0	0	0	0	0		76	16	92
5:15 PM - 5:30 PM	0	1	31	0	32		11	0	2	0	13		29	8	0	0	37		0	0	0	0	0		69	13	82
5:30 PM - 5:45 PM	0	3	36	0	39		12	0	1	0	13		20	4	0	0	24		0	0	0	0	0		63	13	76
5:45 PM - 6:00 PM	0	2	31	0	33		16	0	1	0	17		16	5	0	0	21		0	0	0	0	0		54	17	71
6:00 PM - 6:15 PM	0	2	25	0	27		13	0	2	0	15		21	5	0	0	26		0	0	0	0	0		53	15	68
6:15 PM - 6:30 PM	0	0	26	0	26		8	0	1	0	9		18	1	0	0	19		0	0	0	0	0		45	9	54
6:30 PM - 6:45 PM	0	0	22	0	22		10	0	2	0	12		9	1	0	0	10		0	0	0	0	0		32	12	44
6:45 PM - 7:00 PM	0	2	18	0	20		12	0	2	0	14		9	3	0	0	12		0	0	0	0	0		32	14	46
7:00 PM - 7:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
7:15 PM - 7:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
Total	0	466	862	0	###		357	0	180	0	537		400	95	0	0	495		0	0	0	0	0		###	537	###
One Hour Volumes																											
6:30 AM - 7:30 AM	0	114	156	0	270	0.8	40	0	44	0	84	0.8	22	2	0	0	24	0.8	0	0	0	0	0		294	84	378
6:45 AM - 7:45 AM	0	126	168	0	294	0.9	59	0	54	0	113	0.6	22	5	0	0	27	0.8	0	0	0	0	0		321	113	434
7:00 AM - 8:00 AM	0	143	188	0	331	0.8	80	0	50	0	130	0.7	26	4	0	0	30	0.7	0	0	0	0	0		361	130	491
7:15 AM - 8:15 AM	0	150	206	0	356	0.9	95	0	53	0	148	0.8	27	6	0	0	33	0.8	0	0	0	0	0		389	148	537
7:30 AM - 8:30 AM	0	153	216	0	369	0.9	110	0	62	0	172	0.9	28	7	0	0	35	0.8	0	0	0	0	0		404	172	576
7:45 AM - 8:45 AM	0	173	208	0	381	0.9	99	0	50	0	149	0.7	32	5	0	0	37	0.8	0	0	0	0	0		418	149	567
8:00 AM - 9:00 AM	0	175	200	0	375	1	83	0	64	0	147	0.7	28	8	0	0	36	0.8	0	0	0	0	0		411	147	558
8:15 AM - 9:15 AM	0	178	170	0	348	0.9	73	0	58	0	131	0.7	38	5	0	0	43	0.8	0	0	0	0	0		391	131	522
8:30 AM - 9:30 AM	0	164	142	0	306	0.8	53	0	50	0	103	0.8	40	6	0	0	46	0.8	0	0	0	0	0		352	103	455
4:00 PM - 5:00 PM	0	22	129	0	151	0.7	60	0	9	0	69	0.8	155	43	0	0	198	0.9	0	0	0	0	0		349	69	418
4:15 PM - 5:15 PM	0	14	119	0	133	0.9	56	0	10	0	66	0.8	145	46	0	0	191	0.9	0	0	0	0	0		324	66	390
4:30 PM - 5:30 PM	0	12	123	0	135	0.9	58	0	10	0	68	0.8	134	39	0	0	173	0.8	0	0	0	0	0		308	68	376
4:45 PM - 5:45 PM	0	9	133	0	142	0.9	54	0	10	0	64	0.7	115	31	0	0	146	0.8	0	0	0	0	0		288	64	352
5:00 PM - 6:00 PM	0	9	128	0	137	0.9	51	0	8	0	59	0.9	98	27	0	0	125	0.7	0	0	0	0	0		262	59	321
5:15 PM - 6:15 PM	0	8	123	0	131	0.8	52	0	6	0	58	0.9	86	22	0	0	108	0.7	0	0	0	0	0		239	58	297
5:30 PM - 6:30 PM	0	7	118	0	125	0.8	49	0	5	0	54	0.8	75	15	0	0	90	0.9	0	0	0	0	0		215	54	269
5:45 PM - 6:45 PM	0	4	104	0	108	0.8	47	0	6	0	53	0.8	64	12	0	0	76	0.7	0	0	0	0	0		184	53	237
6:00 PM - 7:00 PM	0	4	91	0	95	0.9	43	0	7	0	50	0.8	57	10	0	0	67	0.6	0	0	0	0	0		162	50	212
6:15 PM - 7:15 PM	0	2	66	0	68	0.7	30	0	5	0	35	0.6	36	5	0	0	41	0.5	0	0	0	0	0		109	35	144
6:30 PM - 7:30 PM	0	2	40	0	42	0.5	22	0	4	0	26	0.5	18	4	0	0	22	0.5	0	0	0	0	0		64	26	90

Wells + Associates, Inc.

Tysons, Virginia

Turning Movement Count - Bicycles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Mark Center Ave. & Mark Center
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan
OUTHBOUND ROAD: Mark Center Drive
ORTHBOUND ROAD: Mark Center Drive
WESTBOUND ROAD: Mark Center Avenue
EASTBOUND ROAD: 0

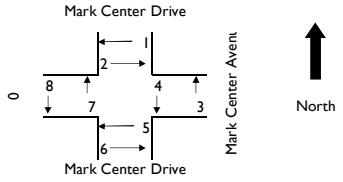
Time Period	Southbound Mark Center Drive				Westbound Mark Center Avenue				Northbound Mark Center Drive				Eastbound 0				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM		1		1				0				0				0	1	0	1
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM		1		1				0				0				0	1	0	1
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0		1		1				0	1	0	1
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0				0				0				0	0	0	0
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM				0				0	1			1				0	1	0	1
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0				0				0				0	0	0	0
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0				0				0				0	0	0	0
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	0	2	0	2	0	0	0	0	1	1	0	2	0	0	0	0	4	0	4
One Hour Volumes																			
6:30 AM - 7:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
6:45 AM - 7:45 AM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
7:00 AM - 8:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM - 8:15 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2
7:30 AM - 8:30 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	1
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	1
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Wells + Associates, Inc.

Tysons, Virginia

Pedestrian Volume Survey

PROJECT: Mark Residental
W + A JOB NO: 8849
INTERSECTION: Mark Center Ave. & Mark Center
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan



Time Period		Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes														
6:30 AM	- 6:45 AM				1					0	1	0	0	1
6:45 AM	- 7:00 AM				4		1		2	0	4	1	2	7
7:00 AM	- 7:15 AM				1		1		1	0	1	1	1	3
7:15 AM	- 7:30 AM			1	2					0	3	0	0	3
7:30 AM	- 7:45 AM			2	4			1	1	0	6	0	2	8
7:45 AM	- 8:00 AM			1	1		2	1	2	0	2	2	3	7
8:00 AM	- 8:15 AM			1	1		5	1	5	0	2	5	6	13
8:15 AM	- 8:30 AM			2	2		1		1	0	4	1	1	6
8:30 AM	- 8:45 AM				1		1			0	1	1	0	2
8:45 AM	- 9:00 AM					1	4	1	4	0	0	5	5	10
9:00 AM	- 9:15 AM						2		2	0	0	2	2	4
9:15 AM	- 9:30 AM					3	1	3	1	0	0	4	4	8
4:00 PM	- 4:15 PM			1		1		1		0	1	1	1	3
4:15 PM	- 4:30 PM			3						0	3	0	0	3
4:30 PM	- 4:45 PM			1		1		1		0	1	1	1	3
4:45 PM	- 5:00 PM			1	1	2		2		0	2	2	2	6
5:00 PM	- 5:15 PM			2	2	1	1		2	0	4	2	2	8
5:15 PM	- 5:30 PM				1					0	1	0	0	1
5:30 PM	- 5:45 PM			1		3		3		0	1	3	3	7
5:45 PM	- 6:00 PM					2	1	2	1	0	0	3	3	6
6:00 PM	- 6:15 PM						1		1	0	0	1	1	2
6:15 PM	- 6:30 PM									0	0	0	0	0
6:30 PM	- 6:45 PM					1		2	2	0	0	1	4	5
6:45 PM	- 7:00 PM					1	1	1	2	0	0	2	3	5
Total		0	0	16	21	16	22	19	27	0	37	38	46	121
One Hour Volumes														
6:30 AM	- 7:30 AM	0	0	1	8	0	2	0	3	0	9	2	3	14
6:45 AM	- 7:45 AM	0	0	3	11	0	2	1	4	0	14	2	5	21
7:00 AM	- 8:00 AM	0	0	4	8	0	3	2	4	0	12	3	6	21
7:15 AM	- 8:15 AM	0	0	5	8	0	7	3	8	0	13	7	11	31
7:30 AM	- 8:30 AM	0	0	6	8	0	8	3	9	0	14	8	12	34
7:45 AM	- 8:45 AM	0	0	4	5	0	9	2	8	0	9	9	10	28
8:00 AM	- 9:00 AM	0	0	3	4	1	11	2	10	0	7	12	12	31
8:15 AM	- 9:15 AM	0	0	2	3	1	8	1	7	0	5	9	8	22
8:30 AM	- 9:30 AM	0	0	0	1	4	8	4	7	0	1	12	11	24
4:00 PM	- 5:00 PM	0	0	6	1	4	0	4	0	0	7	4	4	15
4:15 PM	- 5:15 PM	0	0	7	3	4	1	3	2	0	10	5	5	20
4:30 PM	- 5:30 PM	0	0	4	4	4	1	3	2	0	8	5	5	18
4:45 PM	- 5:45 PM	0	0	4	4	6	1	5	2	0	8	7	7	22
5:00 PM	- 6:00 PM	0	0	3	3	6	2	5	3	0	6	8	8	22
5:15 PM	- 6:15 PM	0	0	1	1	5	2	5	2	0	2	7	7	16
5:30 PM	- 6:30 PM	0	0	1	0	5	2	5	2	0	1	7	7	15
5:45 PM	- 6:45 PM	0	0	0	0	3	2	4	4	0	0	5	8	13
6:00 PM	- 7:00 PM	0	0	0	0	2	2	3	5	0	0	4	8	12

Wells + Associates,Inc

Tysons, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Seminary Rd. & N. Beauregard St.
LOCATION: City of Alexandria,VA

DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Tyler,Austin & Wal
INPUTED BY: agan

SOUTHBOUND ROAD: Seminary Road
NORTHBOUND ROAD: Seminary Road
WESTBOUND ROAD: North Beauregard Street
EASTBOUND ROAD: North Beauregard Street

Time Period	Southbound Seminary Road						Westbound North Beauregard Street						Northbound Seminary Road						Eastbound North Beauregard Street						North & South	East & West	Total
	Right	Thru	Left	I-Turn	Total	PHF	Right	Thru	Left	I-Turn	Total	PHF	Right	Thru	Left	I-Turn	Total	PHF	Right	Thru	Left	I-Turn	Total	PHF			
15 Minute Volumes																											
6:30 AM - 6:45 AM	10	117	5	0	132		8	15	8	0	31		16	173	76	0	265		61	11	39	0	111		397	142	539
6:45 AM - 7:00 AM	23	140	1	0	164		8	22	10	0	40		12	169	58	0	239		51	14	39	0	104		403	144	547
7:00 AM - 7:15 AM	29	175	6	0	210		5	20	19	0	44		24	200	98	0	322		52	28	51	0	131		532	175	707
7:15 AM - 7:30 AM	32	165	5	0	202		9	33	17	0	59		18	147	106	0	271		48	22	51	0	121		473	180	653
7:30 AM - 7:45 AM	23	208	1	0	232		8	51	16	0	75		19	135	91	0	245		55	52	62	0	169		477	244	721
7:45 AM - 8:00 AM	17	185	4	0	206		14	48	23	0	85		31	161	141	0	333		53	55	47	0	155		539	240	779
8:00 AM - 8:15 AM	20	199	8	0	227		8	35	21	0	64		30	167	146	0	343		54	73	56	0	183		570	247	817
8:15 AM - 8:30 AM	29	171	5	0	205		10	27	15	0	52		23	193	106	0	322		49	43	76	0	168		527	220	747
8:30 AM - 8:45 AM	26	184	6	0	216		10	33	14	0	57		19	111	122	0	252		30	42	50	0	122		468	179	647
8:45 AM - 9:00 AM	15	177	14	0	206		13	31	19	0	63		18	179	127	0	324		44	47	58	0	149		530	212	742
9:00 AM - 9:15 AM	14	145	9	0	168		10	27	12	0	49		20	194	120	0	334		36	35	51	0	122		502	171	673
9:15 AM - 9:30 AM	17	151	2	0	170		10	26	6	0	42		21	204	96	0	321		63	21	62	0	146		491	188	679
4:00 PM - 4:15 PM	60	266	17	0	343		13	48	27	0	88		20	204	104	0	328		59	37	67	0	163		671	251	922
4:15 PM - 4:30 PM	92	257	11	0	360		9	54	30	0	93		30	169	89	0	288		65	25	70	0	160		648	253	901
4:30 PM - 4:45 PM	75	271	15	0	361		19	59	24	0	102		19	180	81	0	280		72	48	59	0	179		641	281	922
4:45 PM - 5:00 PM	61	257	14	0	332		13	45	29	0	87		18	213	85	0	316		71	39	69	0	179		648	266	914
5:00 PM - 5:15 PM	91	232	10	0	333		12	59	26	0	97		18	189	79	0	286		79	46	51	0	176		619	273	892
5:15 PM - 5:30 PM	103	302	15	0	420		16	65	39	0	120		16	211	74	0	301		42	23	86	0	151		721	271	992
5:30 PM - 5:45 PM	87	249	8	0	344		24	58	43	0	125		13	147	74	0	234		28	54	61	0	143		578	268	846
5:45 PM - 6:00 PM	98	301	17	0	416		12	59	35	0	106		18	180	75	0	273		32	44	81	0	157		689	263	952
6:00 PM - 6:15 PM	78	265	14	0	357		13	35	37	0	85		19	206	90	0	315		53	34	57	0	144		672	229	901
6:15 PM - 6:30 PM	73	259	9	0	341		13	44	23	0	80		10	220	50	0	280		24	40	48	0	112		621	192	813
6:30 PM - 6:45 PM	66	221	11	0	298		13	27	21	0	61		27	289	72	0	388		56	19	69	0	144		686	205	891
6:45 PM - 7:00 PM	47	233	17	0	297		15	41	19	0	75		14	181	81	0	276		38	42	39	0	119		573	194	767
7:00 PM - 7:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
7:15 PM - 7:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
Total	###	###	224	0	###		285	962	533	0	###		473	###	###	0	###		###	894	###	0	###		###	###	###
One Hour Volumes																											
6:30 AM - 7:30 AM	94	597	17	0	708	0.8	30	90	54	0	174	0.7	70	689	338	0	###	0.9	212	75	180	0	467	0.9	###	641	###
6:45 AM - 7:45 AM	107	688	13	0	808	0.9	30	126	62	0	218	0.7	73	651	353	0	###	0.8	206	116	203	0	525	0.8	###	743	###
7:00 AM - 8:00 AM	101	733	16	0	850	0.9	36	152	75	0	263	0.8	92	643	436	0	###	0.9	208	157	211	0	576	0.9	###	839	###
7:15 AM - 8:15 AM	92	757	18	0	867	0.9	39	167	77	0	283	0.8	98	610	484	0	###	0.9	210	202	216	0	628	0.9	###	911	###
7:30 AM - 8:30 AM	89	763	18	0	870	0.9	40	161	75	0	276	0.8	103	656	484	0	###	0.9	211	223	241	0	675	0.9	###	951	###
7:45 AM - 8:45 AM	92	739	23	0	854	0.9	42	143	73	0	258	0.8	103	632	515	0	###	0.9	186	213	229	0	628	0.9	###	886	###
8:00 AM - 9:00 AM	90	731	33	0	854	0.9	41	126	69	0	236	0.9	90	650	501	0	###	0.9	177	205	240	0	622	0.8	###	858	###
8:15 AM - 9:15 AM	84	677	34	0	795	0.9	43	118	60	0	221	0.9	80	677	475	0	###	0.9	159	167	235	0	561	0.8	###	782	###
8:30 AM - 9:30 AM	72	657	31	0	760	0.9	43	117	51	0	211	0.8	78	688	465	0	###	0.9	173	145	221	0	539	0.9	###	750	###
4:00 PM - 5:00 PM	288	###	57	0	###	1	54	206	110	0	370	0.9	87	766	359	0	###	0.9	267	149	265	0	681	1	###	###	###
4:15 PM - 5:15 PM	319	###	50	0	###	1	53	217	109	0	379	0.9	85	751	334	0	###	0.9	287	158	249	0	694	1	###	###	###
4:30 PM - 5:30 PM	330	###	54	0	###	0.9	60	228	118	0	406	0.8	71	793	319	0	###	0.9	264	156	265	0	685	1	###	###	###
4:45 PM - 5:45 PM	342	###	47	0	###	0.9	65	227	137	0	429	0.9	65	760	312	0	###	0.9	220	162	267	0	649	0.9	###	###	###
5:00 PM - 6:00 PM	379	###	50	0	###	0.9	64	241	143	0	448	0.9	65	727	302	0	###	0.9	181	167	279	0	627	0.9	###	###	###
5:15 PM - 6:15 PM	366	###	54	0	###	0.9	65	217	154	0	436	0.9	66	744	313	0	###	0.9	155	155	285	0	595	0.9	###	###	###
5:30 PM - 6:30 PM	336	###	48	0	###	0.9	62	196	138	0	396	0.8	60	753	289	0	###	0.9	137	172	247	0	556	0.9	###	952	###
5:45 PM - 6:45 PM	315	###	51	0	###	0.8	51	165	116	0	332	0.8	74	895	287	0	###	0.8	165	137	255	0	557	0.9	###	889	###
6:00 PM - 7:00 PM	264	978	51	0	###	0.9	54	147	100	0	301	0.9	70	896	293	0	###	0.8	171	135	213	0	519	0.9	###	820	###
6:15 PM - 7:15 PM	186	713	37	0	936	0.7	41	112	63	0	216	0.7	51	690	203	0	944	0.6	118	101	156	0	375	0.7	###	591	###
6:30 PM - 7:30 PM	113	454	28	0	595	0.5	28	68	40	0	136	0.5	41	470	153	0	664	0.4	94	61	108	0	263	0.5	###	399	###

Wells + Associates, Inc.

Tysons, Virginia

Turning Movement Count - Bicycles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Seminary Rd. & N. Beauregard St.
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Walter
INPUTED BY: agan
OUTHBOUND ROAD: Seminary Road
ORTHBOUND ROAD: Seminary Road
WESTBOUND ROAD: North Beauregard Street
EASTBOUND ROAD: North Beauregard Street

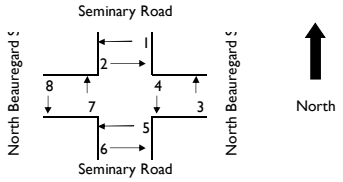
Time Period	Southbound Seminary Road				Westbound North Beauregard Street				Northbound Seminary Road				Eastbound North Beauregard Street				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0				0				0				0	0	0	0
7:00 AM - 7:15 AM				0				0				0		1		1	0	1	1
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0		1		1		1		1				0	1	1	2
8:30 AM - 8:45 AM		1		1				0				0				0	1	0	1
8:45 AM - 9:00 AM		1		1				0				0				0	1	0	1
9:00 AM - 9:15 AM		1		1				0			1	1				0	2	0	2
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM				0		1		1				0				0	0	1	1
4:30 PM - 4:45 PM		1		1		1		1				0		1		1	1	2	3
4:45 PM - 5:00 PM				0		1		1				0		2		2	0	3	3
5:00 PM - 5:15 PM		1		1				0				0		1		1	1	1	2
5:15 PM - 5:30 PM				0		1		1				0				0	0	1	1
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0		1		1				0				0	0	1	1
6:00 PM - 6:15 PM				0		1		1				0				0	0	1	1
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM		1		1		1		1				0				0	1	1	2
6:45 PM - 7:00 PM				0				0			1	1				0	1	0	1
Total	0	6	0	6	0	8	0	8	0	1	2	3	0	5	0	5	9	13	22
One Hour Volumes																			
6:30 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
6:45 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 8:30 AM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	1	1	2
7:45 AM - 8:45 AM	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	2	1	3
8:00 AM - 9:00 AM	0	2	0	2	0	1	0	1	0	1	0	1	0	0	0	0	3	1	4
8:15 AM - 9:15 AM	0	3	0	3	0	1	0	1	0	1	1	2	0	0	0	0	5	1	6
8:30 AM - 9:30 AM	0	3	0	3	0	0	0	0	0	0	1	1	0	0	0	0	4	0	4
4:00 PM - 5:00 PM	0	1	0	1	0	3	0	3	0	0	0	0	0	3	0	3	1	6	7
4:15 PM - 5:15 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	4	0	4	2	7	9
4:30 PM - 5:30 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	4	0	4	2	7	9
4:45 PM - 5:45 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	3	0	3	1	5	6
5:00 PM - 6:00 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	1	0	1	1	3	4
5:15 PM - 6:15 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	3	3
5:30 PM - 6:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
5:45 PM - 6:45 PM	0	1	0	1	0	3	0	3	0	0	0	0	0	0	0	0	1	3	4
6:00 PM - 7:00 PM	0	1	0	1	0	2	0	2	0	0	1	1	0	0	0	0	2	2	4

Wells + Associates, Inc.

Tysons, Virginia

Pedestrian Volume Survey

PROJECT: Mark Residental
W + A JOB NO: 8849
INTERSECTION: Seminary Rd. & N. Beauregard St.
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Walter
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:30 AM - 6:45 AM		1		1					1	1	0	0	2
6:45 AM - 7:00 AM					2	1			0	0	3	0	3
7:00 AM - 7:15 AM			1			1			0	1	1	0	2
7:15 AM - 7:30 AM			1	1	1		1	1	0	2	1	2	5
7:30 AM - 7:45 AM			2		2	1		1	0	2	3	1	6
7:45 AM - 8:00 AM				1	1				0	1	1	0	2
8:00 AM - 8:15 AM	1		1			3		2	1	1	3	2	7
8:15 AM - 8:30 AM	1	1	2						2	2	0	0	4
8:30 AM - 8:45 AM	1		1	2	1			1	1	3	1	1	6
8:45 AM - 9:00 AM		3	2	2	1				3	4	1	0	8
9:00 AM - 9:15 AM	2		2			1			2	2	1	0	5
9:15 AM - 9:30 AM	1	2	1						3	1	0	0	4
4:00 PM - 4:15 PM	1	1	1	1	1				2	2	1	0	5
4:15 PM - 4:30 PM	1						1		1	0	0	1	2
4:30 PM - 4:45 PM	1		1		1				1	1	1	0	3
4:45 PM - 5:00 PM	1	1	2	1	1				2	3	1	0	6
5:00 PM - 5:15 PM		3				3			3	0	3	0	6
5:15 PM - 5:30 PM		1	2		1				1	2	1	0	4
5:30 PM - 5:45 PM					3			1	0	0	3	1	4
5:45 PM - 6:00 PM		3	1	5		1			3	6	1	0	10
6:00 PM - 6:15 PM				2		4			0	2	4	0	6
6:15 PM - 6:30 PM		1	1	1	1	1			1	2	2	0	5
6:30 PM - 6:45 PM			1			3			0	1	3	0	4
6:45 PM - 7:00 PM			4	2		6	1		0	6	6	1	13
Total	10	17	26	19	16	25	3	6	27	45	41	9	122
One Hour Volumes													
6:30 AM - 7:30 AM	0	1	2	2	3	2	1	1	1	4	5	2	12
6:45 AM - 7:45 AM	0	0	4	1	5	3	1	2	0	5	8	3	16
7:00 AM - 8:00 AM	0	0	4	2	4	2	1	2	0	6	6	3	15
7:15 AM - 8:15 AM	1	0	4	2	4	4	1	4	1	6	8	5	20
7:30 AM - 8:30 AM	2	1	5	1	3	4	0	3	3	6	7	3	19
7:45 AM - 8:45 AM	3	1	4	3	2	3	0	3	4	7	5	3	19
8:00 AM - 9:00 AM	3	4	6	4	2	3	0	3	7	10	5	3	25
8:15 AM - 9:15 AM	4	4	7	4	2	1	0	1	8	11	3	1	23
8:30 AM - 9:30 AM	4	5	6	4	2	1	0	1	9	10	3	1	23
4:00 PM - 5:00 PM	4	2	4	2	3	0	1	0	6	6	3	1	16
4:15 PM - 5:15 PM	3	4	3	1	2	3	1	0	7	4	5	1	17
4:30 PM - 5:30 PM	2	5	5	1	3	3	0	0	7	6	6	0	19
4:45 PM - 5:45 PM	1	5	4	1	5	3	0	1	6	5	8	1	20
5:00 PM - 6:00 PM	0	7	3	5	4	4	0	1	7	8	8	1	24
5:15 PM - 6:15 PM	0	4	3	7	4	5	0	1	4	10	9	1	24
5:30 PM - 6:30 PM	0	4	2	8	4	6	0	1	4	10	10	1	25
5:45 PM - 6:45 PM	0	4	3	8	1	9	0	0	4	11	10	0	25
6:00 PM - 7:00 PM	0	1	6	5	1	14	1	0	1	11	15	1	28

Wells + Associates,Inc

Tysons, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: N. Beauregard St. & Mark Center Dr.
LOCATION: City of Alexandria,VA

DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan

SOUTHBOUND ROAD: Mark Center Drive
NORTHBOUND ROAD: Mark Center Drive
WESTBOUND ROAD: North Beauregard Street
EASTBOUND ROAD: North Beauregard Street

Time Period	Southbound Mark Center Drive						Westbound North Beauregard Street						Northbound Mark Center Drive						Eastbound North Beauregard Street						North & South	East & West	Total
	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF			
15 Minute Volumes																											
6:30 AM - 6:45 AM	0	0	6	0	6		0	54	58	0	112		3	0	1	0	4		10	115	0	0	125		10	237	247
6:45 AM - 7:00 AM	0	0	7	0	7		1	105	40	0	146		4	1	8	0	13		7	101	0	0	108		20	254	274
7:00 AM - 7:15 AM	0	0	2	0	2		4	114	48	0	166		8	2	3	0	13		14	160	1	0	175		15	341	356
7:15 AM - 7:30 AM	0	1	4	0	5		3	145	58	0	206		7	0	4	0	11		9	145	0	0	154		16	360	376
7:30 AM - 7:45 AM	0	0	4	0	4		6	128	57	0	191		11	1	6	0	18		23	215	2	0	240		22	431	453
7:45 AM - 8:00 AM	1	0	3	0	4		9	132	71	0	212		7	0	4	0	11		28	255	2	0	285		15	497	512
8:00 AM - 8:15 AM	2	0	10	0	12		7	137	72	0	216		14	0	9	0	23		13	232	5	0	250		35	466	501
8:15 AM - 8:30 AM	0	0	8	0	8		11	107	66	0	184		15	1	7	0	23		23	207	2	0	232		31	416	447
8:30 AM - 8:45 AM	1	1	6	0	8		6	109	82	0	197		8	1	7	0	16		13	190	2	0	205		24	402	426
8:45 AM - 9:00 AM	4	0	7	0	11		8	123	58	0	189		8	1	5	0	14		17	175	4	0	196		25	385	410
9:00 AM - 9:15 AM	3	0	8	0	11		9	118	66	0	193		10	0	4	0	14		14	116	1	0	131		25	324	349
9:15 AM - 9:30 AM	1	0	4	0	5		7	94	49	0	150		13	0	6	0	19		9	147	2	0	158		24	308	332
4:00 PM - 4:15 PM	0	0	13	0	13		0	182	25	0	207		23	0	11	0	34		0	171	0	0	171		47	378	425
4:15 PM - 4:30 PM	0	1	11	0	12		2	209	28	0	239		21	0	17	0	38		2	161	1	0	164		50	403	453
4:30 PM - 4:45 PM	0	0	12	0	12		2	198	21	0	221		24	0	13	0	37		3	195	1	0	199		49	420	469
4:45 PM - 5:00 PM	2	0	10	0	12		1	180	22	0	203		13	0	9	0	22		2	184	1	0	187		34	390	424
5:00 PM - 5:15 PM	1	1	11	0	13		3	181	24	0	208		21	1	11	0	33		2	185	2	0	189		46	397	443
5:15 PM - 5:30 PM	1	0	4	0	5		4	226	26	0	256		19	0	16	0	35		3	176	0	0	179		40	435	475
5:30 PM - 5:45 PM	1	0	3	0	4		7	187	19	0	213		23	1	8	0	32		5	205	0	0	210		36	423	459
5:45 PM - 6:00 PM	0	0	9	0	9		6	181	21	0	208		15	0	11	0	26		4	153	2	0	159		35	367	402
6:00 PM - 6:15 PM	0	0	9	0	9		5	174	14	0	193		11	0	9	0	20		4	199	2	0	205		29	398	427
6:15 PM - 6:30 PM	3	0	7	0	10		4	129	18	0	151		10	0	8	0	18		3	152	1	0	156		28	307	335
6:30 PM - 6:45 PM	2	0	8	0	10		4	132	18	0	154		8	0	6	0	14		5	170	2	0	177		24	331	355
6:45 PM - 7:00 PM	1	0	7	0	8		4	145	15	0	164		8	1	4	0	13		5	150	0	0	155		21	319	340
7:00 PM - 7:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
7:15 PM - 7:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
Total	23	4	173	0	200		113	###	976	0	###		304	10	187	0	501		218	###	33	0	###		701	###	###
One Hour Volumes																											
6:30 AM - 7:30 AM	0	1	19	0	20	0.7	8	418	204	0	630	0.8	22	3	16	0	41	0.8	40	521	1	0	562	0.8	61	###	###
6:45 AM - 7:45 AM	0	1	17	0	18	0.6	14	492	203	0	709	0.9	30	4	21	0	55	0.8	53	621	3	0	677	0.7	73	###	###
7:00 AM - 8:00 AM	1	1	13	0	15	0.8	22	519	234	0	775	0.9	33	3	17	0	53	0.7	74	775	5	0	854	0.7	68	###	###
7:15 AM - 8:15 AM	3	1	21	0	25	0.5	25	542	258	0	825	1	39	1	23	0	63	0.7	73	847	9	0	929	0.8	88	###	###
7:30 AM - 8:30 AM	3	0	25	0	28	0.6	33	504	266	0	803	0.9	47	2	26	0	75	0.8	87	909	11	0	###	0.9	103	###	###
7:45 AM - 8:45 AM	4	1	27	0	32	0.7	33	485	291	0	809	0.9	44	2	27	0	73	0.8	77	884	11	0	972	0.9	105	###	###
8:00 AM - 9:00 AM	7	1	31	0	39	0.8	32	476	278	0	786	0.9	45	3	28	0	76	0.8	66	804	13	0	883	0.9	115	###	###
8:15 AM - 9:15 AM	8	1	29	0	38	0.9	34	457	272	0	763	1	41	3	23	0	67	0.7	67	688	9	0	764	0.8	105	###	###
8:30 AM - 9:30 AM	9	1	25	0	35	0.8	30	444	255	0	729	0.9	39	2	22	0	63	0.8	53	628	9	0	690	0.8	98	###	###
4:00 PM - 5:00 PM	2	1	46	0	49	0.9	5	769	96	0	870	0.9	81	0	50	0	131	0.9	7	711	3	0	721	0.9	180	###	###
4:15 PM - 5:15 PM	3	2	44	0	49	0.9	8	768	95	0	871	0.9	79	1	50	0	130	0.9	9	725	5	0	739	0.9	179	###	###
4:30 PM - 5:30 PM	4	1	37	0	42	0.8	10	785	93	0	888	0.9	77	1	49	0	127	0.9	10	740	4	0	754	0.9	169	###	###
4:45 PM - 5:45 PM	5	1	28	0	34	0.7	15	774	91	0	880	0.9	76	2	44	0	122	0.9	12	750	3	0	765	0.9	156	###	###
5:00 PM - 6:00 PM	3	1	27	0	31	0.6	20	775	90	0	885	0.9	78	2	46	0	126	0.9	14	719	4	0	737	0.9	157	###	###
5:15 PM - 6:15 PM	2	0	25	0	27	0.8	22	768	80	0	870	0.8	68	1	44	0	113	0.8	16	733	4	0	753	0.9	140	###	###
5:30 PM - 6:30 PM	4	0	28	0	32	0.8	22	671	72	0	765	0.9	59	1	36	0	96	0.8	16	709	5	0	730	0.9	128	###	###
5:45 PM - 6:45 PM	5	0	33	0	38	1	19	616	71	0	706	0.8	44	0	34	0	78	0.8	16	674	7	0	697	0.9	116	###	###
6:00 PM - 7:00 PM	6	0	31	0	37	0.9	17	580	65	0	662	0.9	37	1	27	0	65	0.8	17	671	5	0	693	0.8	102	###	###
6:15 PM - 7:15 PM	6	0	22	0	28	0.7	12	406	51	0	469	0.7	26	1	18	0	45	0.6	13	472	3	0	488	0.7	73	957	###
6:30 PM - 7:30 PM	3	0	15	0	18	0.5	8	277	33	0	318	0.5	16	1	10	0	27	0.5	10	320	2	0	332	0.5	45	650	695

Wells + Associates, Inc.

Tysons, Virginia

Turning Movement Count - Bicycles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: N. Beauregard St. & Mark Center Dr
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan
OUTHBOUND ROAD: Mark Center Drive
ORTHBOUND ROAD: Mark Center Drive
WESTBOUND ROAD: North Beauregard Street
EASTBOUND ROAD: North Beauregard Street

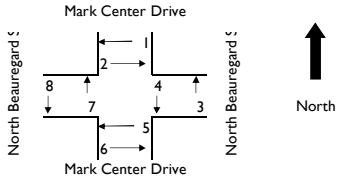
Time Period	Southbound Mark Center Drive				Westbound North Beauregard Street				Northbound Mark Center Drive				Eastbound North Beauregard Street				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0				0				0				0	0	0	0
7:00 AM - 7:15 AM		1		1				0				0		1		1	1	1	2
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0		1		1	0	1	1
8:15 AM - 8:30 AM				0				0			1	1				0	1	0	1
8:30 AM - 8:45 AM				0				0				0		1		1	0	1	1
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0				0				0				0	0	0	0
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM				0	1	1		2				0				0	0	2	2
4:30 PM - 4:45 PM				0				0				0	1			1	0	1	1
4:45 PM - 5:00 PM				0				0				0	1			1	0	1	1
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0				0				0				0	0	0	0
6:00 PM - 6:15 PM				0		2		2				0				0	0	2	2
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	0	1	0	1	1	3	0	4	0	0	1	1	2	3	0	5	2	9	11
One Hour Volumes																			
6:30 AM - 7:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	2
6:45 AM - 7:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	2
7:00 AM - 8:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	2
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	1	2
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	1	2	3
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	1	2	3
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	1	2
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
4:00 PM - 5:00 PM	0	0	0	0	1	1	0	2	0	0	0	0	2	0	0	2	0	4	4
4:15 PM - 5:15 PM	0	0	0	0	1	1	0	2	0	0	0	0	2	0	0	2	0	4	4
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
4:45 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 6:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
5:30 PM - 6:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
5:45 PM - 6:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
6:00 PM - 7:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2

Wells + Associates, Inc.

Tysons, Virginia

Pedestrian Volume Survey

PROJECT: Mark Residental
W + A JOB NO: 8849
INTERSECTION: N. Beauregard St. & Mark Center
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan



Time Period		Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes														
6:30 AM	- 6:45 AM									0	0	0	0	0
6:45 AM	- 7:00 AM					2			2	0	0	2	2	4
7:00 AM	- 7:15 AM	1					1		1	1	0	1	1	3
7:15 AM	- 7:30 AM		1				3			1	0	3	0	4
7:30 AM	- 7:45 AM					1	2			0	0	3	0	3
7:45 AM	- 8:00 AM		1			1	1	1	1	1	0	2	2	5
8:00 AM	- 8:15 AM						1		1	0	0	1	1	2
8:15 AM	- 8:30 AM		2				1		1	2	0	1	1	4
8:30 AM	- 8:45 AM		2				1	1	1	2	0	1	2	5
8:45 AM	- 9:00 AM	1		1		1				1	1	1	0	3
9:00 AM	- 9:15 AM						1			0	0	1	0	1
9:15 AM	- 9:30 AM		3					2		3	0	0	2	5
4:00 PM	- 4:15 PM		1					2		1	0	0	2	3
4:15 PM	- 4:30 PM					1		2		0	0	1	2	3
4:30 PM	- 4:45 PM					2				0	0	2	0	2
4:45 PM	- 5:00 PM			1						0	1	0	0	1
5:00 PM	- 5:15 PM	1		1			2	8	1	1	1	2	9	13
5:15 PM	- 5:30 PM						1	3		0	0	1	3	4
5:30 PM	- 5:45 PM			2		1	1	3		0	2	2	3	7
5:45 PM	- 6:00 PM			3		5	1	3	1	0	3	6	4	13
6:00 PM	- 6:15 PM			2	2			1		0	4	0	1	5
6:15 PM	- 6:30 PM					1	1	2		0	0	2	2	4
6:30 PM	- 6:45 PM					1		3	1	0	0	1	4	5
6:45 PM	- 7:00 PM		9		10		2		1	9	10	2	1	22
Total		3	19	10	12	16	19	31	11	22	22	35	42	121
One Hour Volumes														
6:30 AM	- 7:30 AM	1	1	0	0	2	4	0	3	2	0	6	3	11
6:45 AM	- 7:45 AM	1	1	0	0	3	6	0	3	2	0	9	3	14
7:00 AM	- 8:00 AM	1	2	0	0	2	7	1	2	3	0	9	3	15
7:15 AM	- 8:15 AM	0	2	0	0	2	7	1	2	2	0	9	3	14
7:30 AM	- 8:30 AM	0	3	0	0	2	5	1	3	3	0	7	4	14
7:45 AM	- 8:45 AM	0	5	0	0	1	4	2	4	5	0	5	6	16
8:00 AM	- 9:00 AM	1	4	1	0	1	3	1	3	5	1	4	4	14
8:15 AM	- 9:15 AM	1	4	1	0	1	3	1	2	5	1	4	3	13
8:30 AM	- 9:30 AM	1	5	1	0	1	2	3	1	6	1	3	4	14
4:00 PM	- 5:00 PM	0	1	1	0	3	0	4	0	1	1	3	4	9
4:15 PM	- 5:15 PM	1	0	2	0	3	2	10	1	1	2	5	11	19
4:30 PM	- 5:30 PM	1	0	2	0	2	3	11	1	1	2	5	12	20
4:45 PM	- 5:45 PM	1	0	4	0	1	4	14	1	1	4	5	15	25
5:00 PM	- 6:00 PM	1	0	6	0	6	5	17	2	1	6	11	19	37
5:15 PM	- 6:15 PM	0	0	7	2	6	3	10	1	0	9	9	11	29
5:30 PM	- 6:30 PM	0	0	7	2	7	3	9	1	0	9	10	10	29
5:45 PM	- 6:45 PM	0	0	5	2	7	2	9	2	0	7	9	11	27
6:00 PM	- 7:00 PM	0	9	2	12	2	3	6	2	9	14	5	8	36

Wells + Associates,Inc

Tysons, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Mark Center Dr. & South Driveway
LOCATION: City of Alexandria,VA

DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan

SOUTHBOUND ROAD: Mark Center Drive
NORTHBOUND ROAD: Mark Center Drive
WESTBOUND ROAD: 0
EASTBOUND ROAD: South Driveway

Time Period	Southbound Mark Center Drive						Westbound 0						Northbound Mark Center Drive						Eastbound South Driveway						North & South	East & West	Total
	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF			
15 Minute Volumes																											
6:30 AM - 6:45 AM	2	0	0	0	2		0	0	0	0	0		0	0	1	0	1		0	0	0	0	0		3	0	3
6:45 AM - 7:00 AM	3	0	0	0	3		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		3	0	3
7:00 AM - 7:15 AM	1	0	0	0	1		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		1	0	1
7:15 AM - 7:30 AM	5	0	0	0	5		0	0	0	0	0		0	0	4	0	4		1	0	0	0	1		9	1	10
7:30 AM - 7:45 AM	5	0	0	0	5		0	0	0	0	0		0	0	1	0	1		1	0	1	0	2		6	2	8
7:45 AM - 8:00 AM	2	0	0	0	2		0	0	0	0	0		0	0	1	0	1		0	0	0	0	0		3	0	3
8:00 AM - 8:15 AM	6	0	0	0	6		0	0	0	0	0		0	0	6	0	6		0	0	0	0	0		12	0	12
8:15 AM - 8:30 AM	7	0	0	0	7		0	0	0	0	0		0	0	4	0	4		0	0	0	0	0		11	0	11
8:30 AM - 8:45 AM	7	0	0	0	7		0	0	0	0	0		0	0	3	0	3		0	0	1	0	1		10	1	11
8:45 AM - 9:00 AM	10	0	0	0	10		0	0	0	0	0		0	0	3	0	3		0	0	0	0	0		13	0	13
9:00 AM - 9:15 AM	3	0	0	0	3		0	0	0	0	0		0	0	3	0	3		0	0	0	0	0		6	0	6
9:15 AM - 9:30 AM	5	0	0	0	5		0	0	0	0	0		0	0	1	0	1		0	0	0	0	0		6	0	6
4:00 PM - 4:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		10	0	2	0	12		0	12	12
4:15 PM - 4:30 PM	1	0	0	0	1		0	0	0	0	0		0	0	0	0	0		5	0	1	0	6		1	6	7
4:30 PM - 4:45 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		3	0	0	0	3		0	3	3
4:45 PM - 5:00 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		6	0	1	0	7		0	7	7
5:00 PM - 5:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		9	0	2	0	11		0	11	11
5:15 PM - 5:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		4	0	3	0	7		0	7	7
5:30 PM - 5:45 PM	2	0	0	0	2		0	0	0	0	0		0	0	0	0	0		5	0	3	0	8		2	8	10
5:45 PM - 6:00 PM	1	0	0	0	1		0	0	0	0	0		0	0	1	0	1		6	0	0	0	6		2	6	8
6:00 PM - 6:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		6	0	1	0	7		0	7	7
6:15 PM - 6:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		5	0	3	0	8		0	8	8
6:30 PM - 6:45 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		4	0	0	0	4		0	4	4
6:45 PM - 7:00 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		1	0	0	0	1		0	1	1
7:00 PM - 7:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
7:15 PM - 7:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
Total	60	0	0	0	60		0	0	0	0	0		0	0	28	0	28		66	0	18	0	84		88	84	172
One Hour Volumes																											
6:30 AM - 7:30 AM	11	0	0	0	11	0.6	0	0	0	0	0		0	0	5	0	5	0.3	1	0	0	0	1	0.3	16	1	17
6:45 AM - 7:45 AM	14	0	0	0	14	0.7	0	0	0	0	0		0	0	5	0	5	0.3	2	0	1	0	3	0.4	19	3	22
7:00 AM - 8:00 AM	13	0	0	0	13	0.7	0	0	0	0	0		0	0	6	0	6	0.4	2	0	1	0	3	0.4	19	3	22
7:15 AM - 8:15 AM	18	0	0	0	18	0.8	0	0	0	0	0		0	0	12	0	12	0.5	2	0	1	0	3	0.4	30	3	33
7:30 AM - 8:30 AM	20	0	0	0	20	0.7	0	0	0	0	0		0	0	12	0	12	0.5	1	0	1	0	2	0.3	32	2	34
7:45 AM - 8:45 AM	22	0	0	0	22	0.8	0	0	0	0	0		0	0	14	0	14	0.6	0	0	1	0	1	0.3	36	1	37
8:00 AM - 9:00 AM	30	0	0	0	30	0.8	0	0	0	0	0		0	0	16	0	16	0.7	0	0	1	0	1	0.3	46	1	47
8:15 AM - 9:15 AM	27	0	0	0	27	0.7	0	0	0	0	0		0	0	13	0	13	0.8	0	0	1	0	1	0.3	40	1	41
8:30 AM - 9:30 AM	25	0	0	0	25	0.6	0	0	0	0	0		0	0	10	0	10	0.8	0	0	1	0	1	0.3	35	1	36
4:00 PM - 5:00 PM	1	0	0	0	1	0.3	0	0	0	0	0		0	0	0	0	0		24	0	4	0	28	0.6	1	28	29
4:15 PM - 5:15 PM	1	0	0	0	1	0.3	0	0	0	0	0		0	0	0	0	0		23	0	4	0	27	0.6	1	27	28
4:30 PM - 5:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		22	0	6	0	28	0.6	0	28	28
4:45 PM - 5:45 PM	2	0	0	0	2	0.3	0	0	0	0	0		0	0	0	0	0		24	0	9	0	33	0.8	2	33	35
5:00 PM - 6:00 PM	3	0	0	0	3	0.4	0	0	0	0	0		0	0	1	0	1	0.3	24	0	8	0	32	0.7	4	32	36
5:15 PM - 6:15 PM	3	0	0	0	3	0.4	0	0	0	0	0		0	0	1	0	1	0.3	21	0	7	0	28	0.9	4	28	32
5:30 PM - 6:30 PM	3	0	0	0	3	0.4	0	0	0	0	0		0	0	1	0	1	0.3	22	0	7	0	29	0.9	4	29	33
5:45 PM - 6:45 PM	1	0	0	0	1	0.3	0	0	0	0	0		0	0	1	0	1	0.3	21	0	4	0	25	0.8	2	25	27
6:00 PM - 7:00 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		16	0	4	0	20	0.6	0	20	20
6:15 PM - 7:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		10	0	3	0	13	0.4	0	13	13
6:30 PM - 7:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		5	0	0	0	5	0.3	0	5	5

Wells + Associates, Inc.

Tysons, Virginia

Turning Movement Count - Bicycles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Mark Center Dr. & South Driveway
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan
OUTHBOUND ROAD: Mark Center Drive
ORTHBOUND ROAD: Mark Center Drive
WESTBOUND ROAD: 0
EASTBOUND ROAD: South Driveway

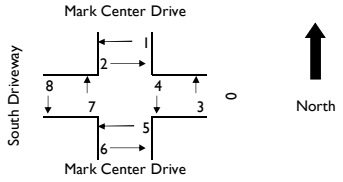
Time Period	Southbound Mark Center Drive				Westbound 0				Northbound Mark Center Drive				Eastbound South Driveway				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0				0				0				0	0	0	0
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0				0				0				0	0	0	0
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM				0				0				0				0	0	0	0
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0				0				0				0	0	0	0
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0				0				0				0	0	0	0
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				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
One Hour Volumes																			
6:30 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Wells + Associates, Inc.

Tysons, Virginia

Pedestrian Volume Survey

PROJECT: Mark Residental
W + A JOB NO: 8849
INTERSECTION: Mark Center Dr. & South Driveway
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:30 AM - 6:45 AM									0	0	0	0	0
6:45 AM - 7:00 AM									0	0	0	0	0
7:00 AM - 7:15 AM									0	0	0	0	0
7:15 AM - 7:30 AM									0	0	######	0	######
7:30 AM - 7:45 AM									0	0	0	0	0
7:45 AM - 8:00 AM									0	0	0	0	0
8:00 AM - 8:15 AM									0	0	0	0	0
8:15 AM - 8:30 AM									0	0	0	0	0
8:30 AM - 8:45 AM									0	0	0	0	0
8:45 AM - 9:00 AM									0	0	0	0	0
9:00 AM - 9:15 AM									0	0	0	0	0
9:15 AM - 9:30 AM									0	0	0	0	0
4:00 PM - 4:15 PM									0	0	0	0	0
4:15 PM - 4:30 PM									0	0	0	0	0
4:30 PM - 4:45 PM									0	0	0	0	0
4:45 PM - 5:00 PM									0	0	0	0	0
5:00 PM - 5:15 PM									0	0	0	0	0
5:15 PM - 5:30 PM									0	0	0	0	0
5:30 PM - 5:45 PM									0	0	0	0	0
5:45 PM - 6:00 PM									0	0	0	0	0
6:00 PM - 6:15 PM									0	0	0	0	0
6:15 PM - 6:30 PM									0	0	0	0	0
6:30 PM - 6:45 PM									0	0	0	0	0
6:45 PM - 7:00 PM									0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	######	0	######
One Hour Volumes													
6:30 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	######	0	######
6:45 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	######	0	######
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	######	0	######
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	######	0	######
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0

Wells + Associates,Inc

Tysons, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Mark Center Ave. & South Driveway
LOCATION: City of Alexandria,VA

DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan

SOUTHBOUND ROAD: South Driveway
NORTHBOUND ROAD: Driveway
WESTBOUND ROAD: Mark Center Avenue
EASTBOUND ROAD: Mark Center Avenue

Time Period	Southbound South Driveway					Westbound Mark Center Avenue					Northbound Driveway					Eastbound Mark Center Avenue					North & South	East & West	Total
	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF	Right	Thru	Left	U-Turn	Total	PHF			
15 Minute Volumes																											
6:30 AM - 6:45 AM	0	0	0	0	0		0	17	0	0	17		0	0	0	0	0		0	43	0	1	44		0	61	61
6:45 AM - 7:00 AM	0	0	0	0	0		1	17	0	1	19		0	0	0	0	0		0	40	0	1	41		0	60	60
7:00 AM - 7:15 AM	0	0	1	0	1		0	21	0	2	23		0	0	0	0	0		0	39	0	0	39		1	62	63
7:15 AM - 7:30 AM	0	0	0	0	0		0	28	0	0	28		0	0	0	0	0		0	43	0	0	43		0	71	71
7:30 AM - 7:45 AM	0	0	0	0	0		0	39	0	2	41		0	0	0	0	0		0	46	0	0	46		0	87	87
7:45 AM - 8:00 AM	0	0	0	0	0		0	31	0	0	31		0	0	0	0	0		0	58	0	0	58		0	89	89
8:00 AM - 8:15 AM	1	0	0	0	1		0	41	0	1	42		0	0	0	0	0		0	56	1	0	57		1	99	100
8:15 AM - 8:30 AM	0	0	0	0	0		0	48	0	0	48		0	0	0	0	0		0	61	0	0	61		0	109	109
8:30 AM - 8:45 AM	0	0	0	0	0		1	23	0	0	24		0	0	0	0	0		0	54	0	0	54		0	78	78
8:45 AM - 9:00 AM	1	0	1	0	2		0	33	0	0	33		0	0	0	0	0		0	54	0	0	54		2	87	89
9:00 AM - 9:15 AM	0	0	1	0	1		0	24	0	1	25		0	0	0	0	0		0	39	1	0	40		1	65	66
9:15 AM - 9:30 AM	0	0	0	0	0		0	22	0	0	22		0	0	0	0	0		0	34	1	0	35		0	57	57
4:00 PM - 4:15 PM	1	0	0	0	1		0	17	0	1	18		0	0	0	0	0		0	76	1	0	77		1	95	96
4:15 PM - 4:30 PM	0	0	0	0	0		0	8	0	0	8		0	0	0	0	0		0	64	0	0	64		0	72	72
4:30 PM - 4:45 PM	0	0	0	0	0		0	17	0	0	17		0	0	0	0	0		0	62	0	0	62		0	79	79
4:45 PM - 5:00 PM	1	0	0	0	1		0	19	0	0	19		0	0	0	0	0		0	66	1	2	69		1	88	89
5:00 PM - 5:15 PM	0	0	0	0	0		0	19	0	0	19		0	0	0	0	0		0	65	0	0	65		0	84	84
5:15 PM - 5:30 PM	0	0	0	0	0		0	11	0	0	11		0	0	0	0	0		0	57	0	0	57		0	68	68
5:30 PM - 5:45 PM	0	0	0	0	0		0	15	0	0	15		0	0	0	0	0		0	57	0	1	58		0	73	73
5:45 PM - 6:00 PM	0	0	0	0	0		0	17	0	2	19		0	0	0	0	0		0	45	0	0	45		0	64	64
6:00 PM - 6:15 PM	0	0	0	0	0		0	17	0	0	17		0	0	0	0	0		0	47	0	0	47		0	64	64
6:15 PM - 6:30 PM	0	0	1	0	1		0	11	0	1	12		0	0	0	0	0		0	43	0	0	43		1	55	56
6:30 PM - 6:45 PM	0	0	1	0	1		0	11	0	1	12		0	0	0	0	0		0	28	1	0	29		1	41	42
6:45 PM - 7:00 PM	0	0	0	0	0		0	15	0	0	15		0	0	0	0	0		0	26	0	0	26		0	41	41
7:00 PM - 7:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
7:15 PM - 7:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0
Total	4	0	5	0	9		2	521	0	12	535		0	0	0	0	0		0	###	6	5	###		9	###	###
One Hour Volumes																											
6:30 AM - 7:30 AM	0	0	1	0	1	0.3	1	83	0	3	87	0.8	0	0	0	0	0		0	165	0	2	167	0.9	1	254	255
6:45 AM - 7:45 AM	0	0	1	0	1	0.3	1	105	0	5	111	0.7	0	0	0	0	0		0	168	0	1	169	0.9	1	280	281
7:00 AM - 8:00 AM	0	0	1	0	1	0.3	0	119	0	4	123	0.8	0	0	0	0	0		0	186	0	0	186	0.8	1	309	310
7:15 AM - 8:15 AM	1	0	0	0	1	0.3	0	139	0	3	142	0.8	0	0	0	0	0		0	203	1	0	204	0.9	1	346	347
7:30 AM - 8:30 AM	1	0	0	0	1	0.3	0	159	0	3	162	0.8	0	0	0	0	0		0	221	1	0	222	0.9	1	384	385
7:45 AM - 8:45 AM	1	0	0	0	1	0.3	1	143	0	1	145	0.8	0	0	0	0	0		0	229	1	0	230	0.9	1	375	376
8:00 AM - 9:00 AM	2	0	1	0	3	0.4	1	145	0	1	147	0.8	0	0	0	0	0		0	225	1	0	226	0.9	3	373	376
8:15 AM - 9:15 AM	1	0	2	0	3	0.4	1	128	0	1	130	0.7	0	0	0	0	0		0	208	1	0	209	0.9	3	339	342
8:30 AM - 9:30 AM	1	0	2	0	3	0.4	1	102	0	1	104	0.8	0	0	0	0	0		0	181	2	0	183	0.8	3	287	290
4:00 PM - 5:00 PM	2	0	0	0	2	0.5	0	61	0	1	62	0.8	0	0	0	0	0		0	268	2	2	272	0.9	2	334	336
4:15 PM - 5:15 PM	1	0	0	0	1	0.3	0	63	0	0	63	0.8	0	0	0	0	0		0	257	1	2	260	0.9	1	323	324
4:30 PM - 5:30 PM	1	0	0	0	1	0.3	0	66	0	0	66	0.9	0	0	0	0	0		0	250	1	2	253	0.9	1	319	320
4:45 PM - 5:45 PM	1	0	0	0	1	0.3	0	64	0	0	64	0.8	0	0	0	0	0		0	245	1	3	249	0.9	1	313	314
5:00 PM - 6:00 PM	0	0	0	0	0		0	62	0	2	64	0.8	0	0	0	0	0		0	224	0	1	225	0.9	0	289	289
5:15 PM - 6:15 PM	0	0	0	0	0		0	60	0	2	62	0.8	0	0	0	0	0		0	206	0	1	207	0.9	0	269	269
5:30 PM - 6:30 PM	0	0	1	0	1	0.3	0	60	0	3	63	0.8	0	0	0	0	0		0	192	0	1	193	0.8	1	256	257
5:45 PM - 6:45 PM	0	0	2	0	2	0.5	0	56	0	4	60	0.8	0	0	0	0	0		0	163	1	0	164	0.9	2	224	226
6:00 PM - 7:00 PM	0	0	2	0	2	0.5	0	54	0	2	56	0.8	0	0	0	0	0		0	144	1	0	145	0.8	2	201	203
6:15 PM - 7:15 PM	0	0	2	0	2	0.5	0	37	0	2	39	0.7	0	0	0	0	0		0	97	1	0	98	0.6	2	137	139
6:30 PM - 7:30 PM	0	0	1	0	1	0.3	0	26	0	1	27	0.5	0	0	0	0	0		0	54	1	0	55	0.5	1	82	83

Wells + Associates, Inc.

Tysons, Virginia

Turning Movement Count - Bicycles

PROJECT: Mark Residental
W+A JOB NO: 8849
INTERSECTION: Mark Center Ave. & South Drive
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan
OUTHBOUND ROAD: South Driveway
ORTHBOUND ROAD: Driveway
WESTBOUND ROAD: Mark Center Avenue
EASTBOUND ROAD: Mark Center Avenue

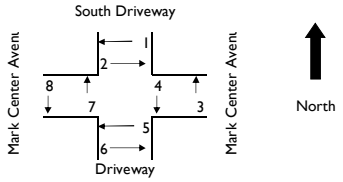
Time Period	Southbound South Driveway				Westbound Mark Center Avenue				Northbound Driveway				Eastbound Mark Center Avenue				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0		1		1				0				0	0	1	1
7:00 AM - 7:15 AM				0		1		1				0				0	0	1	1
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
9:00 AM - 9:15 AM				0				0				0				0	0	0	0
9:15 AM - 9:30 AM				0				0				0				0	0	0	0
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM				0				0				0				0	0	0	0
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0				0				0				0	0	0	0
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0				0				0				0	0	0	0
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
One Hour Volumes																			
6:30 AM - 7:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
6:45 AM - 7:45 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
7:00 AM - 8:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Wells + Associates, Inc.

Tysons, Virginia

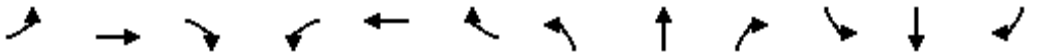
Pedestrian Volume Survey

PROJECT: Mark Residental
W + A JOB NO: 8849
INTERSECTION: Mark Center Ave. & South Drivew
LOCATION: City of Alexandria,VA
DATE: 9/21/2022
DAY: Wednesday
WEATHER: clear
COUNTED BY: Agan
INPUTED BY: agan



Time Period		Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes														
6:30 AM	- 6:45 AM	1	1		1	3	1			2	1	4	0	7
6:45 AM	- 7:00 AM		1		14	18		1	1	1	14	18	2	35
7:00 AM	- 7:15 AM	1	1		9	15		1	2	2	9	15	3	29
7:15 AM	- 7:30 AM	2			32	24		1		2	32	24	1	59
7:30 AM	- 7:45 AM			2	24	33		7		0	26	33	7	66
7:45 AM	- 8:00 AM		4		4	11	1	5		4	4	12	5	25
8:00 AM	- 8:15 AM		2		4	19	1	2		2	4	20	2	28
8:15 AM	- 8:30 AM		1		2	8	1			1	2	9	0	12
8:30 AM	- 8:45 AM					4	2			0	0	6	0	6
8:45 AM	- 9:00 AM	1								1	0	0	0	1
9:00 AM	- 9:15 AM	2	1		2	3	1			3	2	4	0	9
9:15 AM	- 9:30 AM	1			1	3				1	1	3	0	5
4:00 PM	- 4:15 PM		6	2		1	2	47		6	2	3	47	58
4:15 PM	- 4:30 PM			2	1		2	4		0	3	2	4	9
4:30 PM	- 4:45 PM	2	2		1		3	1		4	1	3	1	9
4:45 PM	- 5:00 PM	1	1			2	2	27		2	0	4	27	33
5:00 PM	- 5:15 PM	2	2			1	3	1		4	0	4	1	9
5:15 PM	- 5:30 PM	1	1							2	0	0	0	2
5:30 PM	- 5:45 PM	3	2	3			6	3		5	3	6	3	17
5:45 PM	- 6:00 PM						2	3		0	0	2	3	5
6:00 PM	- 6:15 PM	1				3	5			1	0	8	0	9
6:15 PM	- 6:30 PM	1	2			3	2			3	0	5	0	8
6:30 PM	- 6:45 PM	1				1	1			1	0	2	0	3
6:45 PM	- 7:00 PM		2				2			2	0	2	0	4
Total		20	29	9	95	152	37	103	3	49	104	189	106	448
One Hour Volumes														
6:30 AM	- 7:30 AM	4	3	0	56	60	1	3	3	7	56	61	6	130
6:45 AM	- 7:45 AM	3	2	2	79	90	0	10	3	5	81	90	13	189
7:00 AM	- 8:00 AM	3	5	2	69	83	1	14	2	8	71	84	16	179
7:15 AM	- 8:15 AM	2	6	2	64	87	2	15	0	8	66	89	15	178
7:30 AM	- 8:30 AM	0	7	2	34	71	3	14	0	7	36	74	14	131
7:45 AM	- 8:45 AM	0	7	0	10	42	5	7	0	7	10	47	7	71
8:00 AM	- 9:00 AM	1	3	0	6	31	4	2	0	4	6	35	2	47
8:15 AM	- 9:15 AM	3	2	0	4	15	4	0	0	5	4	19	0	28
8:30 AM	- 9:30 AM	4	1	0	3	10	3	0	0	5	3	13	0	21
4:00 PM	- 5:00 PM	3	9	4	2	3	9	79	0	12	6	12	79	109
4:15 PM	- 5:15 PM	5	5	2	2	3	10	33	0	10	4	13	33	60
4:30 PM	- 5:30 PM	6	6	0	1	3	8	29	0	12	1	11	29	53
4:45 PM	- 5:45 PM	7	6	3	0	3	11	31	0	13	3	14	31	61
5:00 PM	- 6:00 PM	6	5	3	0	1	11	7	0	11	3	12	7	33
5:15 PM	- 6:15 PM	5	3	3	0	3	13	6	0	8	3	16	6	33
5:30 PM	- 6:30 PM	5	4	3	0	6	15	6	0	9	3	21	6	39
5:45 PM	- 6:45 PM	3	2	0	0	7	10	3	0	5	0	17	3	25
6:00 PM	- 7:00 PM	3	4	0	0	7	10	0	0	7	0	17	0	24

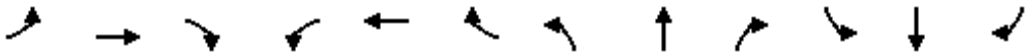
APPENDIX C
EXISTING (2022) CONDITIONS
SYNCHRO WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	26	159	246	46	30	213	1326	53	17	1253	37
Future Volume (vph)	12	26	159	246	46	30	213	1326	53	17	1253	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	4.8	5.6	5.6	5.6	4.8	4.7	4.7	4.6	4.7	2.0
Lane Util. Factor		1.00	0.76	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.86	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.95	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1834	3610	1681	1711	1547	1770	5085	1498	1770	6408	1583
Flt Permitted		0.98	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1834	3610	1681	1711	1547	1770	5085	1498	1770	6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.96	0.96	0.96	0.90	0.90	0.90
Adj. Flow (vph)	13	29	177	276	52	34	222	1381	55	19	1392	41
RTOR Reduction (vph)	0	0	132	0	0	29	0	0	23	0	0	0
Lane Group Flow (vph)	0	42	45	163	165	5	222	1381	32	19	1392	41
Confl. Peds. (#/hr)	10					10			14	14		
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA	pm+ov	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4			3			2			Free
Actuated Green, G (s)		8.4	31.2	20.0	20.0	20.0	22.8	78.7	78.7	4.8	60.5	140.0
Effective Green, g (s)		10.4	35.2	22.0	22.0	22.0	24.8	80.7	80.7	6.8	62.5	140.0
Actuated g/C Ratio		0.07	0.25	0.16	0.16	0.16	0.18	0.58	0.58	0.05	0.45	1.00
Clearance Time (s)		7.2	6.8	7.6	7.6	7.6	6.8	6.7	6.7	6.6	6.7	
Vehicle Extension (s)		4.0	3.0	4.0	4.0	4.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		136	907	264	268	243	313	2931	863	85	2860	1583
v/s Ratio Prot		c0.02	0.01	c0.10	0.10		c0.13	c0.27		0.01	0.22	
v/s Ratio Perm			0.00			0.00			0.02			0.03
v/c Ratio		0.31	0.05	0.62	0.62	0.02	0.71	0.47	0.04	0.22	0.49	0.03
Uniform Delay, d1		61.4	39.7	55.1	55.1	49.9	54.2	17.2	12.8	64.1	27.4	0.0
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.15	0.56	1.00
Incremental Delay, d2		1.8	0.0	4.9	4.8	0.0	7.2	0.5	0.1	1.2	0.5	0.0
Delay (s)		63.2	39.7	59.9	59.8	50.0	61.4	17.8	12.9	74.7	15.8	0.0
Level of Service		E	D	E	E	D	E	B	B	E	B	A
Approach Delay (s)		44.2			58.9			23.5			16.1	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	61.8%	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)	3	159	81	120	167	9	1	1	21	17	1	3
Future Volume (Veh/h)	3	159	81	120	167	9	1	1	21	17	1	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	3	183	93	130	182	10	1	1	25	20	1	4
Pedestrians		8			20			20			25	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		1			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		537			346							
pX, platoon unblocked												
vC, conflicting volume	217			296			619	732	178	615	774	129
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	217			296			619	732	178	615	774	129
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
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			90			100	100	97	94	100	100
cM capacity (veh/h)	1318			1238			320	296	803	309	280	869

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total	3	122	154	221	101	2	12	12	25
Volume Left	3	0	0	130	0	1	0	0	20
Volume Right	0	0	93	0	10	0	12	12	4
cSH	1318	1700	1700	1238	1700	308	803	803	343
Volume to Capacity	0.00	0.07	0.09	0.10	0.06	0.01	0.02	0.02	0.07
Queue Length 95th (ft)	0	0	0	9	0	0	1	1	6
Control Delay (s)	7.7	0.0	0.0	5.2	0.0	16.8	9.6	9.6	16.3
Lane LOS	A			A		C	A	A	C
Approach Delay (s)	0.1			3.6		10.1			16.3
Approach LOS						B			C

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	40.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	110	7	28	216	153
Future Volume (veh/h)	62	110	7	28	216	153
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	0.99	
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	128	8	33	237	168
Peak Hour Factor	0.86	0.86	0.85	0.85	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	311	277	1825	786	1037	2511
Arrive On Green	0.17	0.17	0.51	0.51	0.13	0.71
Sat Flow, veh/h	1781	1585	3647	1531	1781	3647
Grp Volume(v), veh/h	72	128	8	33	237	168
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1531	1781	1777
Q Serve(g_s), s	2.3	4.9	0.1	0.7	3.3	1.0
Cycle Q Clear(g_c), s	2.3	4.9	0.1	0.7	3.3	1.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	311	277	1825	786	1037	2511
V/C Ratio(X)	0.23	0.46	0.00	0.04	0.23	0.07
Avail Cap(c_a), veh/h	1137	1012	1825	786	1603	3640
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	23.9	25.0	8.0	8.1	4.1	3.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.8	0.0	0.2	0.9	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.1	25.4	8.0	8.2	4.1	3.0
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	200		41			405
Approach Delay, s/veh	24.9		8.2			3.7
Approach LOS	C		A			A

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.0	38.6		15.8		51.6
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	28.4	32.6		41.0		67.0
Max Q Clear Time (g_c+I1), s	5.3	2.7		6.9		3.0
Green Ext Time (p_c), s	0.3	0.1		0.3		0.8

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	428	291	322	88	176	40	562	697	109	18	897	97
Future Volume (vph)	428	291	322	88	176	40	562	697	109	18	897	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1	6.1	5.4	5.1		6.1	4.7	4.7	5.5	4.7	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.94	0.95	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1551	1656	3364		4942	3505	1477	1770	4957	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1551	1656	3364		4942	3505	1477	1770	4957	
Peak-hour factor, PHF	0.92	0.92	0.92	0.85	0.85	0.85	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	465	316	350	104	207	47	618	766	120	19	954	103
RTOR Reduction (vph)	0	0	54	0	15	0	0	0	56	0	8	0
Lane Group Flow (vph)	465	316	296	104	239	0	618	766	64	19	1049	0
Confl. Peds. (#/hr)	3		7	7		3	3		6	6		7
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	3%	9%	2%	13%	3%	3%	7%	2%	3%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	19.3	24.9	47.6	9.5	14.9		22.7	72.4	72.4	4.5	53.6	
Effective Green, g (s)	21.3	26.9	51.6	11.5	16.9		24.7	74.4	74.4	6.5	55.6	
Actuated g/C Ratio	0.15	0.19	0.37	0.08	0.12		0.18	0.53	0.53	0.05	0.40	
Clearance Time (s)	7.6	7.1	8.1	7.4	7.1		8.1	6.7	6.7	7.5	6.7	
Vehicle Extension (s)	2.5	2.5	2.0	2.5	2.5		2.0	0.2	0.2	2.5	0.2	
Lane Grp Cap (vph)	522	679	571	136	406		871	1862	784	82	1968	
v/s Ratio Prot	c0.14	0.09	c0.09	0.06	0.07		c0.13	0.22		0.01	c0.21	
v/s Ratio Perm			0.10						0.04			
v/c Ratio	0.89	0.47	0.52	0.76	0.59		0.71	0.41	0.08	0.23	0.53	
Uniform Delay, d1	58.2	50.2	34.5	62.9	58.3		54.3	19.7	16.1	64.3	32.3	
Progression Factor	1.02	1.37	0.89	1.00	1.00		1.47	0.41	1.00	1.00	1.00	
Incremental Delay, d2	16.7	0.4	0.3	21.3	1.8		2.0	0.6	0.2	1.1	1.0	
Delay (s)	76.3	69.0	31.0	84.3	60.1		81.6	8.6	16.3	65.4	33.3	
Level of Service	E	E	C	F	E		F	A	B	E	C	
Approach Delay (s)		60.3			67.1			39.2			33.9	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	74.6%	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)	11	955	87	266	536	33	33	2	61	25	0	3
Future Volume (veh/h)	11	955	87	266	536	33	33	2	61	25	0	3
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	0.99		0.97	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	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	12	1085	99	286	576	35	39	2	72	29	0	4
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	3377	308	390	2713	165	180	8	319	144	0	141
Arrive On Green	0.02	0.71	0.71	0.11	0.80	0.80	0.10	0.10	0.10	0.10	0.00	0.10
Sat Flow, veh/h	1781	4761	434	3456	3403	206	1310	81	1482	936	0	1425
Grp Volume(v), veh/h	12	775	409	286	300	311	41	0	72	29	0	4
Grp Sat Flow(s),veh/h/ln	1781	1702	1791	1728	1777	1832	1391	0	1482	936	0	1425
Q Serve(g_s), s	0.9	12.0	12.0	11.2	5.8	5.8	3.6	0.0	5.6	2.9	0.0	0.4
Cycle Q Clear(g_c), s	0.9	12.0	12.0	11.2	5.8	5.8	4.0	0.0	5.6	6.9	0.0	0.4
Prop In Lane	1.00		0.24	1.00		0.11	0.95		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	44	2415	1270	390	1417	1461	188	0	319	144	0	141
V/C Ratio(X)	0.27	0.32	0.32	0.73	0.21	0.21	0.22	0.00	0.23	0.20	0.00	0.03
Avail Cap(c_a), veh/h	216	2415	1270	864	1417	1461	421	0	563	361	0	377
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	0.68	0.68	0.68	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.0	7.7	7.7	60.1	3.5	3.5	58.7	0.0	45.7	61.8	0.0	57.0
Incr Delay (d2), s/veh	1.2	0.4	0.7	0.7	0.2	0.2	0.2	0.0	0.1	0.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.2	4.6	4.9	1.8	1.9	1.4	0.0	2.1	1.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	8.0	8.3	60.8	3.7	3.7	58.9	0.0	45.8	62.1	0.0	57.0
LnGrp LOS	E	A	A	E	A	A	E	A	D	E	A	E
Approach Vol, veh/h		1196			897			113			33	
Approach Delay, s/veh		8.7			21.9			50.6			61.5	
Approach LOS		A			C			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.8	103.3		17.9	6.5	115.6		17.9				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	33.0	55.0		35.0	15.0	73.0		35.0				
Max Q Clear Time (g_c+I1), s	13.2	0.0		8.9	2.9	0.0		7.6				
Green Ext Time (p_c), s	0.6	0.0		0.0	0.0	0.0		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	12	105	368	20
Future Vol, veh/h	1	1	12	105	368	20
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	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	14	124	433	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	535	229	457	0	-	0
Stage 1	445	-	-	-	-	-
Stage 2	90	-	-	-	-	-
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	475	774	1100	-	-	-
Stage 1	613	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	469	774	1100	-	-	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	923	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1100	-	584	-	-
HCM Lane V/C Ratio	0.013	-	0.004	-	-
HCM Control Delay (s)	8.3	-	11.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	243	171	0	0	1
Future Vol, veh/h	1	243	171	0	0	1
Conflicting Peds, #/hr	7	0	0	7	36	14
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	91	91	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	267	201	0	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	208	0	-	0	380	122
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	172	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1360	-	-	-	595	906
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	841	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1351	-	-	-	586	888
Mov Cap-2 Maneuver	-	-	-	-	586	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	835	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1351	-	-	-	888
HCM Lane V/C Ratio	0.001	-	-	-	0.001
HCM Control Delay (s)	7.7	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

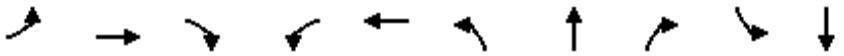
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	42	177	163	165	34	222	1381	55	19	1392	41
v/c Ratio	0.27	0.16	0.62	0.61	0.08	0.71	0.45	0.06	0.17	0.48	0.03
Control Delay	63.8	4.3	64.6	64.2	0.4	66.1	18.5	0.1	73.2	16.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	4.3	64.6	64.2	0.4	66.1	18.5	0.1	73.2	16.9	0.0
Queue Length 50th (ft)	37	0	148	149	0	193	273	0	18	142	0
Queue Length 95th (ft)	75	21	212	215	0	266	383	0	m35	167	m0
Internal Link Dist (ft)	266			107			648			669	
Turn Bay Length (ft)								260	200		
Base Capacity (vph)	165	1411	401	408	512	457	3080	964	156	2926	1583
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	0.25	0.13	0.41	0.40	0.07	0.49	0.45	0.06	0.12	0.48	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	72	128	8	33	237	168
v/c Ratio	0.23	0.33	0.00	0.04	0.25	0.07
Control Delay	26.9	8.2	8.9	3.8	4.1	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	8.2	8.9	3.8	4.1	3.1
Queue Length 50th (ft)	26	0	1	0	27	8
Queue Length 95th (ft)	59	37	3	11	47	16
Internal Link Dist (ft)	121		194			483
Turn Bay Length (ft)				180		
Base Capacity (vph)	1111	1042	1789	788	1109	3527
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	0.06	0.12	0.00	0.04	0.21	0.05

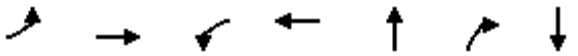
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	465	316	350	104	254	618	766	120	19	1057
v/c Ratio	0.89	0.47	0.57	0.76	0.61	0.71	0.40	0.13	0.17	0.54
Control Delay	78.8	70.4	23.6	96.1	60.4	83.5	8.6	0.3	65.0	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.8	70.4	23.6	96.1	60.4	83.5	8.6	0.3	65.0	34.2
Queue Length 50th (ft)	224	160	146	94	109	211	57	0	17	265
Queue Length 95th (ft)	#312	210	179	#175	142	254	69	0	44	348
Internal Link Dist (ft)		708			1087		669			713
Turn Bay Length (ft)	180		570	190		325		335	115	
Base Capacity (vph)	524	958	702	137	683	1161	1937	908	158	1975
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.33	0.50	0.76	0.37	0.53	0.40	0.13	0.12	0.54

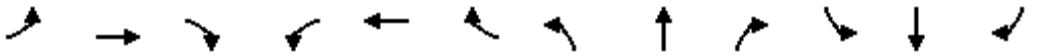
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	13	1184	286	611	41	72	33
v/c Ratio	0.13	0.32	0.63	0.20	0.39	0.22	0.11
Control Delay	65.4	7.8	91.8	0.4	71.8	27.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	7.8	91.8	0.4	71.8	27.0	0.8
Queue Length 50th (ft)	12	131	143	3	36	32	0
Queue Length 95th (ft)	34	185	192	5	71	65	0
Internal Link Dist (ft)		847		708	396		112
Turn Bay Length (ft)	150		375				
Base Capacity (vph)	214	3655	858	2992	348	507	757
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	0.06	0.32	0.33	0.20	0.12	0.14	0.04

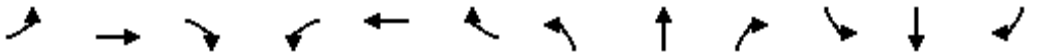
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	4	438	143	15	44	66	1123	86	1	1531	20
Future Volume (vph)	24	4	438	143	15	44	66	1123	86	1	1531	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	4.8	5.6	5.6	5.6	4.8	4.7	4.7	4.6	4.7	2.0
Lane Util. Factor		1.00	0.76	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.86	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.93	1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1787	3610	1681	1701	1510	1770	5085	1469	1770	6408	1564
Flt Permitted		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1787	3610	1681	1701	1510	1770	5085	1469	1770	6408	1564
Peak-hour factor, PHF	0.85	0.85	0.85	0.95	0.95	0.95	0.85	0.85	0.85	0.93	0.93	0.93
Adj. Flow (vph)	28	5	515	151	16	46	78	1321	101	1	1646	22
RTOR Reduction (vph)	0	0	319	0	0	41	0	0	34	0	0	0
Lane Group Flow (vph)	0	33	196	83	84	5	78	1321	67	1	1646	22
Confl. Peds. (#/hr)	29					29			22	22		
Confl. Bikes (#/hr)						1						2
Turn Type	Split	NA	pm+ov	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4			3			2			Free
Actuated Green, G (s)		6.2	17.9	13.3	13.3	13.3	11.7	91.2	91.2	1.2	80.5	140.0
Effective Green, g (s)		8.2	21.9	15.3	15.3	15.3	13.7	93.2	93.2	3.2	82.5	140.0
Actuated g/C Ratio		0.06	0.16	0.11	0.11	0.11	0.10	0.67	0.67	0.02	0.59	1.00
Clearance Time (s)		7.2	6.8	7.6	7.6	7.6	6.8	6.7	6.7	6.6	6.7	
Vehicle Extension (s)		4.0	3.0	4.0	4.0	4.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		104	564	183	185	165	173	3385	977	40	3776	1564
v/s Ratio Prot		0.02	c0.03	0.05	c0.05		c0.04	0.26		0.00	c0.26	
v/s Ratio Perm			0.02			0.00			0.05			0.01
v/c Ratio		0.32	0.35	0.45	0.45	0.03	0.45	0.39	0.07	0.03	0.44	0.01
Uniform Delay, d1		63.2	52.7	58.4	58.4	55.7	59.6	10.6	8.2	66.9	15.9	0.0
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.26	0.68	1.00
Incremental Delay, d2		2.4	0.4	2.4	2.4	0.1	1.9	0.3	0.1	0.2	0.3	0.0
Delay (s)		65.6	53.1	60.9	60.8	55.8	61.5	10.9	8.3	84.6	11.0	0.0
Level of Service		E	D	E	E	E	E	B	A	F	B	A
Approach Delay (s)		53.8			59.8			13.4			10.9	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	66.3%	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)	3	277	2	13	75	13	3	0	170	19	1	1
Future Volume (Veh/h)	3	277	2	13	75	13	3	0	170	19	1	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.87	0.87	0.87	0.88	0.88	0.88
Hourly flow rate (vph)	4	326	2	15	87	15	3	0	195	22	1	1
Pedestrians		3			23			21			13	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			2			2			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		537			346							
pX, platoon unblocked												
vC, conflicting volume	115			349			434	501	208	526	494	67
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115			349			434	501	208	526	494	67
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
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			99			99	100	75	93	100	100
cM capacity (veh/h)	1453			1182			475	448	765	301	452	968

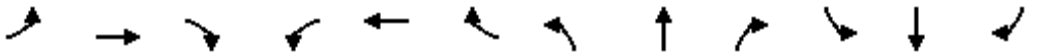
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total	4	217	111	58	58	3	98	98	24
Volume Left	4	0	0	15	0	3	0	0	22
Volume Right	0	0	2	0	15	0	98	98	1
cSH	1453	1700	1700	1182	1700	475	765	765	315
Volume to Capacity	0.00	0.13	0.07	0.01	0.03	0.01	0.13	0.13	0.08
Queue Length 95th (ft)	0	0	0	1	0	0	11	11	6
Control Delay (s)	7.5	0.0	0.0	2.2	0.0	12.6	10.4	10.4	17.4
Lane LOS	A			A		B	B	B	C
Approach Delay (s)	0.1			1.1		10.4			17.4
Approach LOS						B			C

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	35.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	72	52	155	129	22
Future Volume (veh/h)	9	72	52	155	129	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	85	58	172	152	26
Peak Hour Factor	0.85	0.85	0.90	0.90	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	265	236	1973	874	953	2620
Arrive On Green	0.15	0.15	0.56	0.56	0.13	0.74
Sat Flow, veh/h	1781	1585	3647	1575	1781	3647
Grp Volume(v), veh/h	11	85	58	172	152	26
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1575	1781	1777
Q Serve(g_s), s	0.4	3.4	0.5	3.8	1.9	0.1
Cycle Q Clear(g_c), s	0.4	3.4	0.5	3.8	1.9	0.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	265	236	1973	874	953	2620
V/C Ratio(X)	0.04	0.36	0.03	0.20	0.16	0.01
Avail Cap(c_a), veh/h	1141	1015	1973	874	1339	3389
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	25.6	26.9	7.1	7.8	3.3	2.4
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.3	0.2	1.3	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.6	27.2	7.1	8.3	3.3	2.4
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	96		230			178
Approach Delay, s/veh	27.0		8.0			3.2
Approach LOS	C		A			A

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.8	43.0		14.5		55.8
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	22.0	37.0		43.0		65.0
Max Q Clear Time (g_c+I1), s	3.9	5.8		5.4		2.1
Green Ext Time (p_c), s	0.2	0.5		0.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	331	195	329	118	234	60	327	793	71	54	1105	339
Future Volume (vph)	331	195	329	118	234	60	327	793	71	54	1105	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1	6.1	5.4	5.1		6.1	4.7	4.7	5.5	4.7	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.94	0.95	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3505	1563	1752	3378		4802	3539	1521	1770	4891	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3505	1563	1752	3378		4802	3539	1521	1770	4891	
Peak-hour factor, PHF	0.96	0.96	0.96	0.85	0.85	0.85	0.94	0.94	0.94	0.86	0.86	0.86
Adj. Flow (vph)	345	203	343	139	275	71	348	844	76	63	1285	394
RTOR Reduction (vph)	0	0	65	0	19	0	0	0	38	0	33	0
Lane Group Flow (vph)	345	203	278	139	327	0	348	844	38	63	1646	0
Confl. Peds. (#/hr)	7		6	6		7			6	6		
Confl. Bikes (#/hr)			4			3						2
Heavy Vehicles (%)	2%	3%	2%	3%	2%	7%	6%	2%	4%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	15.2	18.6	33.2	15.3	18.5		14.6	68.6	68.6	8.8	62.2	
Effective Green, g (s)	17.2	20.6	37.2	17.3	20.5		16.6	70.6	70.6	10.8	64.2	
Actuated g/C Ratio	0.12	0.15	0.27	0.12	0.15		0.12	0.50	0.50	0.08	0.46	
Clearance Time (s)	7.6	7.1	8.1	7.4	7.1		8.1	6.7	6.7	7.5	6.7	
Vehicle Extension (s)	2.5	2.5	2.0	2.5	2.5		2.0	0.2	0.2	2.5	0.2	
Lane Grp Cap (vph)	421	515	415	216	494		569	1784	767	136	2242	
v/s Ratio Prot	c0.10	0.06	c0.08	0.08	0.10		0.07	0.24		0.04	c0.34	
v/s Ratio Perm			0.10						0.03			
v/c Ratio	0.82	0.39	0.67	0.64	0.66		0.61	0.47	0.05	0.46	0.73	
Uniform Delay, d1	59.9	54.1	45.9	58.4	56.5		58.6	22.6	17.6	61.8	30.9	
Progression Factor	0.96	1.08	1.64	1.00	1.00		1.14	0.65	1.00	1.00	1.00	
Incremental Delay, d2	11.4	0.4	3.3	5.7	3.0		1.3	0.9	0.1	1.8	2.2	
Delay (s)	68.7	58.9	78.6	64.1	59.5		67.9	15.5	17.8	63.6	33.1	
Level of Service	E	E	E	E	E		E	B	B	E	C	
Approach Delay (s)		70.3			60.8			30.0			34.2	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	74.3%	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)	4	740	10	105	785	10	49	1	78	37	1	4
Future Volume (veh/h)	4	740	10	105	785	10	49	1	78	37	1	4
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	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	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	4	779	11	121	902	11	57	1	91	44	1	5
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	3466	49	367	2718	33	246	4	380	188	36	178
Arrive On Green	0.02	0.67	0.67	0.11	0.76	0.76	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	5188	73	3456	3595	44	1326	26	1484	926	241	1207
Grp Volume(v), veh/h	4	511	279	121	446	467	58	0	91	44	0	6
Grp Sat Flow(s),veh/h/ln	1781	1702	1857	1728	1777	1862	1352	0	1484	926	0	1449
Q Serve(g_s), s	0.3	8.2	8.2	4.5	11.4	11.4	5.2	0.0	6.8	4.5	0.0	0.5
Cycle Q Clear(g_c), s	0.3	8.2	8.2	4.5	11.4	11.4	5.7	0.0	6.8	10.2	0.0	0.5
Prop In Lane	1.00		0.04	1.00		0.02	0.98		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	33	2274	1241	367	1343	1408	250	0	380	188	0	213
V/C Ratio(X)	0.12	0.22	0.22	0.33	0.33	0.33	0.23	0.00	0.24	0.23	0.00	0.03
Avail Cap(c_a), veh/h	165	2274	1241	395	1343	1408	550	0	702	466	0	528
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	0.72	0.72	0.72	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.6	9.1	9.1	57.9	5.6	5.6	53.6	0.0	41.6	57.9	0.0	51.1
Incr Delay (d2), s/veh	0.6	0.2	0.4	0.1	0.5	0.5	0.2	0.0	0.1	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.0	3.4	2.0	4.0	4.2	1.9	0.0	2.6	1.5	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	9.3	9.5	58.1	6.0	6.0	53.7	0.0	41.7	58.1	0.0	51.2
LnGrp LOS	E	A	A	E	A	A	D	A	D	E	A	D
Approach Vol, veh/h		794			1034			149			50	
Approach Delay, s/veh		9.7			12.1			46.4			57.3	
Approach LOS		A			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.9	97.5		24.6	5.6	109.8		24.6				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	14.0	60.0		49.0	11.0	63.0		49.0				
Max Q Clear Time (g_c+I1), s	10.5	0.0		12.2	2.3	0.0		8.8				
Green Ext Time (p_c), s	0.1	0.0		0.1	0.0	0.0		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	24	0	124	127	1
Future Vol, veh/h	4	24	0	124	127	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	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	28	0	146	149	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	223	75	150	0	-	0
Stage 1	150	-	-	-	-	-
Stage 2	73	-	-	-	-	-
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	745	971	1429	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	745	971	1429	-	-	-
Mov Cap-2 Maneuver	745	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	941	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1429	-	931	-	-
HCM Lane V/C Ratio	-	-	0.035	-	-
HCM Control Delay (s)	0	-	9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	282	79	0	0	2
Future Vol, veh/h	2	282	79	0	0	2
Conflicting Peds, #/hr	12	0	0	12	6	79
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	88	88	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	320	93	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	105	0	-	0	275	138
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	170	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1484	-	-	-	692	885
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	843	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1467	-	-	-	675	809
Mov Cap-2 Maneuver	-	-	-	-	675	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	834	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1467	-	-	-	809
HCM Lane V/C Ratio	0.002	-	-	-	0.003
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

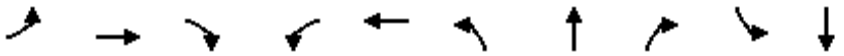
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	515	83	84	46	78	1321	101	1	1646	22
v/c Ratio	0.23	0.59	0.45	0.45	0.16	0.45	0.36	0.09	0.01	0.42	0.01
Control Delay	63.6	11.7	65.5	65.4	1.2	67.1	9.6	0.8	79.0	11.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	11.7	65.5	65.4	1.2	67.1	9.6	0.8	79.0	11.4	0.0
Queue Length 50th (ft)	29	35	75	76	0	68	163	0	1	140	0
Queue Length 95th (ft)	60	50	130	131	0	111	270	6	m1	225	m0
Internal Link Dist (ft)	266			107			648			669	
Turn Bay Length (ft)								260	200		
Base Capacity (vph)	354	941	353	357	424	211	3678	1102	182	3906	1564
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	0.09	0.55	0.24	0.24	0.11	0.37	0.36	0.09	0.01	0.42	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	85	58	172	152	26
v/c Ratio	0.04	0.25	0.03	0.18	0.15	0.01
Control Delay	25.8	9.1	7.9	2.0	3.3	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	9.1	7.9	2.0	3.3	2.8
Queue Length 50th (ft)	4	0	5	0	16	1
Queue Length 95th (ft)	16	31	13	25	29	3
Internal Link Dist (ft)	121		194			483
Turn Bay Length (ft)				180		
Base Capacity (vph)	1107	1022	2068	975	1113	3337
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	0.01	0.08	0.03	0.18	0.14	0.01

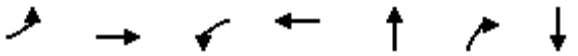
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	345	203	343	139	346	348	844	76	63	1679
v/c Ratio	0.82	0.39	0.73	0.64	0.67	0.61	0.46	0.09	0.42	0.74
Control Delay	73.4	60.9	61.2	71.9	59.4	70.7	16.2	1.0	68.2	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	60.9	61.2	71.9	59.4	70.7	16.2	1.0	68.2	33.3
Queue Length 50th (ft)	160	95	268	122	148	78	266	8	55	436
Queue Length 95th (ft)	#232	135	353	179	182	148	261	0	97	522
Internal Link Dist (ft)		708			1087		669			713
Turn Bay Length (ft)	180		570	190		325		335	115	
Base Capacity (vph)	426	798	483	257	858	613	1823	856	157	2275
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.25	0.71	0.54	0.40	0.57	0.46	0.09	0.40	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

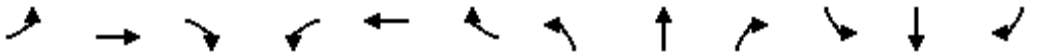


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	790	121	913	58	91	50
v/c Ratio	0.04	0.21	0.33	0.30	0.50	0.25	0.21
Control Delay	64.0	6.3	71.1	1.1	74.2	9.3	53.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	6.3	71.1	1.1	74.2	9.3	53.9
Queue Length 50th (ft)	4	76	48	6	51	0	20
Queue Length 95th (ft)	17	108	m69	101	92	39	38
Internal Link Dist (ft)		847		708	396		112
Turn Bay Length (ft)	150		375				
Base Capacity (vph)	164	3759	392	3035	461	373	920
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	0.02	0.21	0.31	0.30	0.13	0.24	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

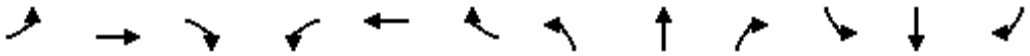
APPENDIX D
BACKGROUND (2025) CONDITIONS
SYNCHRO WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	26	167	246	46	30	214	1341	53	17	1293	37
Future Volume (vph)	12	26	167	246	46	30	214	1341	53	17	1293	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	4.8	5.6	5.6	5.6	4.8	4.7	4.7	4.6	4.7	2.0
Lane Util. Factor		1.00	0.76	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.86	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.95	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1834	3610	1681	1711	1547	1770	5085	1498	1770	6408	1583
Flt Permitted		0.98	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1834	3610	1681	1711	1547	1770	5085	1498	1770	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	13	28	182	267	50	33	223	1397	55	18	1405	40
RTOR Reduction (vph)	0	0	136	0	0	28	0	0	23	0	0	0
Lane Group Flow (vph)	0	41	46	158	159	5	223	1397	32	18	1405	40
Confl. Peds. (#/hr)	10					10			14	14		
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA	pm+ov	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4			3			2			Free
Actuated Green, G (s)		8.3	31.2	19.6	19.6	19.6	22.9	80.7	80.7	3.3	60.9	140.0
Effective Green, g (s)		10.3	35.2	21.6	21.6	21.6	24.9	82.7	82.7	5.3	62.9	140.0
Actuated g/C Ratio		0.07	0.25	0.15	0.15	0.15	0.18	0.59	0.59	0.04	0.45	1.00
Clearance Time (s)		7.2	6.8	7.6	7.6	7.6	6.8	6.7	6.7	6.6	6.7	
Vehicle Extension (s)		4.0	3.0	4.0	4.0	4.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		134	907	259	263	238	314	3003	884	67	2879	1583
v/s Ratio Prot		c0.02	0.01	c0.09	0.09		c0.13	0.27		0.01	c0.22	
v/s Ratio Perm			0.00			0.00			0.02			0.03
v/c Ratio		0.31	0.05	0.61	0.60	0.02	0.71	0.47	0.04	0.27	0.49	0.03
Uniform Delay, d1		61.5	39.7	55.3	55.2	50.2	54.2	16.2	12.0	65.5	27.2	0.0
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.14	0.55	1.00
Incremental Delay, d2		1.8	0.0	4.8	4.5	0.0	7.4	0.5	0.1	1.8	0.5	0.0
Delay (s)		63.2	39.8	60.1	59.7	50.3	61.5	16.7	12.1	76.4	15.4	0.0
Level of Service		E	D	E	E	D	E	B	B	E	B	A
Approach Delay (s)		44.1			59.0			22.5			15.7	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	62.4%	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)	3	167	81	120	168	9	1	1	21	17	1	3
Future Volume (Veh/h)	3	167	81	120	168	9	1	1	21	17	1	3
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)	3	182	88	130	183	10	1	1	23	18	1	3
Pedestrians		8			20			20			25	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		1			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		537			346							
pX, platoon unblocked												
vC, conflicting volume	218			290			615	730	175	614	769	130
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	218			290			615	730	175	614	769	130
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
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			90			100	100	97	94	100	100
cM capacity (veh/h)	1317			1245			323	297	806	310	282	868

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total	3	121	149	222	102	2	12	12	22
Volume Left	3	0	0	130	0	1	0	0	18
Volume Right	0	0	88	0	10	0	12	12	3
cSH	1317	1700	1700	1245	1700	310	806	806	339
Volume to Capacity	0.00	0.07	0.09	0.10	0.06	0.01	0.01	0.01	0.06
Queue Length 95th (ft)	0	0	0	9	0	0	1	1	5
Control Delay (s)	7.7	0.0	0.0	5.2	0.0	16.7	9.5	9.5	16.4
Lane LOS	A			A		C	A	A	C
Approach Delay (s)	0.1			3.6		10.1			16.4
Approach LOS						B			C

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	41.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	111	7	28	224	153
Future Volume (veh/h)	62	111	7	28	224	153
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	0.99	
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	121	8	30	243	166
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	310	276	1827	787	1040	2513
Arrive On Green	0.17	0.17	0.51	0.51	0.13	0.71
Sat Flow, veh/h	1781	1585	3647	1531	1781	3647
Grp Volume(v), veh/h	67	121	8	30	243	166
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1531	1781	1777
Q Serve(g_s), s	2.2	4.6	0.1	0.7	3.4	1.0
Cycle Q Clear(g_c), s	2.2	4.6	0.1	0.7	3.4	1.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	310	276	1827	787	1040	2513
V/C Ratio(X)	0.22	0.44	0.00	0.04	0.23	0.07
Avail Cap(c_a), veh/h	1138	1013	1827	787	1606	3644
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	23.9	24.9	8.0	8.1	4.1	3.0
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.7	0.0	0.2	0.9	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.0	25.3	8.0	8.2	4.1	3.0
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	188		38			409
Approach Delay, s/veh	24.8		8.1			3.7
Approach LOS	C		A			A
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.0	38.6		15.7		51.6
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	28.4	32.6		41.0		67.0
Max Q Clear Time (g_c+I1), s	5.4	2.7		6.6		3.0
Green Ext Time (p_c), s	0.3	0.1		0.3		0.8

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	439	308	343	89	181	42	572	701	111	18	916	107
Future Volume (vph)	439	308	343	89	181	42	572	701	111	18	916	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1	6.1	5.4	5.1		6.1	4.7	4.7	5.5	4.7	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.94	0.95	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1551	1656	3360		4942	3505	1477	1770	4951	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1551	1656	3360		4942	3505	1477	1770	4951	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	477	335	373	97	197	46	622	762	121	19	974	114
RTOR Reduction (vph)	0	0	54	0	16	0	0	0	56	0	8	0
Lane Group Flow (vph)	477	335	319	97	227	0	622	762	65	19	1080	0
Confl. Peds. (#/hr)	3		7	7		3	3		6	6		7
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	3%	9%	2%	13%	3%	3%	7%	2%	3%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	19.4	24.7	47.5	9.3	14.4		22.8	72.8	72.8	4.5	53.9	
Effective Green, g (s)	21.4	26.7	51.5	11.3	16.4		24.8	74.8	74.8	6.5	55.9	
Actuated g/C Ratio	0.15	0.19	0.37	0.08	0.12		0.18	0.53	0.53	0.05	0.40	
Clearance Time (s)	7.6	7.1	8.1	7.4	7.1		8.1	6.7	6.7	7.5	6.7	
Vehicle Extension (s)	2.5	2.5	2.0	2.5	2.5		2.0	0.2	0.2	2.5	0.2	
Lane Grp Cap (vph)	524	674	570	133	393		875	1872	789	82	1976	
v/s Ratio Prot	c0.14	0.09	c0.10	0.06	0.07		c0.13	0.22		0.01	c0.22	
v/s Ratio Perm			0.11						0.04			
v/c Ratio	0.91	0.50	0.56	0.73	0.58		0.71	0.41	0.08	0.23	0.55	
Uniform Delay, d1	58.4	50.6	35.2	62.9	58.5		54.2	19.4	15.9	64.3	32.3	
Progression Factor	0.97	1.36	0.86	1.00	1.00		1.34	0.43	1.00	1.00	1.00	
Incremental Delay, d2	19.5	0.4	0.7	17.0	1.7		2.1	0.6	0.2	1.1	1.1	
Delay (s)	76.3	69.5	30.9	79.9	60.2		74.8	8.9	16.1	65.4	33.4	
Level of Service	E	E	C	E	E		E	A	B	E	C	
Approach Delay (s)		60.1			65.8			36.7			33.9	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	75.2%	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)	12	966	87	266	545	38	33	3	61	61	8	11
Future Volume (veh/h)	12	966	87	266	545	38	33	3	61	61	8	11
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	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	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	13	1050	95	286	586	41	36	3	66	66	9	12
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	3240	293	390	2584	181	201	15	363	175	85	113
Arrive On Green	0.03	0.68	0.68	0.11	0.77	0.77	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	4765	431	3456	3368	235	1178	115	1487	957	658	877
Grp Volume(v), veh/h	13	750	395	286	309	318	39	0	66	66	0	21
Grp Sat Flow(s),veh/h/ln	1781	1702	1791	1728	1777	1827	1293	0	1487	957	0	1534
Q Serve(g_s), s	1.0	12.7	12.7	11.2	6.9	6.9	3.3	0.0	4.9	6.7	0.0	1.7
Cycle Q Clear(g_c), s	1.0	12.7	12.7	11.2	6.9	6.9	5.0	0.0	4.9	11.6	0.0	1.7
Prop In Lane	1.00		0.24	1.00		0.13	0.92		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	46	2314	1218	390	1363	1401	216	0	363	175	0	197
V/C Ratio(X)	0.28	0.32	0.32	0.73	0.23	0.23	0.18	0.00	0.18	0.38	0.00	0.11
Avail Cap(c_a), veh/h	216	2314	1218	864	1363	1401	407	0	565	354	0	406
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	0.68	0.68	0.68	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.9	9.2	9.2	60.1	4.6	4.6	55.9	0.0	42.1	60.6	0.0	53.9
Incr Delay (d2), s/veh	1.3	0.4	0.7	0.7	0.3	0.3	0.1	0.0	0.1	0.5	0.0	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	0.5	4.6	5.0	4.9	2.3	2.4	1.3	0.0	1.9	2.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	9.6	9.9	60.8	4.9	4.9	56.0	0.0	42.2	61.1	0.0	54.0
LnGrp LOS	E	A	A	E	A	A	E	A	D	E	A	D
Approach Vol, veh/h		1158			913			105			87	
Approach Delay, s/veh		10.3			22.4			47.4			59.4	
Approach LOS		B			C			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.8	99.2		22.0	6.6	111.4		22.0
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0
Max Green Setting (Gmax), s	13.8	55.0		35.0	15.0	73.0		35.0
Max Q Clear Time (g_c+I1), s	13.2	0.0		13.6	3.0	0.0		7.0
Green Ext Time (p_c), s	0.6	0.0		0.1	0.0	0.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	12	106	376	20
Future Vol, veh/h	1	1	12	106	376	20
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	-	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	1	13	115	409	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	504	216	431	0	-	0
Stage 1	420	-	-	-	-	-
Stage 2	84	-	-	-	-	-
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	497	789	1125	-	-	-
Stage 1	631	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	491	789	1125	-	-	-
Mov Cap-2 Maneuver	491	-	-	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	930	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1125	-	605	-	-
HCM Lane V/C Ratio	0.012	-	0.004	-	-
HCM Control Delay (s)	8.2	-	11	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	251	172	0	0	1
Future Vol, veh/h	1	251	172	0	0	1
Conflicting Peds, #/hr	7	0	0	7	36	14
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	273	187	0	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	194	0	-	0	369	115
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	175	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1377	-	-	-	604	916
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1368	-	-	-	595	898
Mov Cap-2 Maneuver	-	-	-	-	595	-
Stage 1	-	-	-	-	813	-
Stage 2	-	-	-	-	832	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1368	-	-	-	898
HCM Lane V/C Ratio	0.001	-	-	-	0.001
HCM Control Delay (s)	7.6	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

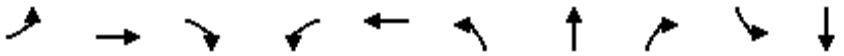
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	182	158	159	33	223	1397	55	18	1405	40
v/c Ratio	0.27	0.16	0.61	0.60	0.08	0.71	0.44	0.06	0.16	0.48	0.03
Control Delay	63.8	4.3	64.6	64.1	0.4	66.1	16.8	0.1	72.6	16.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	4.3	64.6	64.1	0.4	66.1	16.8	0.1	72.6	16.5	0.0
Queue Length 50th (ft)	36	0	143	144	0	193	209	0	16	143	0
Queue Length 95th (ft)	74	21	211	212	0	268	385	0	m32	167	m0
Internal Link Dist (ft)	266			107			648			669	
Turn Bay Length (ft)								260	200		
Base Capacity (vph)	164	1412	401	408	512	457	3197	995	156	2944	1583
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	0.25	0.13	0.39	0.39	0.06	0.49	0.44	0.06	0.12	0.48	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	121	8	30	243	166
v/c Ratio	0.22	0.32	0.00	0.04	0.26	0.07
Control Delay	26.7	8.3	8.9	3.9	4.1	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	8.3	8.9	3.9	4.1	3.1
Queue Length 50th (ft)	24	0	1	0	27	8
Queue Length 95th (ft)	58	41	4	12	48	15
Internal Link Dist (ft)	121		194			483
Turn Bay Length (ft)				180		
Base Capacity (vph)	1111	1038	1788	786	1110	3527
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	0.06	0.12	0.00	0.04	0.22	0.05

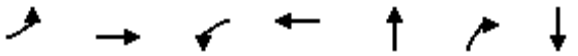
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	477	335	373	97	243	622	762	121	19	1088
v/c Ratio	0.91	0.50	0.61	0.72	0.60	0.71	0.39	0.13	0.17	0.55
Control Delay	78.7	71.4	24.5	91.7	60.1	76.7	8.8	0.3	65.0	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.7	71.4	24.5	91.7	60.1	76.7	8.8	0.3	65.0	34.2
Queue Length 50th (ft)	221	170	166	88	103	145	72	0	17	273
Queue Length 95th (ft)	#317	222	205	#175	146	254	67	0	44	358
Internal Link Dist (ft)		708			1087		669			713
Turn Bay Length (ft)	180		570	190		325		335	115	
Base Capacity (vph)	524	958	699	137	684	1161	1947	912	158	1985
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.35	0.53	0.71	0.36	0.54	0.39	0.13	0.12	0.55

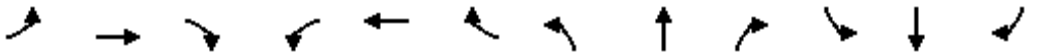
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	13	1145	286	627	39	66	87
v/c Ratio	0.13	0.32	0.63	0.22	0.39	0.19	0.40
Control Delay	65.3	8.2	92.6	0.4	72.2	23.7	57.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	8.2	92.6	0.4	72.2	23.7	57.5
Queue Length 50th (ft)	12	125	142	3	35	25	34
Queue Length 95th (ft)	35	183	192	6	73	61	63
Internal Link Dist (ft)		847		708	396		112
Turn Bay Length (ft)	150		375				
Base Capacity (vph)	214	3565	858	2902	331	530	703
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	0.06	0.32	0.33	0.22	0.12	0.12	0.12

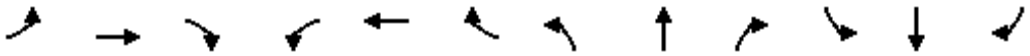
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	4	440	143	15	44	72	1152	86	1	1562	20
Future Volume (vph)	24	4	440	143	15	44	72	1152	86	1	1562	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	4.8	5.6	5.6	5.6	4.8	4.7	4.7	4.6	4.7	2.0
Lane Util. Factor		1.00	0.76	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.86	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.93	1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1785	3610	1681	1701	1510	1770	5085	1469	1770	6408	1564
Flt Permitted		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1785	3610	1681	1701	1510	1770	5085	1469	1770	6408	1564
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	26	4	478	151	16	46	78	1252	93	1	1680	22
RTOR Reduction (vph)	0	0	318	0	0	41	0	0	31	0	0	0
Lane Group Flow (vph)	0	30	160	83	84	5	78	1252	62	1	1680	22
Confl. Peds. (#/hr)	29					29			22	22		
Confl. Bikes (#/hr)						1						2
Turn Type	Split	NA	pm+ov	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4			3			2			Free
Actuated Green, G (s)		6.1	17.8	13.3	13.3	13.3	11.7	91.3	91.3	1.2	80.6	140.0
Effective Green, g (s)		8.1	21.8	15.3	15.3	15.3	13.7	93.3	93.3	3.2	82.6	140.0
Actuated g/C Ratio		0.06	0.16	0.11	0.11	0.11	0.10	0.67	0.67	0.02	0.59	1.00
Clearance Time (s)		7.2	6.8	7.6	7.6	7.6	6.8	6.7	6.7	6.6	6.7	
Vehicle Extension (s)		4.0	3.0	4.0	4.0	4.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		103	562	183	185	165	173	3388	978	40	3780	1564
v/s Ratio Prot		c0.02	0.03	0.05	c0.05		c0.04	0.25		0.00	c0.26	
v/s Ratio Perm			0.02			0.00			0.04			0.01
v/c Ratio		0.29	0.28	0.45	0.45	0.03	0.45	0.37	0.06	0.03	0.44	0.01
Uniform Delay, d1		63.2	52.2	58.4	58.4	55.7	59.6	10.3	8.1	66.9	15.9	0.0
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.25	0.66	1.00
Incremental Delay, d2		2.1	0.3	2.4	2.4	0.1	1.9	0.3	0.1	0.2	0.3	0.0
Delay (s)		65.3	52.5	60.9	60.8	55.8	61.5	10.6	8.3	83.9	10.8	0.0
Level of Service		E	D	E	E	E	E	B	A	F	B	A
Approach Delay (s)		53.2			59.8			13.3			10.8	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	66.8%	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)	3	279	2	13	81	13	3	0	170	19	1	1
Future Volume (Veh/h)	3	279	2	13	81	13	3	0	170	19	1	1
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)	3	303	2	14	88	14	3	0	185	21	1	1
Pedestrians		3			23			21			13	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			2			2			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		537			346							
pX, platoon unblocked												
vC, conflicting volume	115			326			408	474	196	502	468	67
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115			326			408	474	196	502	468	67
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
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			99			99	100	76	93	100	100
cM capacity (veh/h)	1453			1206			497	465	778	322	469	968

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total	3	202	103	58	58	3	92	92	23
Volume Left	3	0	0	14	0	3	0	0	21
Volume Right	0	0	2	0	14	0	92	92	1
cSH	1453	1700	1700	1206	1700	497	778	778	336
Volume to Capacity	0.00	0.12	0.06	0.01	0.03	0.01	0.12	0.12	0.07
Queue Length 95th (ft)	0	0	0	1	0	0	10	10	5
Control Delay (s)	7.5	0.0	0.0	2.0	0.0	12.3	10.3	10.3	16.5
Lane LOS	A			A		B	B	B	C
Approach Delay (s)	0.1			1.0		10.3			16.5
Approach LOS						B			C

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	35.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	78	52	155	131	22
Future Volume (veh/h)	9	78	52	155	131	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	85	57	168	142	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	265	236	1976	876	956	2620
Arrive On Green	0.15	0.15	0.56	0.56	0.12	0.74
Sat Flow, veh/h	1781	1585	3647	1575	1781	3647
Grp Volume(v), veh/h	10	85	57	168	142	24
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1575	1781	1777
Q Serve(g_s), s	0.3	3.4	0.5	3.7	1.8	0.1
Cycle Q Clear(g_c), s	0.3	3.4	0.5	3.7	1.8	0.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	265	236	1976	876	956	2620
V/C Ratio(X)	0.04	0.36	0.03	0.19	0.15	0.01
Avail Cap(c_a), veh/h	1143	1017	1976	876	1344	3394
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	25.6	26.9	7.0	7.7	3.3	2.4
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.3	0.2	1.2	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.6	27.2	7.1	8.2	3.3	2.4
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	95		225			166
Approach Delay, s/veh	27.0		7.9			3.2
Approach LOS	C		A			A

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.7	43.0		14.4		55.7
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	22.0	37.0		43.0		65.0
Max Q Clear Time (g_c+I1), s	3.8	5.7		5.4		2.1
Green Ext Time (p_c), s	0.2	0.5		0.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	202	339	120	248	65	343	806	72	55	1125	350
Future Volume (vph)	338	202	339	120	248	65	343	806	72	55	1125	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1	6.1	5.4	5.1		6.1	4.7	4.7	5.5	4.7	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.94	0.95	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3505	1564	1752	3375		4802	3539	1521	1770	4889	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3505	1564	1752	3375		4802	3539	1521	1770	4889	
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	352	210	353	130	270	71	365	857	77	60	1223	380
RTOR Reduction (vph)	0	0	67	0	20	0	0	0	38	0	34	0
Lane Group Flow (vph)	352	210	286	130	321	0	365	857	39	60	1569	0
Confl. Peds. (#/hr)	7		6	6		7			6	6		
Confl. Bikes (#/hr)			4			3						2
Heavy Vehicles (%)	2%	3%	2%	3%	2%	7%	6%	2%	4%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	15.3	18.9	34.1	14.8	18.2		15.2	69.1	69.1	8.5	61.8	
Effective Green, g (s)	17.3	20.9	38.1	16.8	20.2		17.2	71.1	71.1	10.5	63.8	
Actuated g/C Ratio	0.12	0.15	0.27	0.12	0.14		0.12	0.51	0.51	0.08	0.46	
Clearance Time (s)	7.6	7.1	8.1	7.4	7.1		8.1	6.7	6.7	7.5	6.7	
Vehicle Extension (s)	2.5	2.5	2.0	2.5	2.5		2.0	0.2	0.2	2.5	0.2	
Lane Grp Cap (vph)	424	523	425	210	486		589	1797	772	132	2227	
v/s Ratio Prot	c0.10	0.06	c0.08	0.07	0.10		0.08	0.24		0.03	c0.32	
v/s Ratio Perm			0.10						0.03			
v/c Ratio	0.83	0.40	0.67	0.62	0.66		0.62	0.48	0.05	0.45	0.70	
Uniform Delay, d1	59.9	53.9	45.4	58.6	56.7		58.3	22.4	17.4	62.0	30.5	
Progression Factor	0.96	1.07	1.63	1.00	1.00		1.10	0.66	1.00	1.00	1.00	
Incremental Delay, d2	12.6	0.4	3.3	4.6	3.0		1.3	0.9	0.1	1.8	1.9	
Delay (s)	70.3	58.2	77.2	63.1	59.7		65.4	15.6	17.5	63.8	32.4	
Level of Service	E	E	E	E	E		E	B	B	E	C	
Approach Delay (s)		70.2			60.6			29.7			33.6	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	75.9%	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)	10	751	10	105	797	37	49	7	78	48	3	6
Future Volume (veh/h)	10	751	10	105	797	37	49	7	78	48	3	6
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	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	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	11	791	11	114	866	40	53	8	85	52	3	7
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	3447	48	366	2580	119	228	31	386	192	67	157
Arrive On Green	0.02	0.66	0.66	0.11	0.75	0.75	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	5189	72	3456	3458	160	1189	206	1485	931	445	1039
Grp Volume(v), veh/h	11	519	283	114	445	461	61	0	85	52	0	10
Grp Sat Flow(s),veh/h/ln	1781	1702	1857	1728	1777	1841	1395	0	1485	931	0	1485
Q Serve(g_s), s	0.8	8.4	8.5	4.3	11.9	11.9	4.9	0.0	6.3	5.3	0.0	0.8
Cycle Q Clear(g_c), s	0.8	8.4	8.5	4.3	11.9	11.9	5.8	0.0	6.3	11.0	0.0	0.8
Prop In Lane	1.00		0.04	1.00		0.09	0.87		1.00	1.00		0.70
Lane Grp Cap(c), veh/h	43	2261	1234	366	1326	1374	259	0	386	192	0	224
V/C Ratio(X)	0.25	0.23	0.23	0.31	0.34	0.34	0.24	0.00	0.22	0.27	0.00	0.04
Avail Cap(c_a), veh/h	165	2261	1234	395	1326	1374	562	0	702	465	0	541
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	0.72	0.72	0.72	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.1	9.3	9.3	57.8	6.0	6.0	53.0	0.0	41.0	57.8	0.0	50.8
Incr Delay (d2), s/veh	1.1	0.2	0.4	0.1	0.5	0.5	0.2	0.0	0.1	0.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.1	3.5	1.9	4.2	4.3	2.0	0.0	2.4	1.7	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	9.5	9.7	58.0	6.5	6.5	53.2	0.0	41.1	58.1	0.0	50.8
LnGrp LOS	E	A	A	E	A	A	D	A	D	E	A	D
Approach Vol, veh/h		813			1020			146			62	
Approach Delay, s/veh		10.4			12.3			46.2			56.9	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.8	97.0		25.1	6.4	108.5		25.1
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0
Max Green Setting (Gmax), s	14.8	60.0		49.0	11.0	63.0		49.0
Max Q Clear Time (g_c+I1), s	10.3	0.0		13.0	2.8	0.0		8.3
Green Ext Time (p_c), s	0.1	0.0		0.1	0.0	0.0		0.3

Intersection Summary	
HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	24	0	130	129	1
Future Vol, veh/h	4	24	0	130	129	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	-	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	4	26	0	141	140	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	212	71	141	0	-	0
Stage 1	141	-	-	-	-	-
Stage 2	71	-	-	-	-	-
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	757	977	1440	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	757	977	1440	-	-	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	943	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1440	-	938	-	-
HCM Lane V/C Ratio	-	-	0.032	-	-
HCM Control Delay (s)	0	-	9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	284	85	0	0	2
Future Vol, veh/h	2	284	85	0	0	2
Conflicting Peds, #/hr	12	0	0	12	6	79
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	2	309	92	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	104	0	-	0	269	137
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	165	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1485	-	-	-	698	886
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	847	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1468	-	-	-	681	810
Mov Cap-2 Maneuver	-	-	-	-	681	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	838	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1468	-	-	-	810
HCM Lane V/C Ratio	0.001	-	-	-	0.003
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

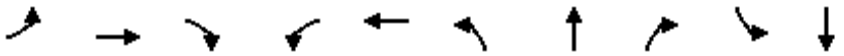
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	478	83	84	46	78	1252	93	1	1680	22
v/c Ratio	0.21	0.55	0.45	0.45	0.16	0.45	0.34	0.08	0.01	0.43	0.01
Control Delay	63.4	9.6	65.5	65.4	1.2	67.1	9.3	0.5	78.0	11.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.4	9.6	65.5	65.4	1.2	67.1	9.3	0.5	78.0	11.2	0.0
Queue Length 50th (ft)	26	26	75	76	0	68	150	0	1	145	0
Queue Length 95th (ft)	59	49	130	131	0	119	272	5	m1	224	m0
Internal Link Dist (ft)	266			107			648			669	
Turn Bay Length (ft)								260	200		
Base Capacity (vph)	354	936	353	357	424	211	3684	1103	182	3913	1564
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	0.08	0.51	0.24	0.24	0.11	0.37	0.34	0.08	0.01	0.43	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	85	57	168	142	24
v/c Ratio	0.03	0.25	0.03	0.17	0.14	0.01
Control Delay	25.7	9.1	7.8	2.0	3.3	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	9.1	7.8	2.0	3.3	2.8
Queue Length 50th (ft)	4	0	5	0	15	1
Queue Length 95th (ft)	16	35	13	24	29	3
Internal Link Dist (ft)	121		194			483
Turn Bay Length (ft)				180		
Base Capacity (vph)	1108	1023	2069	974	1113	3339
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	0.01	0.08	0.03	0.17	0.13	0.01

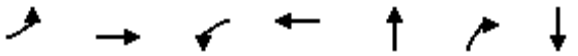
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	352	210	353	130	341	365	857	77	60	1603
v/c Ratio	0.83	0.40	0.73	0.62	0.67	0.62	0.47	0.09	0.41	0.71
Control Delay	74.8	60.3	59.9	71.2	59.3	68.2	16.2	1.1	68.1	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.8	60.3	59.9	71.2	59.3	68.2	16.2	1.1	68.1	32.6
Queue Length 50th (ft)	164	97	276	114	146	78	270	9	53	406
Queue Length 95th (ft)	#240	138	353	181	193	148	363	0	99	531
Internal Link Dist (ft)		708			1087		669			713
Turn Bay Length (ft)	180		570	190		325		335	115	
Base Capacity (vph)	426	798	492	257	859	624	1834	860	155	2259
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.26	0.72	0.51	0.40	0.58	0.47	0.09	0.39	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

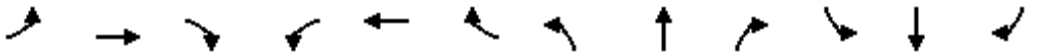


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	11	802	114	906	61	85	62
v/c Ratio	0.12	0.21	0.31	0.31	0.51	0.24	0.26
Control Delay	65.1	6.4	71.5	1.6	74.1	9.6	53.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	6.4	71.5	1.6	74.1	9.6	53.7
Queue Length 50th (ft)	10	79	45	7	54	0	24
Queue Length 95th (ft)	31	110	m68	129	100	43	47
Internal Link Dist (ft)		847		708	396		112
Turn Bay Length (ft)	150		375				
Base Capacity (vph)	164	3755	392	2954	473	370	916
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	0.07	0.21	0.29	0.31	0.13	0.23	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

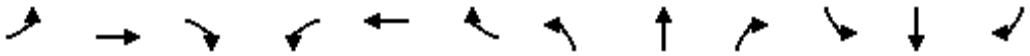
APPENDIX E
TOTAL FUTURE (2025) CONDTIONS
SYNCHRO WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	26	199	246	46	30	224	1341	53	17	1293	37
Future Volume (vph)	12	26	199	246	46	30	224	1341	53	17	1293	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	4.8	5.6	5.6	5.6	4.8	4.7	4.7	4.6	4.7	2.0
Lane Util. Factor		1.00	0.76	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.86	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.95	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1834	3610	1681	1711	1547	1770	5085	1498	1770	6408	1583
Flt Permitted		0.98	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1834	3610	1681	1711	1547	1770	5085	1498	1770	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	13	28	216	267	50	33	233	1397	55	18	1405	40
RTOR Reduction (vph)	0	0	160	0	0	28	0	0	23	0	0	0
Lane Group Flow (vph)	0	41	56	158	159	5	233	1397	32	18	1405	40
Confl. Peds. (#/hr)	10					10			14	14		
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA	pm+ov	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4			3			2			Free
Actuated Green, G (s)		8.3	32.0	19.6	19.6	19.6	23.7	80.7	80.7	3.3	60.1	140.0
Effective Green, g (s)		10.3	36.0	21.6	21.6	21.6	25.7	82.7	82.7	5.3	62.1	140.0
Actuated g/C Ratio		0.07	0.26	0.15	0.15	0.15	0.18	0.59	0.59	0.04	0.44	1.00
Clearance Time (s)		7.2	6.8	7.6	7.6	7.6	6.8	6.7	6.7	6.6	6.7	
Vehicle Extension (s)		4.0	3.0	4.0	4.0	4.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		134	928	259	263	238	324	3003	884	67	2842	1583
v/s Ratio Prot		c0.02	0.01	c0.09	0.09		c0.13	0.27		0.01	c0.22	
v/s Ratio Perm			0.00			0.00			0.02			0.03
v/c Ratio		0.31	0.06	0.61	0.60	0.02	0.72	0.47	0.04	0.27	0.49	0.03
Uniform Delay, d1		61.5	39.2	55.3	55.2	50.2	53.8	16.2	12.0	65.5	27.8	0.0
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.13	0.55	1.00
Incremental Delay, d2		1.8	0.0	4.8	4.5	0.0	7.4	0.5	0.1	1.8	0.5	0.0
Delay (s)		63.2	39.3	60.1	59.7	50.3	61.2	16.7	12.1	76.0	15.7	0.0
Level of Service		E	D	E	E	D	E	B	B	E	B	A
Approach Delay (s)		43.1			59.0			22.7			16.0	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



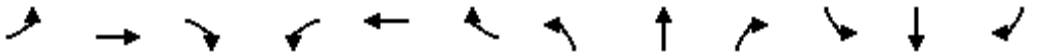
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	199	81	120	178	9	1	1	21	17	1	3
Future Volume (Veh/h)	3	199	81	120	178	9	1	1	21	17	1	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	216	88	130	193	10	1	1	23	18	1	3
Pedestrians		8			20			20			25	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		1			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		537			346							
pX, platoon unblocked												
vC, conflicting volume	228			324			654	774	192	640	813	134
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	228			324			654	774	192	640	813	134
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
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			89			100	100	97	94	100	100
cM capacity (veh/h)	1306			1209			302	280	786	296	265	862

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total	3	144	160	226	106	2	12	12	22
Volume Left	3	0	0	130	0	1	0	0	18
Volume Right	0	0	88	0	10	0	12	12	3
cSH	1306	1700	1700	1209	1700	290	786	786	323
Volume to Capacity	0.00	0.08	0.09	0.11	0.06	0.01	0.01	0.01	0.07
Queue Length 95th (ft)	0	0	0	9	0	1	1	1	5
Control Delay (s)	7.8	0.0	0.0	5.2	0.0	17.5	9.6	9.6	17.0
Lane LOS	A			A		C	A	A	C
Approach Delay (s)	0.1			3.5		10.3			17.0
Approach LOS						B			C

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	41.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	120	7	28	255	153
Future Volume (veh/h)	62	120	7	28	255	153
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	0.99	
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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	130	8	30	277	166
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	311	277	1826	787	1039	2512
Arrive On Green	0.17	0.17	0.51	0.51	0.13	0.71
Sat Flow, veh/h	1781	1585	3647	1531	1781	3647
Grp Volume(v), veh/h	67	130	8	30	277	166
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1531	1781	1777
Q Serve(g_s), s	2.2	5.0	0.1	0.7	4.0	1.0
Cycle Q Clear(g_c), s	2.2	5.0	0.1	0.7	4.0	1.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	311	277	1826	787	1039	2512
V/C Ratio(X)	0.22	0.47	0.00	0.04	0.27	0.07
Avail Cap(c_a), veh/h	1137	1012	1826	787	1605	3641
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	23.8	25.0	8.0	8.1	4.2	3.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.8	0.0	0.2	1.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.0	25.5	8.0	8.2	4.2	3.0
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	197		38			443
Approach Delay, s/veh	25.0		8.2			3.8
Approach LOS	C		A			A
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.0	38.6		15.7		51.6
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	28.4	32.6		41.0		67.0
Max Q Clear Time (g_c+I1), s	6.0	2.7		7.0		3.0
Green Ext Time (p_c), s	0.4	0.1		0.3		0.8

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	459	328	343	89	187	42	572	701	111	18	916	113
Future Volume (vph)	459	328	343	89	187	42	572	701	111	18	916	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1	6.1	5.4	5.1		6.1	4.7	4.7	5.5	4.7	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.94	0.95	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1551	1656	3364		4942	3505	1477	1770	4947	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1551	1656	3364		4942	3505	1477	1770	4947	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	499	357	373	97	203	46	622	762	121	19	974	120
RTOR Reduction (vph)	0	0	54	0	15	0	0	0	57	0	9	0
Lane Group Flow (vph)	499	357	319	97	234	0	622	762	64	19	1085	0
Confl. Peds. (#/hr)	3		7	7		3	3		6	6		7
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	3%	9%	2%	13%	3%	3%	7%	2%	3%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	19.4	24.9	47.7	9.3	14.6		22.8	72.6	72.6	4.5	53.7	
Effective Green, g (s)	21.4	26.9	51.7	11.3	16.6		24.8	74.6	74.6	6.5	55.7	
Actuated g/C Ratio	0.15	0.19	0.37	0.08	0.12		0.18	0.53	0.53	0.05	0.40	
Clearance Time (s)	7.6	7.1	8.1	7.4	7.1		8.1	6.7	6.7	7.5	6.7	
Vehicle Extension (s)	2.5	2.5	2.0	2.5	2.5		2.0	0.2	0.2	2.5	0.2	
Lane Grp Cap (vph)	524	679	572	133	398		875	1867	787	82	1968	
v/s Ratio Prot	c0.15	0.10	c0.10	0.06	0.07		c0.13	0.22		0.01	c0.22	
v/s Ratio Perm			0.11						0.04			
v/c Ratio	0.95	0.53	0.56	0.73	0.59		0.71	0.41	0.08	0.23	0.55	
Uniform Delay, d1	58.8	50.8	35.1	62.9	58.5		54.2	19.5	16.0	64.3	32.5	
Progression Factor	0.96	1.32	0.83	1.00	1.00		1.34	0.42	1.00	1.00	1.00	
Incremental Delay, d2	27.0	0.5	0.6	17.0	1.8		2.1	0.6	0.2	1.1	1.1	
Delay (s)	83.5	67.5	29.6	79.9	60.3		74.7	8.9	16.2	65.4	33.6	
Level of Service	F	E	C	E	E		E	A	B	E	C	
Approach Delay (s)		62.5			65.8			36.7			34.2	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	46.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	76.0%	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)	12	966	88	278	545	38	40	3	102	61	8	11
Future Volume (veh/h)	12	966	88	278	545	38	40	3	102	61	8	11
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	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	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	13	1050	96	299	586	41	43	3	111	66	9	12
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	3191	291	403	2564	179	210	13	378	171	88	118
Arrive On Green	0.03	0.67	0.67	0.12	0.76	0.76	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	4760	435	3456	3368	235	1195	97	1488	890	658	877
Grp Volume(v), veh/h	13	750	396	299	309	318	46	0	111	66	0	21
Grp Sat Flow(s),veh/h/ln	1781	1702	1791	1728	1777	1827	1293	0	1488	890	0	1535
Q Serve(g_s), s	1.0	13.1	13.1	11.7	7.0	7.1	4.0	0.0	8.5	6.9	0.0	1.7
Cycle Q Clear(g_c), s	1.0	13.1	13.1	11.7	7.0	7.1	5.6	0.0	8.5	12.6	0.0	1.7
Prop In Lane	1.00		0.24	1.00		0.13	0.93		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	46	2282	1200	403	1353	1391	224	0	378	171	0	206
V/C Ratio(X)	0.28	0.33	0.33	0.74	0.23	0.23	0.21	0.00	0.29	0.39	0.00	0.10
Avail Cap(c_a), veh/h	216	2282	1200	864	1353	1391	406	0	571	336	0	406
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	0.68	0.68	0.68	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.9	9.8	9.8	59.8	4.8	4.8	55.5	0.0	42.4	60.6	0.0	53.2
Incr Delay (d2), s/veh	1.3	0.4	0.7	0.7	0.3	0.3	0.2	0.0	0.2	0.5	0.0	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	0.5	4.8	5.2	5.2	2.4	2.5	1.5	0.0	3.2	2.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	10.1	10.5	60.5	5.1	5.1	55.7	0.0	42.6	61.1	0.0	53.2
LnGrp LOS	E	B	B	E	A	A	E	A	D	E	A	D
Approach Vol, veh/h		1159			926			157			87	
Approach Delay, s/veh		10.9			23.0			46.4			59.2	
Approach LOS		B			C			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.3	97.8		22.8	6.6	110.6		22.8
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0
Max Green Setting (Gmax), s	3.3	55.0		35.0	15.0	73.0		35.0
Max Q Clear Time (g_c+I1), s	3.7	0.0		14.6	3.0	0.0		10.5
Green Ext Time (p_c), s	0.6	0.0		0.1	0.0	0.0		0.3

Intersection Summary		
HCM 6th Ctrl Delay		19.9
HCM 6th LOS		B

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	32	0	49	12	105	10	14	375	20
Future Vol, veh/h	1	0	1	32	0	49	12	105	10	14	375	20
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	-	-	-	-	-	-	0	-	-	-	-	-
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	1	0	1	35	0	53	13	114	11	15	408	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	532	600	215	380	606	63	430	0	0	125	0	0
Stage 1	449	449	-	146	146	-	-	-	-	-	-	-
Stage 2	83	151	-	234	460	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	430	413	790	552	410	988	1126	-	-	1459	-	-
Stage 1	559	571	-	842	775	-	-	-	-	-	-	-
Stage 2	916	771	-	748	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	399	402	790	540	399	988	1126	-	-	1459	-	-
Mov Cap-2 Maneuver	399	402	-	540	399	-	-	-	-	-	-	-
Stage 1	552	563	-	832	766	-	-	-	-	-	-	-
Stage 2	857	762	-	737	556	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	10.5	0.8	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1126	-	-	530	744	1459	-	-
HCM Lane V/C Ratio	0.012	-	-	0.004	0.118	0.01	-	-
HCM Control Delay (s)	8.2	-	-	11.8	10.5	7.5	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-	-

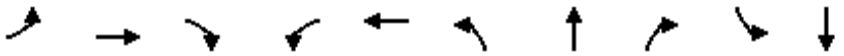
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	41	216	158	159	33	233	1397	55	18	1405	40
v/c Ratio	0.27	0.18	0.61	0.60	0.08	0.72	0.44	0.06	0.16	0.48	0.03
Control Delay	63.8	3.9	64.6	64.1	0.4	65.9	16.8	0.1	72.2	16.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	3.9	64.6	64.1	0.4	65.9	16.8	0.1	72.2	16.8	0.0
Queue Length 50th (ft)	36	0	143	144	0	202	209	0	16	144	0
Queue Length 95th (ft)	74	22	211	212	0	278	385	0	m32	168	m0
Internal Link Dist (ft)	266			107			648			669	
Turn Bay Length (ft)								260	200		
Base Capacity (vph)	164	1434	401	408	512	457	3197	995	156	2908	1583
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	0.25	0.15	0.39	0.39	0.06	0.51	0.44	0.06	0.12	0.48	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	130	8	30	277	166
v/c Ratio	0.22	0.34	0.00	0.04	0.29	0.07
Control Delay	27.0	8.3	9.1	4.0	4.3	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	8.3	9.1	4.0	4.3	3.1
Queue Length 50th (ft)	25	0	1	0	32	8
Queue Length 95th (ft)	59	43	4	12	54	15
Internal Link Dist (ft)	121		194			469
Turn Bay Length (ft)				180		
Base Capacity (vph)	1104	1036	1776	781	1111	3515
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	0.06	0.13	0.00	0.04	0.25	0.05

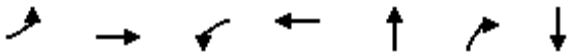
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	499	357	373	97	249	622	762	121	19	1094
v/c Ratio	0.95	0.53	0.61	0.72	0.60	0.71	0.39	0.13	0.17	0.55
Control Delay	84.8	69.4	23.5	91.7	60.3	76.6	8.9	0.3	65.0	34.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	69.4	23.5	91.7	60.3	76.6	8.9	0.3	65.0	34.5
Queue Length 50th (ft)	225	180	166	88	106	144	79	0	17	276
Queue Length 95th (ft)	#341	234	203	#175	149	254	67	0	44	362
Internal Link Dist (ft)		708			1087		669			713
Turn Bay Length (ft)	180		570	190		325		335	115	
Base Capacity (vph)	524	958	702	137	683	1161	1940	910	158	1975
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.37	0.53	0.71	0.36	0.54	0.39	0.13	0.12	0.55

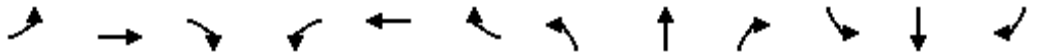
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	13	1146	299	627	46	111	87
v/c Ratio	0.13	0.33	0.65	0.22	0.44	0.30	0.38
Control Delay	65.3	8.7	93.5	0.5	73.6	30.8	56.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	8.7	93.5	0.5	73.6	30.8	56.2
Queue Length 50th (ft)	12	130	150	4	41	58	34
Queue Length 95th (ft)	35	191	200	7	82	104	62
Internal Link Dist (ft)		847		708	398		112
Turn Bay Length (ft)	150		375				
Base Capacity (vph)	214	3524	858	2887	330	537	700
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	0.06	0.33	0.35	0.22	0.14	0.21	0.12

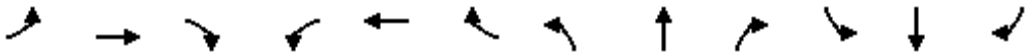
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	4	456	143	15	44	97	1152	86	1	1562	20
Future Volume (vph)	24	4	456	143	15	44	97	1152	86	1	1562	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	4.8	5.6	5.6	5.6	4.8	4.7	4.7	4.6	4.7	2.0
Lane Util. Factor		1.00	0.76	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.86	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.93	1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1785	3610	1681	1701	1510	1770	5085	1469	1770	6408	1564
Flt Permitted		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1785	3610	1681	1701	1510	1770	5085	1469	1770	6408	1564
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	26	4	496	151	16	46	105	1252	93	1	1680	22
RTOR Reduction (vph)	0	0	313	0	0	41	0	0	31	0	0	0
Lane Group Flow (vph)	0	30	183	83	84	5	105	1252	62	1	1680	22
Confl. Peds. (#/hr)	29					29			22	22		
Confl. Bikes (#/hr)						1						2
Turn Type	Split	NA	pm+ov	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4			3			2			Free
Actuated Green, G (s)		6.1	19.9	13.3	13.3	13.3	13.8	91.3	91.3	1.2	78.5	140.0
Effective Green, g (s)		8.1	23.9	15.3	15.3	15.3	15.8	93.3	93.3	3.2	80.5	140.0
Actuated g/C Ratio		0.06	0.17	0.11	0.11	0.11	0.11	0.67	0.67	0.02	0.58	1.00
Clearance Time (s)		7.2	6.8	7.6	7.6	7.6	6.8	6.7	6.7	6.6	6.7	
Vehicle Extension (s)		4.0	3.0	4.0	4.0	4.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		103	616	183	185	165	199	3388	978	40	3684	1564
v/s Ratio Prot		0.02	c0.03	0.05	c0.05		c0.06	0.25		0.00	c0.26	
v/s Ratio Perm			0.02			0.00			0.04			0.01
v/c Ratio		0.29	0.30	0.45	0.45	0.03	0.53	0.37	0.06	0.03	0.46	0.01
Uniform Delay, d1		63.2	50.7	58.4	58.4	55.7	58.6	10.3	8.1	66.9	17.1	0.0
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.25	0.67	1.00
Incremental Delay, d2		2.1	0.3	2.4	2.4	0.1	2.5	0.3	0.1	0.2	0.3	0.0
Delay (s)		65.3	51.0	60.9	60.8	55.8	61.1	10.6	8.3	83.8	11.8	0.0
Level of Service		E	D	E	E	E	E	B	A	F	B	A
Approach Delay (s)		51.8			59.8			14.1			11.7	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	67.2%	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)	3	295	2	13	106	13	3	0	170	19	1	1
Future Volume (Veh/h)	3	295	2	13	106	13	3	0	170	19	1	1
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)	3	321	2	14	115	14	3	0	185	21	1	1
Pedestrians		3			23			21			13	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			2			2			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		537			346							
pX, platoon unblocked												
vC, conflicting volume	142			344			439	519	206	538	513	80
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	142			344			439	519	206	538	513	80
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
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			99			99	100	76	93	100	100
cM capacity (veh/h)	1421			1187			472	439	768	302	442	949

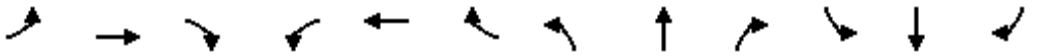
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total	3	214	109	72	72	3	92	92	23
Volume Left	3	0	0	14	0	3	0	0	21
Volume Right	0	0	2	0	14	0	92	92	1
cSH	1421	1700	1700	1187	1700	472	768	768	316
Volume to Capacity	0.00	0.13	0.06	0.01	0.04	0.01	0.12	0.12	0.07
Queue Length 95th (ft)	0	0	0	1	0	0	10	10	6
Control Delay (s)	7.5	0.0	0.0	1.7	0.0	12.7	10.3	10.3	17.3
Lane LOS	A			A		B	B	B	C
Approach Delay (s)	0.1			0.8		10.4			17.3
Approach LOS						B			C

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	36.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	101	52	155	145	22
Future Volume (veh/h)	9	101	52	155	145	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	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	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	110	57	168	158	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	278	247	1956	867	948	2598
Arrive On Green	0.16	0.16	0.55	0.55	0.12	0.73
Sat Flow, veh/h	1781	1585	3647	1575	1781	3647
Grp Volume(v), veh/h	10	110	57	168	158	24
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1575	1781	1777
Q Serve(g_s), s	0.3	4.5	0.5	3.8	2.0	0.1
Cycle Q Clear(g_c), s	0.3	4.5	0.5	3.8	2.0	0.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	278	247	1956	867	948	2598
V/C Ratio(X)	0.04	0.44	0.03	0.19	0.17	0.01
Avail Cap(c_a), veh/h	1131	1007	1956	867	1330	3360
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	25.4	27.1	7.3	8.0	3.5	2.6
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.7	0.2	1.3	0.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.4	27.6	7.3	8.5	3.5	2.6
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	120		225			182
Approach Delay, s/veh	27.4		8.2			3.4
Approach LOS	C		A			A

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.8	43.0		15.1		55.8
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0
Max Green Setting (Gmax), s	22.0	37.0		43.0		65.0
Max Q Clear Time (g_c+I1), s	4.0	5.8		6.5		2.1
Green Ext Time (p_c), s	0.2	0.5		0.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	212	339	120	264	65	343	806	72	55	1125	365
Future Volume (vph)	347	212	339	120	264	65	343	806	72	55	1125	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1	6.1	5.4	5.1		6.1	4.7	4.7	5.5	4.7	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.94	0.95	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3505	1563	1752	3383		4802	3539	1521	1770	4883	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3505	1563	1752	3383		4802	3539	1521	1770	4883	
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	361	221	353	130	287	71	365	857	77	60	1223	397
RTOR Reduction (vph)	0	0	66	0	18	0	0	0	38	0	36	0
Lane Group Flow (vph)	361	221	287	130	340	0	365	857	39	60	1584	0
Confl. Peds. (#/hr)	7		6	6		7			6	6		
Confl. Bikes (#/hr)			4			3						2
Heavy Vehicles (%)	2%	3%	2%	3%	2%	7%	6%	2%	4%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	15.4	19.8	34.9	14.8	19.0		15.1	68.2	68.2	8.5	61.0	
Effective Green, g (s)	17.4	21.8	38.9	16.8	21.0		17.1	70.2	70.2	10.5	63.0	
Actuated g/C Ratio	0.12	0.16	0.28	0.12	0.15		0.12	0.50	0.50	0.08	0.45	
Clearance Time (s)	7.6	7.1	8.1	7.4	7.1		8.1	6.7	6.7	7.5	6.7	
Vehicle Extension (s)	2.5	2.5	2.0	2.5	2.5		2.0	0.2	0.2	2.5	0.2	
Lane Grp Cap (vph)	426	545	434	210	507		586	1774	762	132	2197	
v/s Ratio Prot	c0.11	0.06	c0.08	0.07	0.10		0.08	0.24		0.03	c0.32	
v/s Ratio Perm			0.10						0.03			
v/c Ratio	0.85	0.41	0.66	0.62	0.67		0.62	0.48	0.05	0.45	0.72	
Uniform Delay, d1	60.0	53.3	44.7	58.6	56.2		58.4	23.0	17.9	62.0	31.3	
Progression Factor	0.96	1.08	1.65	1.00	1.00		1.09	0.67	1.00	1.00	1.00	
Incremental Delay, d2	14.1	0.4	2.9	4.6	3.2		1.4	0.9	0.1	1.8	2.1	
Delay (s)	72.0	57.7	76.5	63.1	59.4		64.9	16.2	18.0	63.8	33.4	
Level of Service	E	E	E	E	E		E	B	B	E	C	
Approach Delay (s)		70.3			60.4			30.0			34.5	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	76.8%	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)	10	751	15	135	797	37	52	7	97	48	3	6
Future Volume (veh/h)	10	751	15	135	797	37	52	7	97	48	3	6
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	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	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	11	791	16	147	866	40	57	8	105	52	3	7
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	3407	69	369	2573	119	232	30	390	189	68	159
Arrive On Green	0.02	0.66	0.66	0.11	0.74	0.74	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	5151	104	3456	3458	160	1198	193	1486	898	446	1040
Grp Volume(v), veh/h	11	522	285	147	445	461	65	0	105	52	0	10
Grp Sat Flow(s),veh/h/ln	1781	1702	1851	1728	1777	1841	1391	0	1486	898	0	1485
Q Serve(g_s), s	0.8	8.6	8.6	5.6	12.0	12.0	5.3	0.0	7.9	5.4	0.0	0.8
Cycle Q Clear(g_c), s	0.8	8.6	8.6	5.6	12.0	12.0	6.1	0.0	7.9	11.5	0.0	0.8
Prop In Lane	1.00		0.06	1.00		0.09	0.88		1.00	1.00		0.70
Lane Grp Cap(c), veh/h	43	2251	1224	369	1322	1370	261	0	390	189	0	228
V/C Ratio(X)	0.25	0.23	0.23	0.40	0.34	0.34	0.25	0.00	0.27	0.28	0.00	0.04
Avail Cap(c_a), veh/h	165	2251	1224	395	1322	1370	561	0	704	454	0	541
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	0.71	0.71	0.71	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.1	9.5	9.5	58.3	6.1	6.1	53.0	0.0	41.2	57.9	0.0	50.5
Incr Delay (d2), s/veh	1.1	0.2	0.4	0.2	0.5	0.5	0.2	0.0	0.1	0.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.2	3.5	2.4	4.2	4.4	2.1	0.0	3.0	1.7	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	9.7	9.9	58.5	6.6	6.6	53.1	0.0	41.4	58.2	0.0	50.6
LnGrp LOS	E	A	A	E	A	A	D	A	D	E	A	D
Approach Vol, veh/h		818			1053			170			62	
Approach Delay, s/veh		10.6			13.8			45.9			57.0	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	96.6		25.5	6.4	108.2		25.5				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	14.0	60.0		49.0	11.0	63.0		49.0				
Max Q Clear Time (g_c+I1), s	7.6	0.0		13.5	2.8	0.0		9.9				
Green Ext Time (p_c), s	0.1	0.0		0.1	0.0	0.0		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	24	16	0	24	0	128	25	37	127	1
Future Vol, veh/h	4	0	24	16	0	24	0	128	25	37	127	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	-	-	-	-	-	-	0	-	-	-	-	-
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	4	0	26	17	0	26	0	139	27	40	138	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	289	385	70	302	372	83	139	0	0	166	0	0
Stage 1	219	219	-	153	153	-	-	-	-	-	-	-
Stage 2	70	166	-	149	219	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	641	547	978	627	557	960	1442	-	-	1410	-	-
Stage 1	763	721	-	834	770	-	-	-	-	-	-	-
Stage 2	932	760	-	838	721	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	609	530	978	596	540	960	1442	-	-	1410	-	-
Mov Cap-2 Maneuver	609	530	-	596	540	-	-	-	-	-	-	-
Stage 1	763	699	-	834	770	-	-	-	-	-	-	-
Stage 2	907	760	-	790	699	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.9	0	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1442	-	-	900	772	1410	-	-
HCM Lane V/C Ratio	-	-	-	0.034	0.056	0.029	-	-
HCM Control Delay (s)	0	-	-	9.1	9.9	7.6	0.1	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-

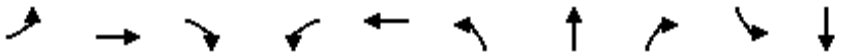
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	496	83	84	46	105	1252	93	1	1680	22
v/c Ratio	0.21	0.54	0.45	0.45	0.16	0.53	0.34	0.08	0.01	0.44	0.01
Control Delay	63.4	9.9	65.5	65.4	1.2	67.4	9.3	0.5	78.0	12.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.4	9.9	65.5	65.4	1.2	67.4	9.3	0.5	78.0	12.2	0.0
Queue Length 50th (ft)	26	30	75	76	0	92	150	0	1	148	0
Queue Length 95th (ft)	59	52	130	131	0	148	272	5	m1	235	m0
Internal Link Dist (ft)	266			107			648			669	
Turn Bay Length (ft)								260	200		
Base Capacity (vph)	354	956	353	357	424	222	3684	1103	182	3818	1564
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	0.08	0.52	0.24	0.24	0.11	0.47	0.34	0.08	0.01	0.44	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	110	57	168	158	24
v/c Ratio	0.03	0.32	0.03	0.18	0.17	0.01
Control Delay	25.8	8.8	7.9	2.1	3.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	8.8	7.9	2.1	3.5	2.8
Queue Length 50th (ft)	4	0	5	0	17	1
Queue Length 95th (ft)	16	40	13	25	32	3
Internal Link Dist (ft)	121		194			469
Turn Bay Length (ft)				180		
Base Capacity (vph)	1080	1009	1947	926	1062	3217
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	0.01	0.11	0.03	0.18	0.15	0.01

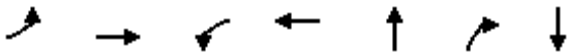
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	361	221	353	130	358	365	857	77	60	1620
v/c Ratio	0.85	0.41	0.72	0.62	0.68	0.62	0.47	0.09	0.41	0.73
Control Delay	76.6	59.8	58.9	71.2	59.5	67.8	16.8	1.2	68.1	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.6	59.8	58.9	71.2	59.5	67.8	16.8	1.2	68.1	33.4
Queue Length 50th (ft)	169	102	275	114	155	78	273	9	53	418
Queue Length 95th (ft)	#250	143	362	181	202	147	374	0	99	540
Internal Link Dist (ft)		708			1087		669			713
Turn Bay Length (ft)	180		570	190		325		335	115	
Base Capacity (vph)	426	798	501	257	859	620	1812	852	155	2232
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.28	0.70	0.51	0.42	0.59	0.47	0.09	0.39	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	11	807	147	906	65	105	62
v/c Ratio	0.12	0.22	0.40	0.31	0.53	0.28	0.26
Control Delay	65.1	6.6	71.8	1.6	74.7	10.3	53.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	6.6	71.8	1.6	74.7	10.3	53.2
Queue Length 50th (ft)	10	80	58	6	57	4	24
Queue Length 95th (ft)	31	114	m86	135	105	50	47
Internal Link Dist (ft)		847		708	398		112
Turn Bay Length (ft)	150		375				
Base Capacity (vph)	164	3733	392	2944	472	385	904
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	0.07	0.22	0.38	0.31	0.14	0.27	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX F
INDIVIDUAL TRIP ASSIGNMENTS

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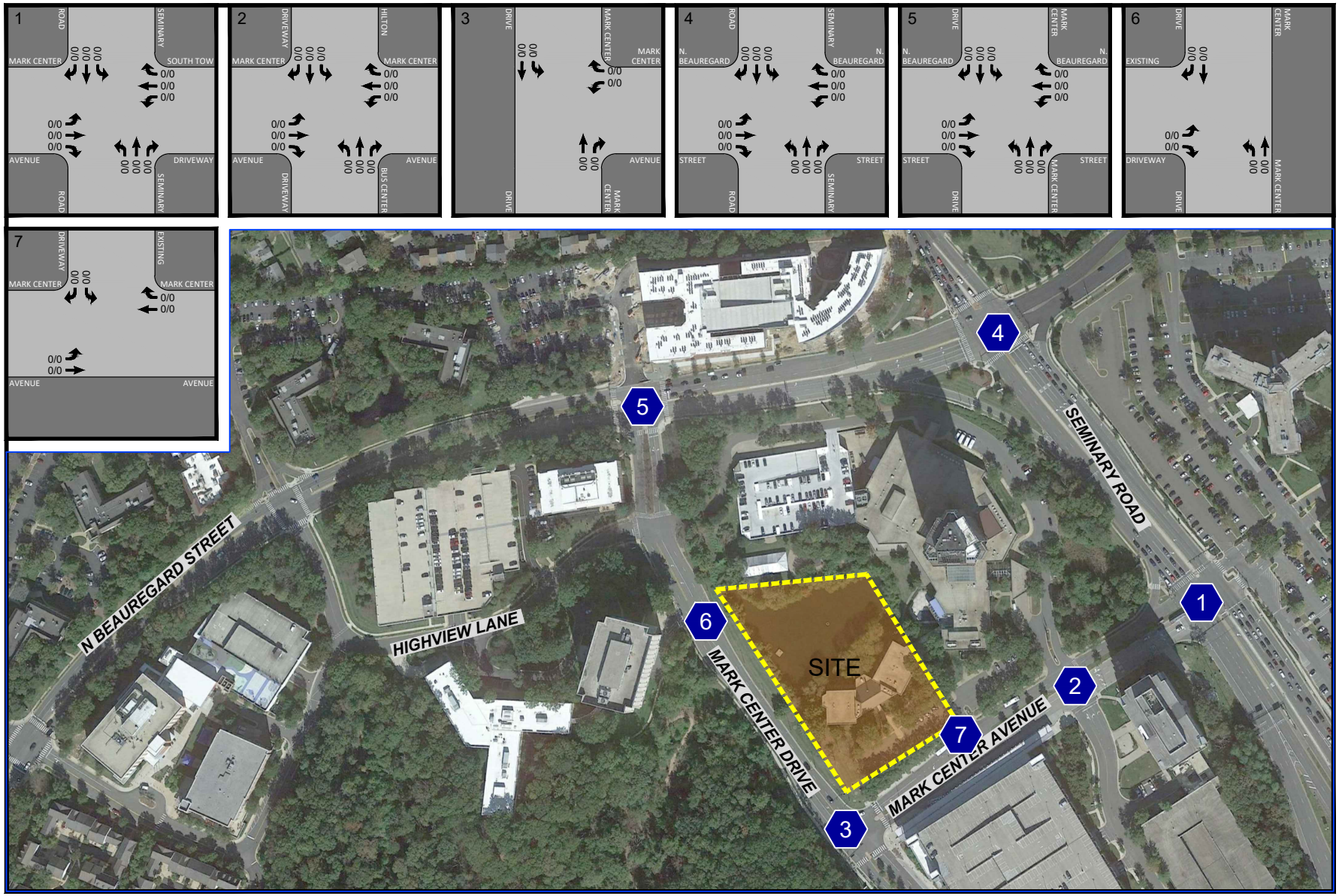

Figure X-X
Pipeline Generated Trips (2025)

X Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

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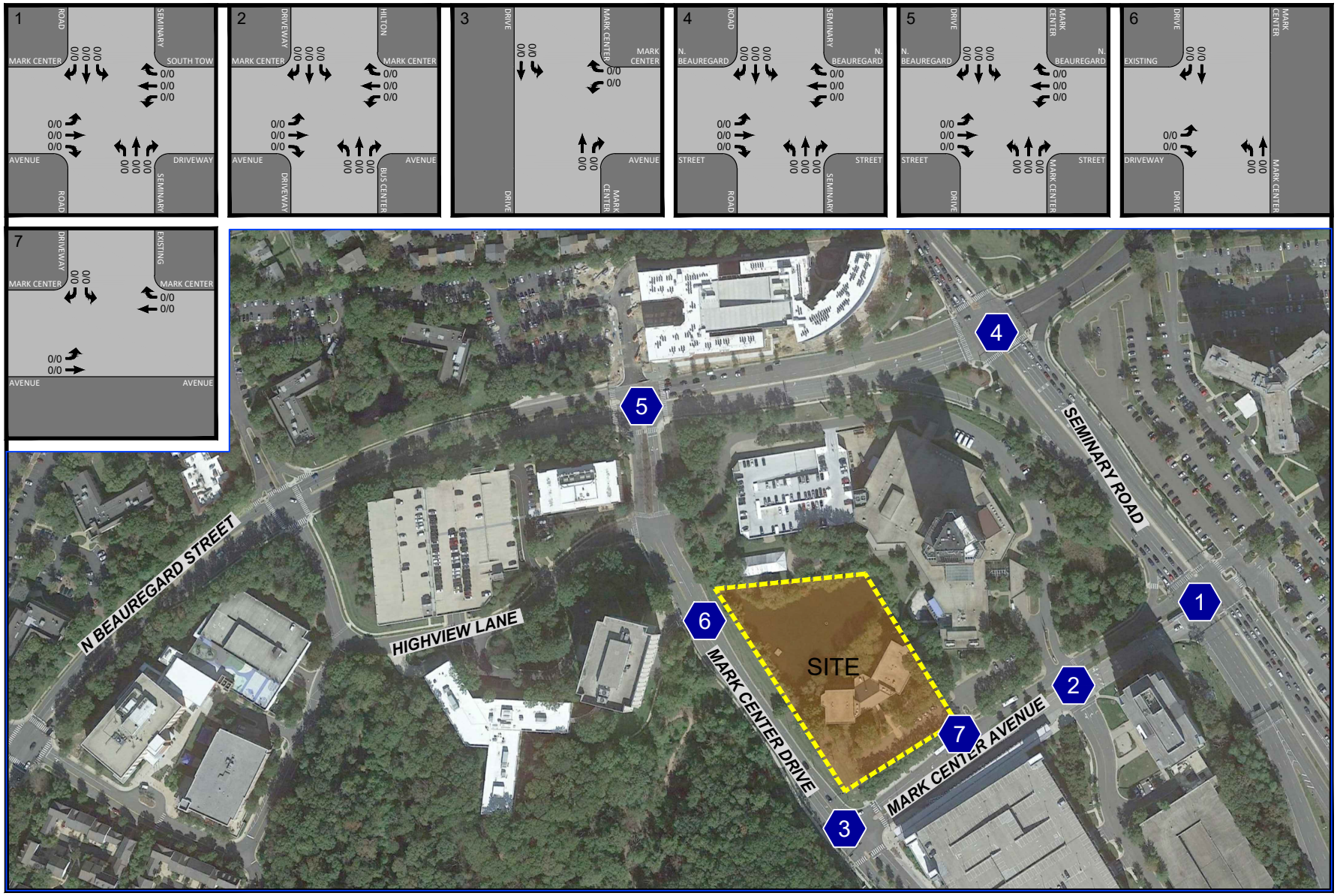


Figure X-X
Pipeline Generated Trips (2025)

X Study Intersection

NORTH

The Rutherford at Mark Center
Alexandria, Virginia

APPENDIX G
MULTIMODAL

Service for All Day 10-4-2022

This schedule is accurate as of 10/04/2022. There are no upcoming changes to this schedule. Weekday services are only provided during peak hours.

Holiday Schedule Details. On four Federal holidays, Columbus Day, Veterans' Day, Martin L. King Day, and Presidents' Day, Metrobus will run on a Saturday supplemental schedule. On these holidays, the supplemental trips will operate in addition to the regular Saturday trips.

7M Northbound To PENTAGON STATION

There are no departures from this station in the selected direction.

AM Service

MARK CENTER TRANSIT CENTER

06:00 AM 06:10 AM 06:20 AM 06:30 AM 06:40 AM 06:50 AM 07:00 AM 07:10 AM 07:20 AM 07:30 AM

07:40 AM 07:50 AM 08:00 AM 08:10 AM 08:20 AM 08:30 AM 08:40 AM 08:50 AM 09:00 AM 09:15 AM

09:30 AM 09:45 AM 10:00 AM 10:15 AM 10:30 AM 10:45 AM 11:00 AM 11:15 AM 11:30 AM 11:45 AM

PENTAGON STATION

06:10 AM 06:20 AM 06:30 AM 06:40 AM 06:50 AM 07:00 AM 07:10 AM 07:20 AM 07:30 AM 07:40 AM

07:50 AM 08:00 AM 08:10 AM 08:20 AM 08:30 AM 08:40 AM 08:50 AM 09:00 AM 09:10 AM 09:25 AM

09:40 AM 09:55 AM 10:10 AM 10:25 AM 10:40 AM 10:55 AM 11:10 AM 11:25 AM 11:40 AM 11:55 AM

PM Service

MARK CENTER TRANSIT CENTER

12:00 PM 12:15 PM 12:30 PM 12:45 PM 01:00 PM 01:15 PM 01:30 PM 01:45 PM 02:00 PM 02:15 PM

02:30 PM 02:45 PM 03:00 PM 03:15 PM 03:30 PM 03:45 PM 04:00 PM 04:10 PM 04:20 PM 04:30 PM

04:40 PM 04:50 PM 05:00 PM 05:10 PM 05:20 PM 05:30 PM 05:40 PM 05:50 PM 06:00 PM 06:10 PM

06:20 PM 06:30 PM 06:45 PM

PENTAGON STATION

12:10 PM 12:25 PM 12:40 PM 12:55 PM 01:10 PM 01:25 PM 01:40 PM 01:55 PM 02:10 PM 02:25 PM

02:40 PM 02:55 PM 03:10 PM 03:25 PM 03:40 PM 03:55 PM 04:10 PM 04:20 PM 04:30 PM 04:40 PM

04:50 PM 05:00 PM 05:10 PM 05:20 PM 05:30 PM 05:40 PM 05:50 PM 06:00 PM 06:10 PM 06:20 PM

06:30 PM 06:40 PM 06:55 PM

After Midnight Service

MARK CENTER TRANSIT CENTER

Service for All Day 10-5-2022

This schedule is accurate as of 10/04/2022. There are no upcoming changes to this schedule. Weekday services are only provided during peak hours.

Holiday Schedule Details. On four Federal holidays, Columbus Day, Veterans' Day, Martin L. King Day, and Presidents' Day, Metrobus will run on a Saturday supplemental schedule. On these holidays, the supplemental trips will operate in addition to the regular Saturday trips.

8W Northbound To PENTAGON STATION

There are no departures from this station in the selected direction.

AM Service

MARK CENTER TRANSIT CENTER

06:06 AM 06:30 AM 06:54 AM 07:18 AM 07:42 AM 08:06 AM 08:30 AM

SEMINARY RD & HOWARD ST

06:10 AM 06:34 AM 06:58 AM 07:22 AM 07:46 AM 08:10 AM 08:34 AM

VAN DORN ST & TANEY AVE

06:20 AM 06:44 AM 07:08 AM 07:32 AM 07:56 AM 08:20 AM 08:44 AM

KENMORE AVE & SEMINARY RD

06:26 AM 06:50 AM 07:14 AM 07:38 AM 08:02 AM 08:26 AM 08:50 AM

PENTAGON STATION

06:35 AM 06:59 AM 07:23 AM 07:47 AM 08:11 AM 08:35 AM 08:59 AM

PM Service

MARK CENTER TRANSIT CENTER

SEMINARY RD & HOWARD ST

VAN DORN ST & TANEY AVE

KENMORE AVE & SEMINARY RD

PENTAGON STATION

After Midnight Service

MARK CENTER TRANSIT CENTER

SEMINARY RD & HOWARD ST

VAN DORN ST & TANEY AVE

KENMORE AVE & SEMINARY RD

PENTAGON STATION

Service for All Day 10-4-2022

This schedule is accurate as of 10/04/2022. There are no upcoming changes to this schedule. Weekday services are only provided during peak hours.

Holiday Schedule Details. On four Federal holidays, Columbus Day, Veterans' Day, Martin L. King Day, and Presidents' Day, Metrobus will run on a Saturday supplemental schedule. On these holidays, the supplemental trips will operate in addition to the regular Saturday trips.

25B Northbound To BALLSTON STA

There are no departures from this station in the selected direction.

AM Service

MARK CENTER TRANSIT CENTER

05:40 AM 06:00 AM 06:15 AM 06:30 AM 06:45 AM 07:00 AM 07:15 AM 07:30 AM 07:45 AM 07:57 AM

08:20 AM 08:40 AM 09:00 AM 09:30 AM 10:00 AM 10:30 AM 11:00 AM

SOUTHERN TOWERS

05:43 AM 06:03 AM 06:18 AM 06:33 AM 06:48 AM 07:03 AM 07:18 AM 07:33 AM 07:48 AM 08:00 AM

08:23 AM 08:43 AM 09:03 AM 09:33 AM 10:03 AM 10:33 AM 11:03 AM

W CAMPUS DR & BISDORF BLDG

05:47 AM 06:07 AM 06:22 AM 06:37 AM 06:52 AM 07:07 AM 07:22 AM 07:37 AM 07:52 AM 08:04 AM

08:27 AM 08:47 AM 09:07 AM 09:37 AM 10:07 AM 10:37 AM 11:07 AM

LEESBURG PARK & JEFFERSON

05:53 AM 06:13 AM 06:28 AM 06:43 AM 06:58 AM 07:13 AM 07:28 AM 07:43 AM 07:58 AM 08:13 AM

08:36 AM 08:56 AM 09:16 AM 09:46 AM 10:16 AM 10:46 AM 11:16 AM

CARLING SPRINGS RD & COLUMBIA PARK

05:58 AM 06:18 AM 06:33 AM 06:48 AM 07:03 AM 07:18 AM 07:33 AM 07:48 AM 08:03 AM 08:18 AM

08:41 AM 09:01 AM 09:21 AM 09:51 AM 10:21 AM 10:51 AM 11:21 AM

BALLSTON STA

06:09 AM 06:29 AM 06:44 AM 06:59 AM 07:14 AM 07:29 AM 07:44 AM 07:59 AM 08:14 AM 08:29 AM

08:52 AM 09:12 AM 09:32 AM 10:02 AM 10:32 AM 11:02 AM 11:32 AM

PM Service

MARK CENTER TRANSIT CENTER

11:30 AM 12:00 PM 12:30 PM 01:00 PM 01:30 PM 02:00 PM 02:28 PM 03:00 PM 03:20 PM 03:40 PM 04:00 PM

04:15 PM 04:30 PM 04:45 PM 05:00 PM 05:15 PM 05:30 PM 05:45 PM 06:00 PM 06:20 PM 06:40 PM

07:00 PM 07:30 PM 08:15 PM 09:00 PM 09:45 PM 10:30 PM

SOUTHERN TOWERS

11:33 AM 12:03 PM 12:33 PM 01:03 PM 01:33 PM 02:03 PM 02:31 PM 03:03 PM 03:23 PM 03:43 PM 04:03 PM

04:18 PM 04:33 PM 04:48 PM 05:03 PM 05:18 PM 05:33 PM 05:48 PM 06:03 PM 06:23 PM 06:43 PM

07:03 PM 07:33 PM 08:18 PM 09:03 PM 09:48 PM 10:33 PM

W CAMPUS DR & BISDORF BLDG

11:37 AM 12:07 PM 12:37 PM 01:07 PM 01:37 PM 02:07 PM 02:35 PM 03:07 PM 03:27 PM 03:47 PM 04:07 PM

04:22 PM 04:37 PM 04:52 PM 05:07 PM 05:22 PM 05:37 PM 05:52 PM 06:07 PM 06:27 PM 06:47 PM

07:07 PM 07:37 PM 08:22 PM 09:07 PM 09:52 PM 10:37 PM

LEESBURG PARK & JEFFERSON

11:46 AM 12:16 PM 12:46 PM 01:16 PM 01:46 PM 02:16 PM 02:44 PM 03:16 PM 03:36 PM 03:56 PM 04:16 PM

04:31 PM 04:46 PM 05:01 PM 05:16 PM 05:31 PM 05:46 PM 06:02 PM 06:17 PM 06:37 PM 06:57 PM

07:17 PM 07:44 PM 08:29 PM 09:14 PM 09:59 PM 10:44 PM

CARLING SPRINGS RD & COLUMBIA PARK

11:51 AM 12:21 PM 12:51 PM 01:21 PM 01:51 PM 02:21 PM 02:49 PM 03:21 PM 03:41 PM 04:01 PM 04:21 PM

04:36 PM 04:51 PM 05:06 PM 05:21 PM 05:36 PM 05:51 PM 06:07 PM 06:22 PM 06:42 PM 07:02 PM

07:22 PM 07:49 PM 08:34 PM 09:19 PM 10:04 PM 10:49 PM

BALLSTON STA

12:02 PM 12:32 PM 01:02 PM 01:32 PM 02:02 PM 02:32 PM 03:02 PM 03:34 PM 03:54 PM 04:14 PM

04:34 PM 04:49 PM 05:04 PM 05:19 PM 05:34 PM 05:49 PM 06:04 PM 06:18 PM 06:33 PM 06:53 PM

07:13 PM 07:33 PM 08:00 PM 08:45 PM 09:30 PM 10:15 PM 11:00 PM

After Midnight Service

MARK CENTER TRANSIT CENTER

SOUTHERN TOWERS

W CAMPUS DR & BISDORF BLDG

LEESBURG PARK & JEFFERSON

CARLING SPRINGS RD & COLUMBIA PARK

LINE
35
NORTHBOUND

SERVING:

- VAN DORN METRO
- YOAKUM PKWY
- LANDMARK MALL
- LANDMARK PLAZA
- BEAUREGARD ST
- MARK CENTER
- SOUTHERN TOWERS
- PARK CENTER
- PENTAGON METRO

Pentagon Metro

via Yoakum Pkwy – Beauregard St

BAY C				BAY 02	STRATFORD BLDG		
VAN DORN METRO	YOAKUM PKWY & EDSALL RD	LANDMARK MALL	N BEAUREGARD ST & SANGER AVE	MARK CENTER	SOUTHERN TOWERS	FORD AVE & PARK CENTER DR	PENTAGON METRO
A	B	C	D	E	F	G	H
ID # 4000822	ID #4000063	ID #4000576	ID #4000299	ID #4001022	ID # 4000340	ID #4000715	FINAL STOP
WEEKDAY							
4:19 AM	4:27	4:34	4:48	4:55	4:57	5:04	5:16
4:39	4:47	4:54	5:08	5:15	5:17	5:24	5:36
4:59	5:07	5:14	5:28	5:35	5:37	5:44	5:56
5:14	5:22	5:29	5:43	5:50	5:52	5:59	6:11
5:29	5:37	5:44	5:58	6:05	6:07	6:14	6:26
5:44	5:52	5:59	6:13	6:20	6:22	6:29	6:41
5:59	6:07	6:14	6:28	6:35	6:37	6:44	7:03
6:09	6:17	6:24	6:38	6:45	6:47	6:54	7:13
6:19	6:27	6:34	6:48	6:55	6:57	7:04	7:23
6:29	6:37	6:44	6:58	7:05	7:07	7:14	7:33
6:39	6:47	6:54	7:08	7:15	7:17	7:24	7:43
Buses arrive approximately every 10 minutes from 6AM-7PM on weekdays							
6:59 PM	7:07	7:16	7:30	7:37	7:39	7:46	7:58
7:19	7:27	7:36	7:50	7:57	7:59	8:06	8:18
7:39	7:47	7:56	8:10	8:15	8:17	8:22	8:34
7:59	8:07	8:14	8:24	8:29	8:31	8:36	8:48
8:29	8:35	8:42	8:52	8:57	8:59	9:04	9:16
8:59	9:05	9:12	9:22	9:27	9:29	9:34	9:46
9:29	9:35	9:42	9:52	9:57	9:59	10:04	10:16
9:59	10:05	10:12	10:22	10:27	10:29	10:34	10:46
10:29	10:35	10:42	10:52	10:57	10:59	11:04	11:16
10:59	11:05	11:12	11:22	11:27	11:29	11:34	11:46
11:29	11:35	11:42	11:52	11:57	11:59	12:04	12:16
11:59	12:05 AM	12:12	12:22	12:27	12:29	12:34	12:46
12:29 AM	12:35	12:42	12:52	12:57	12:59	1:04	---

BAY C				BAY 02	STRATFORD BLDG		
VAN DORN METRO	YOAKUM PKWY & EDSALL RD	LANDMARK MALL	N BEAUREGARD ST & SANGER AVE	MARK CENTER	SOUTHERN TOWERS	FORD AVE & PARK CENTER DR	PENTAGON METRO
A	B	C	D	E	F	G	H
ID # 4000822	ID #4000063	ID #4000576	ID #4000299	ID #4001022	ID # 4000340	ID #4000715	FINAL STOP
SATURDAY							
5:45 AM	5:53	6:00	6:14	6:21	6:23	6:30	6:42
6:15	6:23	6:30	6:44	6:51	6:53	7:00	7:12
6:45	6:53	7:00	7:14	7:21	7:23	7:30	7:42
7:00	7:08	7:15	7:29	7:36	7:38	7:45	7:57
7:15	7:23	7:30	7:44	7:51	7:53	8:00	8:12
7:30	7:38	7:45	7:59	8:06	8:08	8:15	8:27
7:45	7:53	8:00	8:14	8:21	8:23	8:30	8:42
8:00	8:08	8:15	8:29	8:36	8:38	8:45	8:57
Buses arrive approximately every 15 minutes from 7AM-7PM on Saturdays							
7:15 PM	7:23	7:30	7:44	7:51	7:53	8:00	8:12
7:30	7:38	7:45	7:59	8:06	8:08	8:13	8:25
7:45	7:53	8:00	8:10	8:15	8:17	8:22	8:34
8:12	8:18	8:25	8:35	8:40	8:42	8:47	8:59
8:42	8:48	8:55	9:05	9:10	9:12	9:17	9:29
9:12	9:18	9:25	9:35	9:40	9:42	9:47	9:59
9:42	9:48	9:55	10:05	10:10	10:12	10:17	10:29
10:12	10:18	10:25	10:35	10:40	10:42	10:47	10:59
10:42	10:48	10:55	11:05	11:10	11:12	11:17	11:29
11:12	11:18	11:25	11:35	11:40	11:42	11:47	11:59
11:42	11:48	11:55	12:05 AM	12:10	12:12	12:17	12:29
12:12 AM	12:18	12:25	12:35	12:40	12:42	12:47	12:59
12:42	12:48	12:55	1:05	1:10	1:12	1:17	---
SUNDAY							
5:45 AM	5:53	6:00	6:14	6:21	6:23	6:30	6:42
6:15	6:23	6:30	6:44	6:51	6:53	7:00	7:12
6:45	6:53	7:00	7:14	7:21	7:23	7:30	7:42
7:00	7:08	7:15	7:29	7:36	7:38	7:45	7:57
7:15	7:23	7:30	7:44	7:51	7:53	8:00	8:12
7:30	7:38	7:45	7:59	8:06	8:08	8:15	8:27
7:45	7:53	8:00	8:14	8:21	8:23	8:30	8:42
8:00	8:08	8:15	8:29	8:36	8:38	8:45	8:57
Buses arrive approximately every 15 minutes from 7AM-7PM on Sundays							
7:15 PM	7:23	7:30	7:44	7:51	7:53	8:00	8:12
7:30	7:38	7:45	7:59	8:06	8:08	8:13	8:25
7:45	7:53	8:00	8:10	8:15	8:17	8:22	8:34
8:12	8:18	8:25	8:35	8:40	8:42	8:47	8:59
8:42	8:48	8:55	9:05	9:10	9:12	9:17	9:29
9:12	9:18	9:25	9:35	9:40	9:42	9:47	9:59
9:42	9:48	9:55	10:05	10:10	10:12	10:17	10:29
10:12	10:18	10:25	10:35	10:40	10:42	10:47	10:59
10:42	10:48	10:55	11:05	11:10	11:12	11:17	11:29
11:12	11:18	11:25	11:35	11:40	11:42	11:47	11:59
11:42	11:48	11:55	12:05 AM	12:10	12:12	12:17	12:29
12:12 AM	12:18	12:25	12:35	12:40	12:42	12:47	12:59
12:42	12:48	12:55	1:05	1:10	1:12	1:17	---

LINE
35
SOUTHBOUND

SERVING:

- **PENTAGON** METRO
- PARK CENTER
- SOUTHERN TOWERS
- MARK CENTER
- BEAUREGARD ST
- LANDMARK PLAZA
- LANDMARK MALL
- YOAKUM PKWY
- VAN DORN METRO

Van Dorn Metro

via Beauregard St – Yoakum Pkwy

BAY U7		STRATFORD BLDG	Bay 06				
PENTAGON METRO	FORD AVE & PARK CENTER	SOUTHERN TOWERS	MARK CENTER	N BEAUREGARD ST & SANGER AVE	LANDMARK MALL	STEVENSON AVE & S WHITING ST	VAN DORN METRO
H	G	F	E	D	C	B	A
ID #6000930	ID #4000716	ID # 4000340	ID #4001018	ID #4000301	ID #4000576	ID #4000142	FINAL STOP
WEEKDAY							
4:49 AM	5:00	5:06	5:10	5:17	5:33	5:39	5:48
5:09	5:20	5:26	5:30	5:37	5:53	5:59	6:08
5:29	5:40	5:46	5:50	5:57	6:13	6:19	6:28
5:49	6:00	6:06	6:10	6:17	6:33	6:39	6:48
5:59	6:10	6:16	6:20	6:27	6:43	6:49	6:58
6:09	6:20	6:26	6:30	6:37	6:53	6:59	7:08
6:19	6:30	6:36	6:40	6:47	7:03	7:09	7:18
6:29	6:40	6:46	6:50	6:57	7:13	7:19	7:28
Buses arrive approximately every 10 minutes from 6AM-7PM on weekdays							
6:59 PM	7:10	7:16	7:20	7:27	7:43	7:49	7:58
7:09	7:20	7:26	7:30	7:37	7:53	7:59	8:08
7:29	7:40	7:46	7:50	7:57	8:13	8:18	8:27
7:49	8:00	8:04	8:08	8:13	8:23	8:28	8:37
8:14	8:25	8:29	8:33	8:38	8:48	8:53	9:02
8:44	8:55	8:59	9:03	9:08	9:18	9:23	9:32
9:14	9:25	9:29	9:33	9:38	9:48	9:53	10:02
9:44	9:55	9:59	10:03	10:08	10:18	10:23	10:32
10:14	10:25	10:29	10:33	10:38	10:48	10:53	11:02
10:44	10:55	10:59	11:03	11:08	11:18	11:23	11:32
11:14	11:25	11:29	11:33	11:38	11:48	11:53	12:02
11:44	11:55	11:59	12:03 AM	12:08	12:18	12:23	12:32
12:14 AM	12:25	12:29	12:33	12:38	12:48	12:53	1:02
12:44	12:55	12:59	1:03	1:08	1:18	1:23	1:32
1:19	1:30	1:34	1:38	1:43	1:53	1:58	2:07
---	1:59	2:03	2:07	2:12	2:22	2:27	2:36
---	2:29	2:33	2:37	2:42	2:52	2:57	3:06
SATURDAY							
5:49 AM	6:00	6:06	6:10	6:17	6:33	6:39	6:48
6:19	6:30	6:36	6:40	6:47	7:03	7:09	7:18
6:49	7:00	7:06	7:10	7:17	7:33	7:39	7:48
7:04	7:15	7:21	7:25	7:32	7:48	7:54	8:03
7:19	7:30	7:36	7:40	7:47	8:03	8:09	8:18
7:34	7:45	7:51	7:55	8:02	8:18	8:24	8:33
7:49	8:00	8:06	8:10	8:17	8:33	8:39	8:48
Buses arrive approximately every 15 minutes from 7AM-7PM on Saturdays							
6:49 PM	7:00	7:06	7:10	7:17	7:33	7:39	7:48
7:04	7:15	7:21	7:25	7:32	7:48	7:54	8:03
7:19	7:30	7:36	7:40	7:47	8:03	8:08	8:17
7:49	8:00	8:04	8:08	8:13	8:23	8:28	8:37
8:19	8:30	8:34	8:38	8:43	8:53	8:58	9:07
8:49	9:00	9:04	9:08	9:13	9:23	9:28	9:37
9:19	9:30	9:34	9:38	9:43	9:53	9:58	10:07
9:49	10:00	10:04	10:08	10:13	10:23	10:28	10:37
10:19	10:30	10:34	10:38	10:43	10:53	10:58	11:07
10:49	11:00	11:04	11:08	11:13	11:23	11:28	11:37
11:19	11:30	11:34	11:38	11:43	11:53	11:58	12:07 AM
11:49	12:00	12:04	12:08	12:13	12:23	12:28	12:37
12:19 AM	12:30	12:34	12:38	12:43	12:53	12:58	1:07
12:59 AM	1:10	1:14	1:18	1:23	1:33	1:38	1:47
---	1:40	1:44	1:48	1:53	2:03	2:08	2:17
---	2:40	2:44	2:48	2:53	3:03	3:08	3:17

LINE 35

SOUTHBOUND

BAY U7 PENTAGON METRO	FORD AVE & PARK CENTER	STRATFORD BLDG SOUTHERN TOWERS	BAY 06 MARK CENTER	N BEAUREGARD ST & SANGER AVE	LANDMARK MALL	STEVENSON AVE & S WHITING ST	VAN DORN METRO
H	G	F	E	D	C	B	A
ID #6000930	ID #4000716	ID # 4000340	ID #4001018	ID #4000301	ID #4000576	ID #4000142	FINAL STOP
SUNDAY							
5:49 AM	6:00	6:06	6:10	6:17	6:33	6:39	6:48
6:19	6:30	6:36	6:40	6:47	7:03	7:09	7:18
6:49	7:00	7:06	7:10	7:17	7:33	7:39	7:48
7:04	7:15	7:21	7:25	7:32	7:48	7:54	8:03
7:19	7:30	7:36	7:40	7:47	8:03	8:09	8:18
7:34	7:45	7:51	7:55	8:02	8:18	8:24	8:33
7:49	8:00	8:06	8:10	8:17	8:33	8:39	8:48
8:04	8:15	8:21	8:25	8:32	8:48	8:54	9:03
Buses arrive approximately every 15 minutes from 7AM-7PM on Sundays							
6:49 PM	7:00	7:06	7:10	7:17	7:33	7:39	7:48
7:04	7:15	7:21	7:25	7:32	7:48	7:54	8:03
7:19	7:30	7:36	7:40	7:47	8:03	8:08	8:17
7:49	8:00	8:04	8:08	8:13	8:23	8:28	8:37
8:19	8:30	8:34	8:38	8:43	8:53	8:58	9:07
8:49	9:00	9:04	9:08	9:13	9:23	9:28	9:37
9:19	9:30	9:34	9:38	9:43	9:53	9:58	10:07
9:49	10:00	10:04	10:08	10:13	10:23	10:28	10:37
10:19	10:30	10:34	10:38	10:43	10:53	10:58	11:07
10:49	11:00	11:04	11:08	11:13	11:23	11:28	11:37
11:19	11:30	11:34	11:38	11:43	11:53	11:58	12:07 AM
11:49	12:00	12:04	12:08	12:13	12:23	12:28	12:37
12:19 AM	12:30	12:34	12:38	12:43	12:53	12:58	1:07
12:59	1:10	1:14	1:18	1:23	1:33	1:38	1:47
---	1:40	1:44	1:48	1:53	2:03	2:08	2:17

LINE
36 A/B

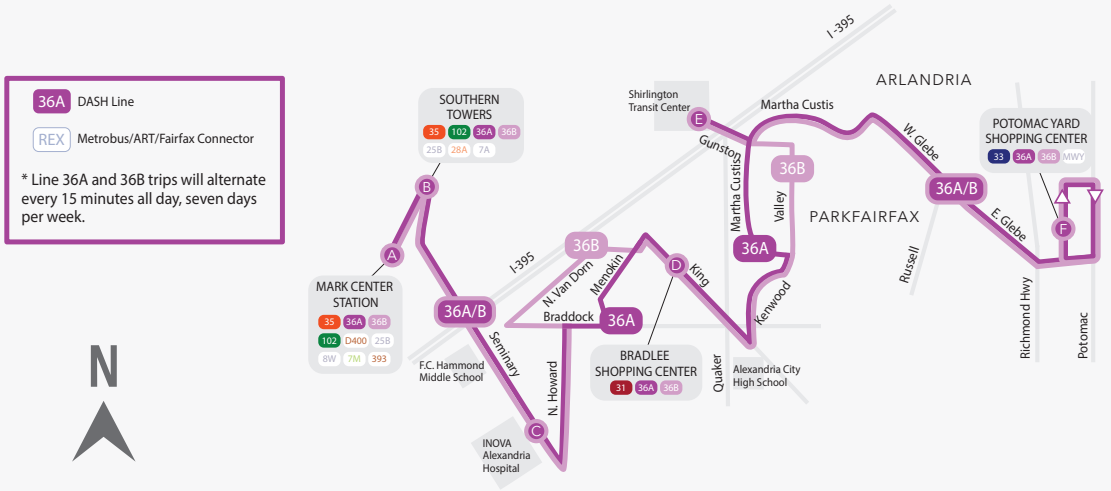
EASTBOUND

SERVING:

- MARK CENTER
- SOUTHERN TOWERS
- ALEXANDRIA HOSPITAL
- MENOKIN DR/ PARK PLACE
- BRADLEE SHOPPING CENTER
- SHIRLINGTON TRANSIT CENTER
- PARKFAIRFAX
- W GLEBE RD
- POTOMAC YARD CENTER

Potomac Yard

via Menokin Dr/Park Place – Shirlington – Glebe Rd



LINE A/B	MARK CENTER STATION (BAY 6)	SOUTHERN TOWERS	ALEXANDRIA HOSPITAL	BRADLEE SHOPPING CENTER	SHIRLINGTON STATION (BAY G)	POTOMAC YARD (STAPLES & PETSMART)
	A	B	C	D	E	F
	ID #4001018	ID #4000360	ID #4000489	ID #4000591	ID #6001365	FINAL STOP
WEEKDAY						
A	6:00 AM	6:03	6:09	6:19	6:30	6:45
B	6:15	6:18	6:24	6:34	6:45	7:00
A	6:30	6:33	6:39	6:49	7:00	7:15
B	6:45	6:48	6:54	7:04	7:15	7:30
A	7:00	7:03	7:09	7:19	7:30	7:45
B	7:15	7:18	7:24	7:34	7:45	8:00
A	7:30	7:33	7:39	7:49	8:00	8:15
B	7:45	7:48	7:54	8:04	8:15	8:30
A	8:00	8:03	8:09	8:19	8:30	8:45
B	8:15	8:18	8:24	8:34	8:45	9:00
A	8:30	8:33	8:39	8:49	9:00	9:15
B	8:45	8:48	8:54	9:04	9:15	9:30
A	9:00	9:03	9:09	9:19	9:30	9:45
B	9:15	9:18	9:24	9:34	9:45	10:00
A	9:30	9:33	9:39	9:49	10:00	10:15
B	9:45	9:48	9:54	10:04	10:15	10:30
A	10:00	10:03	10:09	10:19	10:30	10:45
B	10:15	10:18	10:24	10:34	10:45	11:00
A	10:30	10:33	10:39	10:49	11:00	11:15
B	10:45	10:48	10:54	11:04	11:15	11:30
A	11:00	11:03	11:09	11:19	11:30	11:45
B	11:15	11:18	11:24	11:34	11:45	12:00
A	11:30	11:33	11:39	11:49	12:00	12:15
B	11:45	11:48	11:54	12:04 PM	12:15	12:30
A	12:00 PM	12:03	12:09	12:19	12:30	12:45
B	12:15	12:18	12:24	12:34	12:45	1:00
A	12:30	12:33	12:39	12:49	1:00	1:15
B	12:45	12:48	12:54	1:04	1:15	1:30
A	1:00	1:03	1:09	1:19	1:30	1:45
B	1:15	1:18	1:24	1:34	1:45	2:00
A	1:30	1:33	1:39	1:49	2:00	2:15
B	1:45	1:48	1:54	2:04	2:15	2:30
A	2:00	2:03	2:09	2:19	2:30	2:45
B	2:15	2:18	2:24	2:34	2:45	3:00

(SCHEDULE CONTINUED ON NEXT PAGE)

LINE A/B	BAY 6 MARK CENTER STATION	SOUTHERN TOWERS	ALEXANDRIA HOSPITAL	BRADLEE SHOPPING CENTER	BAY G SHIRLINGTON STATION	STAPLES & PETSMART POTOMAC YARD
	A	B	C	D	E	F
	ID #4001018	ID #4000360	ID #4000489	ID #4000591	ID #6001365	FINAL STOP
WEEKDAY *(CONTINUED FROM PREVIOUS PAGE)*						
A	2:30 PM	2:33	2:39	2:49	3:00	3:15
B	2:45	2:48	2:54	3:04	3:15	3:30
A	3:00	3:03	3:09	3:19	3:30	3:45
B	3:15	3:18	3:24	3:34	3:45	4:00
A	3:30	3:33	3:39	3:49	4:00	4:15
B	3:45	3:48	3:54	4:04	4:15	4:30
A	4:00	4:03	4:09	4:19	4:30	4:45
B	4:15	4:18	4:24	4:34	4:45	5:00
A	4:30	4:33	4:39	4:49	5:00	5:15
B	4:45	4:48	4:54	5:04	5:15	5:30
A	5:00	5:03	5:09	5:19	5:30	5:45
B	5:15	5:18	5:24	5:34	5:45	6:00
A	5:30	5:33	5:39	5:49	6:00	6:15
B	5:45	5:48	5:54	6:04	6:15	6:30
A	6:00	6:03	6:09	6:19	6:30	6:45
B	6:15	6:18	6:24	6:34	6:45	7:00
A	6:30	6:33	6:39	6:49	7:00	7:15
B	6:45	6:48	6:54	7:04	7:15	7:30
A	7:00	7:03	7:09	7:19	7:30	7:45
B	7:15	7:18	7:24	7:34	7:45	8:00
A	7:30	7:33	7:39	7:49	8:00	8:15
B	7:45	7:48	7:54	8:04	8:15	8:30
A	8:00	8:03	8:07	8:13	8:24	8:39
B	8:15	8:18	8:22	8:28	8:39	8:54
A	8:30	8:33	8:37	8:43	8:54	9:09
B	8:45	8:48	8:52	8:58	9:09	9:24
A	9:00	9:03	9:07	9:13	9:24	9:39
B	9:30	9:33	9:37	9:43	9:54	10:09
A	10:00	10:03	10:07	10:13	10:24	10:39
B	10:30	10:33	10:37	10:43	10:54	11:09
A	11:00	11:03	11:07	11:13	11:24	11:39
SATURDAY/SUNDAY						
A	7:00 AM	7:03	7:09	7:16	7:27	7:42
B	7:15	7:18	7:24	7:31	7:42	7:57
A	7:30	7:33	7:39	7:46	7:57	8:12
B	7:45	7:48	7:54	8:01	8:12	8:27
A	8:00	8:03	8:09	8:16	8:27	8:42
B	8:15	8:18	8:24	8:31	8:42	8:57
A	8:30	8:33	8:39	8:46	8:57	9:12
B	8:45	8:48	8:54	9:01	9:12	9:27
A	9:00	9:03	9:09	9:16	9:27	9:42
B	9:15	9:18	9:24	9:31	9:42	9:57
A	9:30	9:33	9:39	9:46	9:57	10:12
B	9:45	9:48	9:54	10:01	10:12	10:27
A	10:00	10:03	10:09	10:16	10:27	10:42
B	10:15	10:18	10:24	10:31	10:42	10:57
A	10:30	10:33	10:39	10:46	10:57	11:12
B	10:45	10:48	10:54	11:01	11:12	11:27
A	11:00	11:03	11:09	11:16	11:27	11:42
B	11:15	11:18	11:24	11:31	11:42	11:57
A	11:30	11:33	11:39	11:46	11:57	12:12
B	11:45	11:48	11:54	12:01 PM	12:12	12:27

(SCHEDULE CONTINUED ON NEXT PAGE)

LINE A/B	BAY 6 MARK CENTER STATION	SOUTHERN TOWERS	ALEXANDRIA HOSPITAL	BRADLEE SHOPPING CENTER	BAY G SHIRLINGTON STATION	STAPLES & PETSMART POTOMAC YARD
	A	B	C	D	E	F
	ID #4001018	ID #4000360	ID #4000489	ID #4000591	ID #6001365	FINAL STOP
SATURDAY/SUNDAY *(CONTINUED FROM PREVIOUS PAGE)*						
A	12:00 PM	12:03	12:09	12:16	12:27	12:42
B	12:15	12:18	12:24	12:31	12:42	12:57
A	12:30	12:33	12:39	12:46	12:57	1:12
B	12:45	12:48	12:54	1:01	1:12	1:27
A	1:00	1:03	1:09	1:16	1:27	1:42
B	1:15	1:18	1:24	1:31	1:42	1:57
A	1:30	1:33	1:39	1:46	1:57	2:12
B	1:45	1:48	1:54	2:01	2:12	2:27
A	2:00	2:03	2:09	2:16	2:27	2:42
B	2:15	2:18	2:24	2:31	2:42	2:57
A	2:30	2:33	2:39	2:46	2:57	3:12
B	2:45	2:48	2:54	3:01	3:12	3:27
A	3:00	3:03	3:09	3:16	3:27	3:42
B	3:15	3:18	3:24	3:31	3:42	3:57
A	3:30	3:33	3:39	3:46	3:57	4:12
B	3:45	3:48	3:54	4:01	4:12	4:27
A	4:00	4:03	4:09	4:16	4:27	4:42
B	4:15	4:18	4:24	4:31	4:42	4:57
A	4:30	4:33	4:39	4:46	4:57	5:12
B	4:45	4:48	4:54	5:01	5:12	5:27
A	5:00	5:03	5:09	5:16	5:27	5:42
B	5:15	5:18	5:24	5:31	5:42	5:57
A	5:30	5:33	5:39	5:46	5:57	6:12
B	5:45	5:48	5:54	6:01	6:12	6:27
A	6:00	6:03	6:09	6:16	6:27	6:42
B	6:15	6:18	6:24	6:31	6:42	6:57
A	6:30	6:33	6:39	6:46	6:57	7:12
B	6:45	6:48	6:54	7:01	7:12	7:27
A	7:00	7:03	7:09	7:16	7:27	7:42
B	7:15	7:18	7:24	7:31	7:42	7:57
A	7:30	7:33	7:39	7:46	7:57	8:12
B	7:45	7:48	7:54	8:01	8:12	8:27
A	8:00	8:03	8:07	8:13	8:24	8:39
B	8:15	8:18	8:22	8:28	8:39	8:54
A	8:30	8:33	8:37	8:43	8:54	9:09
B	8:45	8:48	8:52	8:58	9:09	9:24
A	9:00	9:03	9:07	9:13	9:24	9:39
B	9:30	9:33	9:37	9:43	9:54	10:09
A	10:00	10:03	10:07	10:13	10:24	10:39
B	10:30	10:33	10:37	10:43	10:54	11:09
A	10:45	10:48	10:52	10:58	11:09	11:24

LINE
36 A/B

WESTBOUND

SERVING:

- POTOMAC YARD CENTER
- W GLEBE RD
- PARKFAIRFAX
- SHIRLINGTON TRANSIT CENTER
- BRADLEE SHOPPING CENTER
- MENOKIN DR/ PARK PLACE
- ALEXANDRIA HOSPITAL
- SOUTHERN TOWERS
- MARK CENTER

Mark Center
via Glebe Rd – Shirlington – Menokin Dr/Park Place

LINE A/B	STAPLES & PETSMART POTOMAC YARD	BAY G SHIRLINGTON STATION	BRADLEE SHOPPING CENTER	ALEXANDRIA HOSPITAL	SOUTHERN TOWERS	BAY 6 MARK CENTER STATION
	F	E	D	C	B	A
	ID #4000474	ID #6001365	ID #4000492	ID #4000278	ID #4000340	FINAL STOP
WEEKDAY						
A	6:00 AM	6:16	6:27	6:36	6:42	6:45
B	6:15	6:31	6:42	6:51	6:57	7:00
A	6:30	6:46	6:57	7:06	7:12	7:15
B	6:45	7:01	7:12	7:21	7:27	7:30
A	7:00	7:16	7:27	7:36	7:42	7:45
B	7:15	7:31	7:42	7:51	7:57	8:00
A	7:30	7:46	7:57	8:06	8:12	8:15
B	7:45	8:01	8:12	8:21	8:27	8:30
A	8:00	8:16	8:27	8:36	8:42	8:45
B	8:15	8:31	8:42	8:51	8:57	9:00
A	8:30	8:46	8:57	9:06	9:12	9:15
B	8:45	9:01	9:12	9:21	9:27	9:30
A	9:00	9:16	9:27	9:36	9:42	9:45
B	9:15	9:31	9:42	9:51	9:57	10:00
A	9:30	9:46	9:57	10:06	10:12	10:15
B	9:45	10:01	10:12	10:21	10:27	10:30
A	10:00	10:16	10:27	10:36	10:42	10:45
B	10:15	10:31	10:42	10:51	10:57	11:00
A	10:30	10:46	10:57	11:06	11:12	11:15
B	10:45	11:01	11:12	11:21	11:27	11:30
A	11:00	11:16	11:27	11:36	11:42	11:45
B	11:15	11:31	11:42	11:51	11:57	12:00
A	11:30	11:46	11:57	12:06 PM	12:12	12:15
B	11:45	12:01	12:12	12:21	12:27	12:30
A	12:00 PM	12:16	12:27	12:36	12:42	12:45
B	12:15	12:31	12:42	12:51	12:57	1:00
A	12:30	12:46	12:57	1:06	1:12	1:15
B	12:45	1:01	1:12	1:21	1:27	1:30
A	1:00	1:16	1:27	1:36	1:42	1:45
B	1:15	1:31	1:42	1:51	1:57	2:00
A	1:30	1:46	1:57	2:06	2:12	2:15
B	1:45	2:01	2:12	2:21	2:27	2:30
A	2:00	2:16	2:27	2:36	2:42	2:45
B	2:15	2:31	2:42	2:51	2:57	3:00
A	2:30	2:46	2:57	3:06	3:12	3:15
B	2:45	3:01	3:12	3:21	3:27	3:30
A	3:00	3:16	3:27	3:36	3:42	3:45
B	3:15	3:31	3:42	3:51	3:57	4:00
A	3:30	3:46	3:57	4:06	4:12	4:15
B	3:45	4:01	4:12	4:21	4:27	4:30
A	4:00	4:16	4:27	4:36	4:42	4:45
B	4:15	4:31	4:42	4:51	4:57	5:00
A	4:30	4:46	4:57	5:06	5:12	5:15
B	4:45	5:01	5:12	5:21	5:27	5:30
A	5:00	5:16	5:27	5:36	5:42	5:45
B	5:15	5:31	5:42	5:51	5:57	6:00
A	5:30	5:46	5:57	6:06	6:12	6:15
B	5:45	6:01	6:12	6:21	6:27	6:30
A	6:00	6:16	6:27	6:36	6:42	6:45
B	6:15	6:31	6:42	6:51	6:57	7:00
A	6:30	6:46	6:57	7:06	7:12	7:15
B	6:45	7:01	7:12	7:21	7:27	7:30
A	7:00	7:16	7:27	7:36	7:42	7:45
B	7:15	7:31	7:42	7:51	7:57	8:00
A	7:30	7:46	7:57	8:06	8:10	8:13
B	7:45	8:01	8:12	8:21	8:27	8:30
A	8:00	8:16	8:27	8:33	8:37	8:40

(SCHEDULE CONTINUED ON NEXT PAGE)

LINE 36
WESTBOUND

LINE A/B	STAPLES & PETSMART POTOMAC YARD	BAY G SHIRLINGTON STATION	BRADLEE SHOPPING CENTER	ALEXANDRIA HOSPITAL	SOUTHERN TOWERS	BAY 6 MARK CENTER STATION
	F	E	D	C	B	A
	ID #4000474	ID #6001365	ID #4000492	ID #4000278	ID #4000340	FINAL STOP
WEEKDAY *(CONTINUED FROM PREVIOUS PAGE)*						
B	8:15 PM	8:31	8:42	8:51	8:57	9:00
A	8:30	8:46	8:57	9:03	9:07	9:10
B	8:45	9:01	9:12	9:21	9:27	9:30
A	9:00	9:16	9:27	9:33	9:37	9:40
B	9:30	9:46	9:57	10:06	10:12	10:15
A	10:00	10:16	10:27	10:33	10:37	10:40
B	10:30	10:46	10:57	11:06	11:12	11:15
A	11:00	11:16	11:27	11:33	11:37	11:40
B	11:30	11:46	11:57	12:06 AM	12:12	12:15
SATURDAY/SUNDAY						
A	7:00 AM	7:16	7:27	7:33	7:39	7:42
B	7:15	7:31	7:42	7:48	7:54	7:57
A	7:30	7:46	7:57	8:03	8:09	8:12
B	7:45	8:01	8:12	8:18	8:24	8:27
A	8:00	8:16	8:27	8:33	8:39	8:42
B	8:15	8:31	8:42	8:48	8:54	8:57
A	8:30	8:46	8:57	9:03	9:09	9:12
B	8:45	9:01	9:12	9:18	9:24	9:27
A	9:00	9:16	9:27	9:33	9:39	9:42
B	9:15	9:31	9:42	9:48	9:54	9:57
A	9:30	9:46	9:57	10:03	10:09	10:12
B	9:45	10:01	10:12	10:18	10:24	10:27
A	10:00	10:16	10:27	10:33	10:39	10:42
B	10:15	10:31	10:42	10:48	10:54	10:57
A	10:30	10:46	10:57	11:03	11:09	11:12
B	10:45	11:01	11:12	11:18	11:24	11:27
A	11:00	11:16	11:27	11:33	11:39	11:42
B	11:15	11:31	11:42	11:48	11:54	11:57
A	11:30	11:46	11:57	12:03 PM	12:09	12:12
B	11:45	12:01	12:12	12:18	12:24	12:27
A	12:00 PM	12:16	12:27	12:33	12:39	12:42
B	12:15	12:31	12:42	12:48	12:54	12:57
A	12:30	12:46	12:57	1:03	1:09	1:12
B	12:45	1:01	1:12	1:18	1:24	1:27
A	1:00	1:16	1:27	1:33	1:39	1:42
B	1:15	1:31	1:42	1:48	1:54	1:57
A	1:30	1:46	1:57	2:03	2:09	2:12
B	1:45	2:01	2:12	2:18	2:24	2:27
A	2:00	2:16	2:27	2:33	2:39	2:42
B	2:15	2:31	2:42	2:48	2:54	2:57
A	2:30	2:46	2:57	3:03	3:09	3:12
B	2:45	3:01	3:12	3:18	3:24	3:27
A	3:00	3:16	3:27	3:33	3:39	3:42
B	3:15	3:31	3:42	3:48	3:54	3:57
A	3:30	3:46	3:57	4:03	4:09	4:12
B	3:45	4:01	4:12	4:18	4:24	4:27
A	4:00	4:16	4:27	4:33	4:39	4:42
B	4:15	4:31	4:42	4:48	4:54	4:57
A	4:30	4:46	4:57	5:03	5:09	5:12
B	4:45	5:01	5:12	5:18	5:24	5:27
A	5:00	5:16	5:27	5:33	5:39	5:42
B	5:15	5:31	5:42	5:48	5:54	5:57
A	5:30	5:46	5:57	6:03	6:09	6:12
B	5:45	6:01	6:12	6:18	6:24	6:27
A	6:00	6:16	6:27	6:33	6:39	6:42
B	6:15	6:31	6:42	6:48	6:54	6:57

(SCHEDULE CONTINUED ON NEXT PAGE)

LINE 36
WESTBOUND

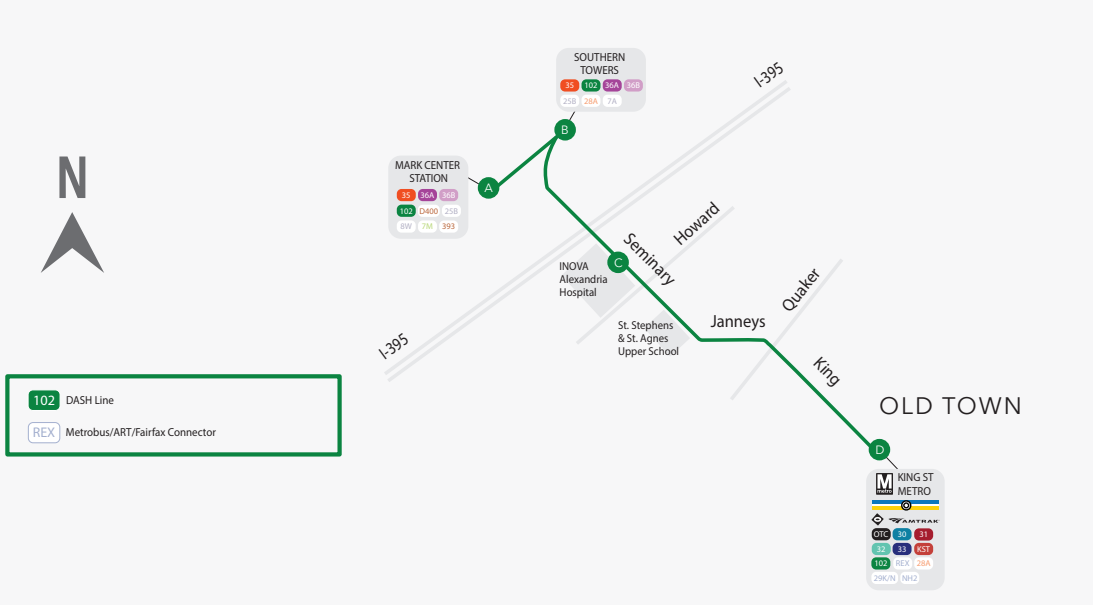
LINE A/B	STAPLES & PETSMART POTOMAC YARD	BAY G SHIRLINGTON STATION	BRADLEE SHOPPING CENTER	ALEXANDRIA HOSPITAL	SOUTHERN TOWERS	BAY 6 MARK CENTER STATION
	F	E	D	C	B	A
	ID #4000474	ID #6001365	ID #4000492	ID #4000278	ID #4000340	FINAL STOP
SATURDAY/SUNDAY *(CONTINUED FROM PREVIOUS PAGE)*						
A	6:30 PM	6:46	6:57	7:03	7:09	7:12
B	6:45	7:01	7:12	7:18	7:24	7:27
A	7:00	7:16	7:27	7:33	7:39	7:42
B	7:15	7:31	7:42	7:48	7:54	7:57
A	7:30	7:46	7:57	8:03	8:07	8:10
B	7:45	8:01	8:12	8:18	8:24	8:27
A	8:00	8:16	8:27	8:33	8:37	8:40
B	8:15	8:31	8:42	8:48	8:54	8:57
A	8:30	8:46	8:57	9:03	9:07	9:10
B	8:45	9:01	9:12	9:18	9:24	9:27
A	9:00	9:16	9:27	9:33	9:37	9:40
B	9:30	9:46	9:57	10:03	10:09	10:12
A	10:00	10:16	10:27	10:33	10:37	10:40
B	10:30	10:46	10:57	11:03	11:09	11:12
A	10:45	11:01	11:12	11:18	11:22	11:25

LINE
102
EASTBOUND

SERVING:

- MARK CENTER
- SOUTHERN TOWERS
- ALEXANDRIA HOSPITAL
- SEMINARY RD/ JANNEYS LANE
- KING ST METRO

King St Metro
via Seminary Rd – Janneys Ln



BAY 3 MARK CENTER STATION	GRAHAM BUILDING SOUTHERN TOWERS	ALEXANDRIA HOSPITAL	KING ST METRO
A	B	C	D
ID #4001014	ID #4000360	ID #4000489	FINAL STOP
WEEKDAY			
5:00 AM	5:02	5:09	5:23
5:30	5:32	5:39	5:53
6:00	6:02	6:09	6:23
6:30	6:32	6:39	6:53
7:00	7:02	7:09	7:23
7:30	7:32	7:39	7:53
8:00	8:02	8:09	8:23
8:30	8:32	8:39	8:53
9:00	9:02	9:09	9:23
9:30	9:32	9:39	9:53
10:00	10:02	10:09	10:23
11:00	11:02	11:09	11:23
12:00 PM	12:02	12:09	12:23
1:00	1:02	1:09	1:23
2:00	2:02	2:09	2:23
3:00	3:02	3:09	3:23
3:30	3:32	3:39	3:53
4:00	4:02	4:09	4:23
4:30	4:32	4:39	4:53
5:00	5:02	5:09	5:23
5:30	5:32	5:39	5:53
6:00	6:02	6:09	6:23
6:30	6:32	6:39	6:53
7:00	7:02	7:09	7:23
7:30	7:32	7:39	7:53
8:00	8:02	8:09	8:23

Note: Line 102X express service between Mark Center and King Street Metro has been discontinued effective December 1, 2021. Line 102X passengers may use the Line 102 local service as an alternate route.

LINE
102
WESTBOUND

SERVING:

- KING ST METRO
- SEMINARY RD/ JANNEYS LANE
- ALEXANDRIA HOSPITAL
- SOUTHERN TOWERS
- MARK CENTER

Mark Center
via Janneys Ln – Seminary Rd

BAY H KING ST METRO	ALEXANDRIA HOSPITAL	STRATFORD BUILDING SOUTHERN TOWERS	MARK CENTER STATION
D	C	B	A
ID #4001125	ID #4000278	ID #4000340	FINAL STOP
WEEKDAY			
5:30 AM	5:45	5:51	5:55
6:00	6:15	6:21	6:25
6:30	6:45	6:51	6:55
7:00	7:15	7:21	7:25
7:30	7:45	7:51	7:55
8:00	8:15	8:21	8:25
8:30	8:45	8:51	8:55
9:00	9:15	9:21	9:25
9:30	9:45	9:51	9:55
10:30	10:45	10:51	10:55
11:30	11:45	11:51	11:55
12:30 PM	12:45	12:51	12:55
1:30	1:45	1:51	1:55
2:30	2:45	2:51	2:55
3:00	3:15	3:21	3:25
3:30	3:45	3:51	3:55
4:00	4:15	4:21	4:25
4:30	4:45	4:51	4:55
5:00	5:15	5:21	5:25
5:30	5:45	5:51	5:55
6:00	6:15	6:21	6:25
6:30	6:45	6:51	6:55
7:00	7:15	7:21	7:25
7:30	7:45	7:51	7:55
8:00	8:15	8:21	8:25
8:30	8:45	8:51	8:55

Note: Line 102X express service between Mark Center and King Street Metro has been discontinued effective December 1, 2021. Line 102X passengers may use the Line 102 local service as an alternate route.

Weekday – AM Northbound Service

ROUTE	Rolling Rd & Saratoga Shopping Center	Saratoga Park & Ride	Backlick North Park & Ride	Mark Center Transit Station	Pentagon Metro Station
393	—	5:13	—	♦ 5:33	5:48
394	5:20	5:33	5:45	—	6:08
393	—	5:53	—	♦ 6:13	6:28
394	6:00	6:13	6:25	—	6:48
393	—	6:33	—	♦ 6:53	7:08
394	6:40	6:53	7:05	—	7:28
393	—	7:13	—	♦ 7:33	7:48
394	7:20	7:33	7:45	—	8:08
393	—	7:53	—	♦ 8:13	8:28
394	8:00	8:13	8:25	—	8:48
393	—	8:33	—	♦ 8:53	9:08
394	8:40	8:53	9:05	—	9:28
394	9:20	9:33	9:45	—	10:08

SERVICE NOTES

For additional service from Backlick North Park & Ride to the Pentagon, see the Route 396 timetable.

♦ Morning northbound Route 393 buses will continue in service to the Pentagon after serving the Mark Center Transit Station, and may depart prior to the listed time to accommodate through-riding passengers.

Weekday – PM Southbound Service

ROUTE	Pentagon Metro Station	Mark Center Transit Station	Saratoga Park & Ride	Rolling Rd & Saratoga Shopping Center	Backlick North Park & Ride
394	3:35	—	4:01	4:04	4:21
393	3:55	4:07	4:29	—	—
394	4:15	—	4:41	4:44	5:01
393	4:35	4:47	5:09	—	—
394	5:00	—	5:26	5:29	5:46
393	5:20	5:32	5:54	—	—
394	5:40	—	6:06	6:09	6:26
393	6:00	6:12	6:34	—	—
394	6:20	—	6:46	6:49	7:06
393	6:40	6:52	7:14	—	—
394	7:00	—	7:26	7:29	7:46
393	7:25	7:37	7:59	—	—

SERVICE NOTES

For additional service from the Pentagon to Backlick North Park & Ride, see the Route 396 timetable.

393•394

Effective January 25, 2020

Saratoga – Pentagon

Saratoga Shopping Center • Saratoga Park & Ride • Backlick North Park & Ride • Mark Center • Pentagon Metro Station

Weekday Rush Hour Service Only

FAIRFAX CONNECTOR

For fares and important information about the bus system, see the brochure:

Fares, Policies & General Information

FAIRFAX CONNECTOR **BusTracker**
REAL-TIME SERVICE INFORMATION
fairfaxconnector.com

703-339-7200 TTY **703-339-1608**

@ffxconnector **/fairfaxconnector**

393-94_0120

ROUTE 393

Saratoga – Mark Center – Pentagon

ROUTE 394

Saratoga – Backlick – Pentagon