# 575 Herndon Parkway

## Traffic Impact Study

## Herndon, VA

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# 575 HERNDON PARKWAY

## EXECUTIVE SUMMARY

This report presents the results of a Traffic Impact Study (TIS) for the proposed redevelopment of 575 Herndon Parkway in the Town of Herndon, Virginia and has incorporated first submission review comments received. This study was completed in accordance with the Town of Herndon's TIS Guidelines and in support of the proposed General Development Plan (GDP) application within the Herndon Transit Oriented Core (HTOC).

Site Location and Study Area. The site is located along the south side of Herndon Parkway immediately adjacent to the Herndon Metro Station. The site is located approximately 0.3 miles east of the Van Buren Street / Herndon Parkway intersection and approximately 0.6 miles west of the Spring Street / Herndon Parkway intersection. Per the scoping agreement with Town of Herndon Staff, 11 intersections were included within the study area.

Proposed Development. The site is currently improved with a 139,200 SF office building and surface parking. As proposed, the site would be razed and redeveloped with a mixed-use development with up to approximately 525 residential units and 13,788 square feet of commercial uses. The development will meet or exceed bike and vehicular parking requirements and include commitments to implementation of a Transportation Demand Management (TDM).

The proposal is estimated to generate approximately 219 AM peak hour trips and 207 PM peak hour trips. This assumes a 45% non-auto mode share for the residential use and a 25% non-auto mode share for commercial uses.

This resubmission presents the current development program based on first submission review comments and reflects minor revisions to the uses compared to the scope of work and first submission documents. The proposal is planned to be constructed and occupied by 2028.

Multimodal Facilities. The site is located in a transit rich environment that includes direct access to the Herndon Metro Station located on the Silver Line and is served by numerous bus routes operated by WMATA, Fairfax Connector and Omni Bus. Sidewalks existing along both sides of Herndon Parkway and the site will improve the existing bus stops along the site's Herndon Parkway frontage, the pedestrian promenade along the site's western boundary connecting the Metro Station to Herndon Parkway and provide for the regional Sugarland Run Stream Valley Trail along the site's southern boundary that will ultimately connect the eastern HTOC limits to the Herndon Metro Station.

Methodology and Assumptions. The following assumptions were agreed to with Town of Herndon staff during the scoping process and used to complete the operational analysis contained herein.

- Existing vehicular, pedestrian, and bicycle traffic counts were conducted in March and April 2024 at the following intersections from 7:00 to 10:00 AM and 4:00 to 7:00 PM.
  - Worldgate Drive and Van Buren Street
  - Van Buren Street and The Atrium Driveway
  - Van Buren Street and Herndon Parkway
  - Herndon Parkway and Signalized Pedestrian Crossing
  - Herndon Parkway and Site Entrance West/Monroe Business Center Entrance
  - Herndon Parkway and Site Entrance East
  - Herndon Parkway and Exchange Place
  - Herndon Parkway and Fairbrook Drive
  - Herndon Parkway and Sunset Business Park
  - Herndon Parkway and Spring Street
- It is assumed the proposed redevelopment would be constructed and fully occupied by 2028.
- A regional growth rate of 1 percent was applied to all major movements within the studied area.
- Three pipeline developments were identified within the study area for inclusion in this study. They include:
  - 555 Herdon Parkway (Phase 1) – Located immediately east of the proposed site, this parcel is planned to include 400 residential units and 25,000 SF of retail. This development will have a shared access drive along its west façade with the subject development proposal.
  - Fairbrook Business Park (Phase 1) – This site is located to the east of the subject site, and is planned for 1,080 residential units, a 10,000 SF daycare and 10,000 SF of retail in two (2) mixed-use buildings.
  - Herndon Hotel – This site is located just northeast of the Fairbrook Business Park site and is planned as a 250-room facility. Access to this hotel will be initially provided via Herndon Parkway through Sunset Business Park, with additional future access via the Fairbrook Drive Extension to Spring Street.
- Planned capacity improvements to Spring Street / Herndon Parkway, assumed to be completed by 2028, include:
  - Improvements to the eastbound Herndon Parkway approach to include a shared thru-right and right turn lane provided.
  - Improvements to the westbound Herndon Parkway approach include a second left turn lane.
  - Additional through capacity to southbound Spring Street, and
  - Extensions of existing left and right turn lanes on northbound Spring Street.
- The stop-controlled intersections included in this report are assumed to be the locations for future traffic signals along Herndon Parkway, based on information provided by the Town of Herndon, as development occurs along the northern and southern frontages.

Existing Conditions – Operational Analysis. The four existing signalized study intersections currently operate at overall acceptable levels of service (LOS) "D" or better during the AM and PM peak hours, with most operating at LOS "B" or "C". All turning movements also operate at acceptable levels of service, with only two (2) movements at LOS "E": the westbound left/thru movement on Worldgate Drive at Van Buren Street during the PM peak, and the eastbound left on Spring Street at Herndon Parkway during both the AM and PM peak periods. At the stop-controlled intersections, all lane groups currently operate at LOS "C" or better during the AM and PM peak periods.

Future Conditions without Development – Operational Analysis. With increases in traffic due to regional growth and pipeline developments, all signalized study intersections would continue to operate at acceptable overall LOS "D" or better during the AM and PM peak hours. Additionally, all lane groups at signalized study intersection would continue to operate at LOS "E" or better during peak periods.

All of the stop-controlled study intersections would continue to operate similar to existing conditions, with all movements operating at LOS "E" or better with the exception of select movements at the driveway approaches to the Sunset Business Park driveway (Intersection #10) during the PM peak hour. These delays are a result of the low side street volumes and incremental increases in traffic along Herndon Parkway. A review of the peak hour queueing indicates these approaches would have queues of approximately one (1) vehicle.

Future Conditions with Development – Operational Analysis. With the proposed development, all signalized study intersections would continue to operate at acceptable overall LOS "D" or better during the AM and PM peak hours. Additionally, all lane groups at signalized study intersection would continue to operate at LOS "E" or better during peak periods.

All of the stop-controlled study intersections would continue to operate similar to the 2028 future conditions without development, with the exception of the Herndon Parkway and Sunset Business WBLT movement, which degrades from LOS "E" to LOS "F". It is to be noted that potential future signalization, per conversations with the Town of Herndon Staff, may result in the mitigation of these lower levels of service. With the addition of the proposed developments and planned 555 Herndon Parkway development the Herndon Parkway / East Driveway intersection would realize an increase in delays during the PM peak period on the side street due to the addition of new trips. Potential signalization, pending a signal warrant analysis, would mitigate side street delays at the main site access point to/from Herndon Parkway.

# SECTION 1
# INTRODUCTION

This report presents the results of a Traffic Impact Study (TIS) for the proposed redevelopment of 575 Herndon Parkway in the Town of Herndon, Virginia and has incorporated first submission review comments. This study was completed in accordance with the Town of Herndon's TIS Guidelines and in support of the proposed General Development Plan (GDP) application within the Herndon Transit Oriented Core (HTOC). As shown in Figure 1-1, the site is bounded by Herndon Parkway to the north, existing office buildings to the east and west (both planned for redevelopment) and the Dulles Access Road (Route 267) to the south.

The site is currently zoned PD-TOC (Planned Development - Transit Oriented Core). The adjacent properties are also zoned PD-TOC, and sites on the north side of Herndon Parkway are zoned O&LI (Office and Light Industrial). The subject site is composed of one parcel (Tax Map Number 0164 10 0006A) with a total area of 4.64 acres. Further details are shown on the Town's zoning map, Figure 1-2.

The site is located on a mostly level parcel, the high point of the site is located at the Herndon Metro Station in the southwest corner (approximately 384 feet above sea level) of the site and gradually drops to the north and east. The northwest corner of the property is at approximately 376 feet while the eastern portion of the site is at approximately 374 feet.

**Description of Proposed Development.** The site is currently improved with an office building (139,200 square feet) and surface parking. As proposed, the site would be razed and redeveloped with a mixed-use development with up to approximately 525 residential units and 13,788 square feet of commercial uses. For purpose of this study, high-turnover sit-down restaurant was assumed as the commercial land use to account for a more intense trip generating use. This assumption was made in coordination with Town staff during scoping to accommodate a range of commercial uses given uncertain market conditions to allow for maximum flexibility. The proposal is consistent with the Town of Herndon's Comprehensive Plans and planned Herndon Transit-Oriented Core. Construction of the proposed development is anticipated to be completed by 2028.

Access to the site is currently provided by two (2) driveways along Herndon Parkway, with the eastern driveway shared with the neighboring site to the east (555 Herndon Parkway). As proposed access to the site would be consolidated to the eastern shared driveway and the western driveway would be closed. A copy of the GDP is shown in Figure 1-3.

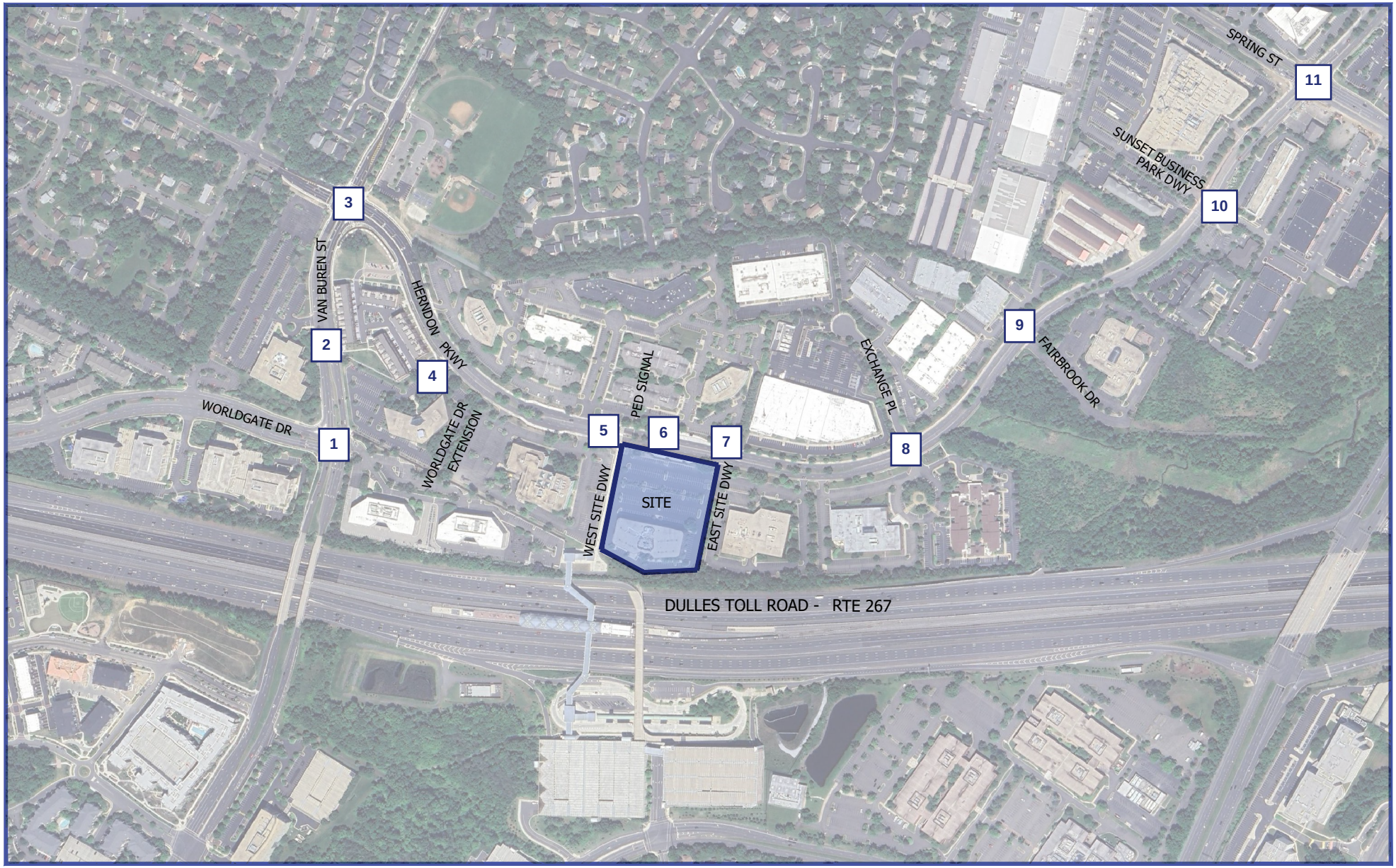


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Figure 1-1
Site Location

[#] Studied Intersection

575 Hendon Parkway
Herndon, Virginia

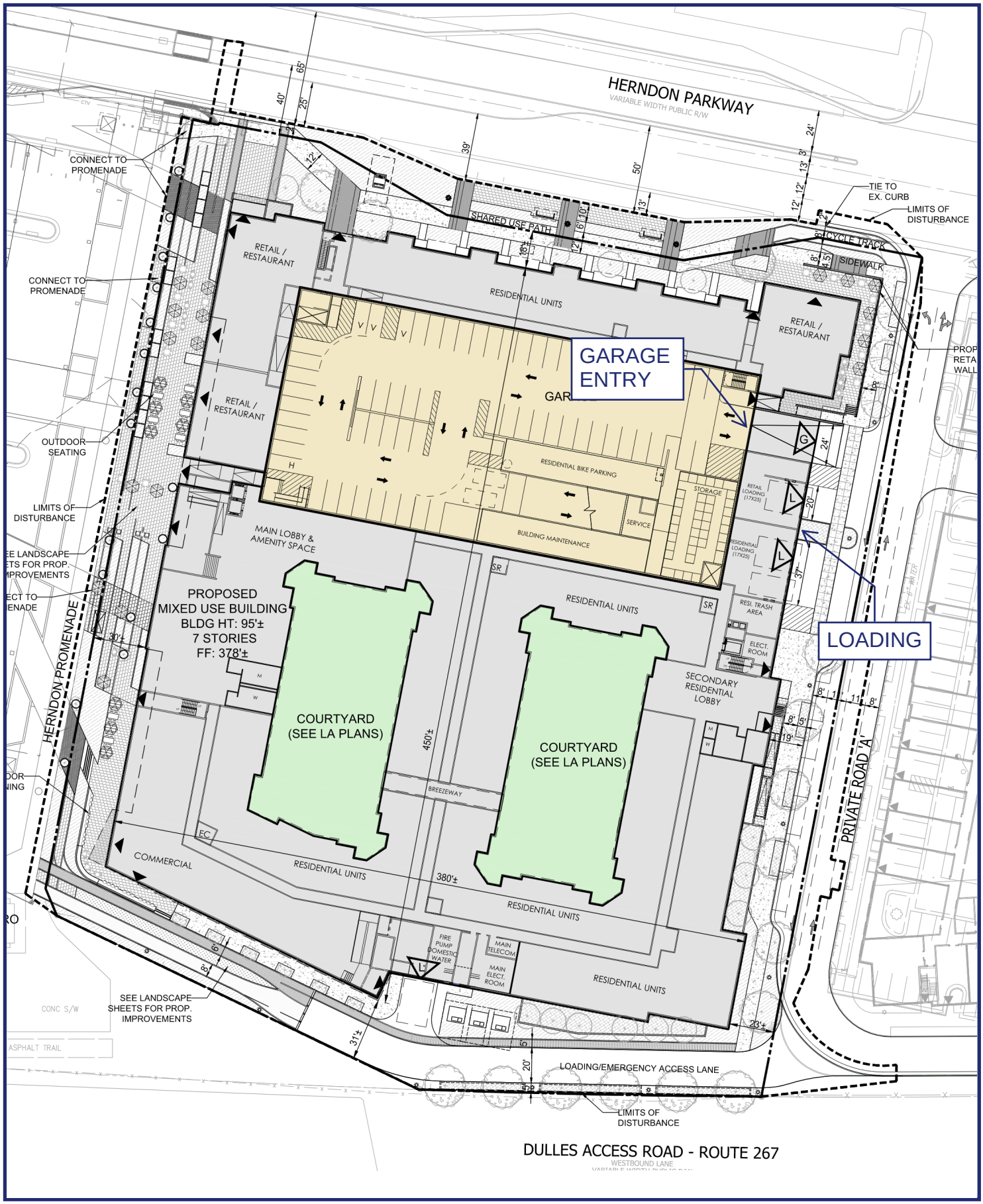


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Figure 1-2
Concept Plan

575 Herndon Parkway
Herndon, Virginia

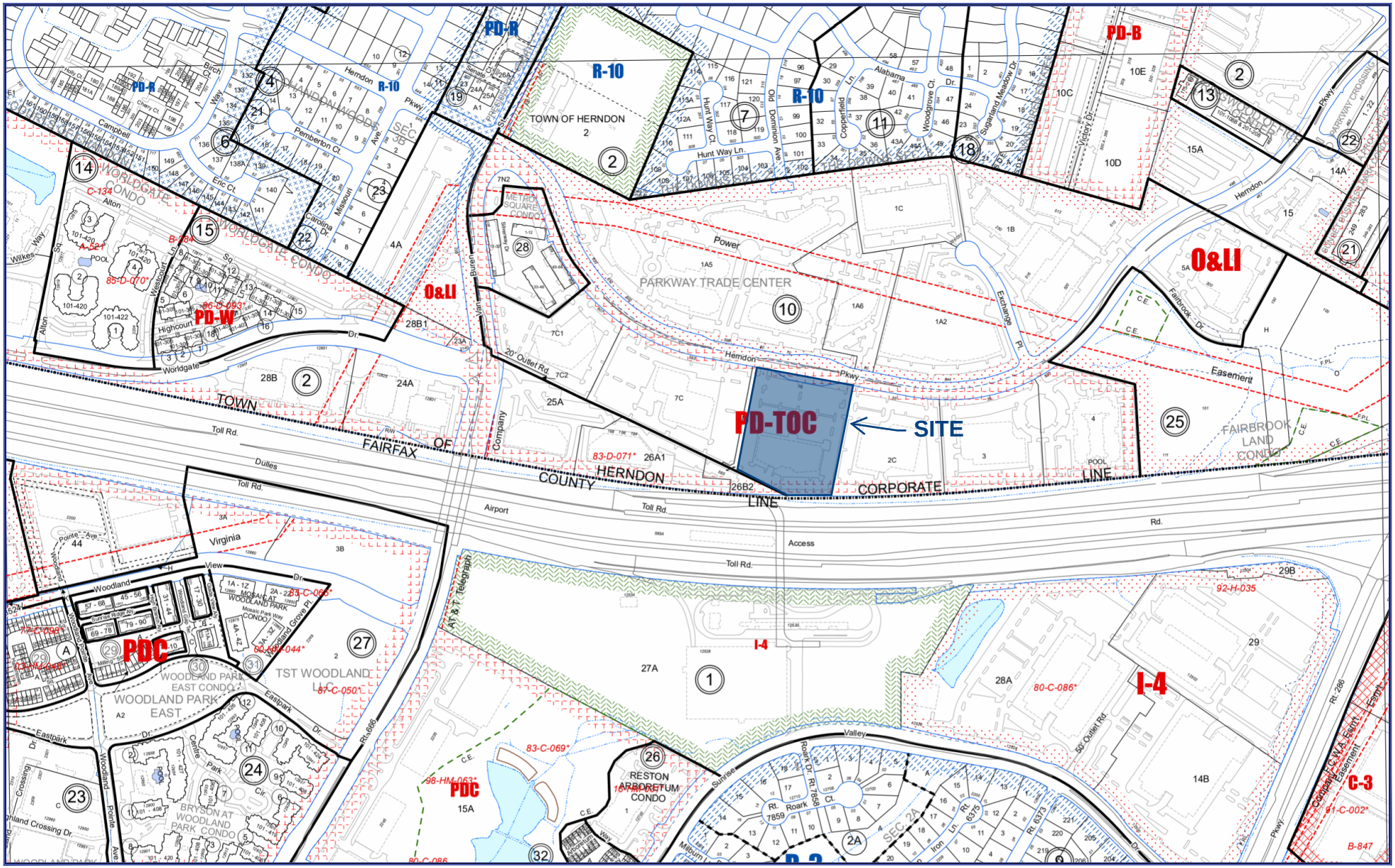


Figure 1-3
Zoning Map

575 Herndon Parkway
Herndon, Virginia

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## Study Scope

A scoping meeting was held with the Town of Herndon staff on March 19, 2024, and identified 11 study intersections for inclusion in the TIS. The approved scoping document identified the parameters of the TIS and is included in Appendix A for reference. For purposes of this study, the buildout year was assumed to be 2028.

Tasks undertaken in this study include the following:

1. Reviewed proposed development plans, recently completed traffic impact studies in the vicinity, and other background data.

2. Completed a field reconnaissance of existing roadway and intersection geometries, traffic controls, speed limits, and adjacent on-street parking restrictions.

3. Established a study scope and specific analysis parameters for the TIS with the Town of Herndon Department of Public Works staff (see Appendix A).

4. Collected vehicular, pedestrian, and bicycle counts at the study intersections during the weekday AM and PM peak periods.

5. Reviewed and summarized crash data for the study area provided by VDOT.

6. Conducted operational analyses of existing levels of service (LOS) and vehicle queues (average and 95$^{th}$ percentile) at the study intersections based on the existing peak hour traffic volumes, the existing intersection geometries, and traffic controls.

7. Forecasted future peak hour traffic volumes for the year 2028 without the proposed development based on existing traffic volumes with the addition of regional traffic growth and approved pipeline developments.

8. Analyzed 2028 future LOS and queues without the proposed development at the study intersections based on the future forecasts without development, the future intersection geometries, and traffic controls.

9. Estimated the number of peak hour vehicular trips and person trips that would be generated by the buildout of the proposed development based on standard Institute of Transportation Engineers (ITE) Trip Generation Manual, 11$^{th}$ Edition rates and equations and County mode share information.

10. Forecasted future peak hour traffic volumes for the year 2028 with the proposed development based on background traffic volumes and traffic associated with the proposed development.

11. Analyzed year 2028 future LOS and vehicle queues with the proposed development at the study intersections and site driveway, based on the future traffic forecasts and future intersection geometries and traffic controls.

12. Identified traffic improvements / enhancements necessary to mitigate future forecasts as a result of the proposed development for 2028 conditions, if required.

# SECTION 2
# BACKGROUND INFORMATION

## Existing Transit Services

**Metrorail Service.** The Herndon Metrorail Station is located to the southwest immediately adjacent to the site. The station promenade extends along the site's western façade connecting the station to Herndon Parkway and the bus facilities along the site's frontage. The site's proximity allows for direct access to this metro station from the southwest corner of the property.

The WMATA Metrorail system operates seven (7) days a week from 5:00 AM to 12:00 AM Monday through Thursday, 5:00 AM to 1:00 AM on Fridays, 7:00 AM to 1:00 AM on Saturdays and 7:00 AM to 12:00 AM on Sundays. The Silver line runs from Ashburn to Downtown Largo in Maryland with connections to other Lines to the east. The train headways at the Herndon station range from eight (8) minutes during peak periods to 12-20 minutes during off-peak periods and weekends.

Based on the most recent available WMATA ridership data, the Herndon Metrorail Station averaged approximately 979 weekday entries/boarding during the month of April 2024.

**Bus Service.** The site and nearby area is served by numerous bus routes operated by Fairfax Connector and Omni Ride. Below are summaries of the routes that operate along Herndon Parkway with stops adjacent to the site. Location and bus routes of adjacent bus stops are shown in Figure 2-1. The Herndon Metro Station vicinity map showing the bus service and boarding locations is shown in Figure 2-2. Additional bus lines not described below that serve the Herndon Metro Station on the south side of the Dulles Toll Road include Fairfax Connector 553, 901, 937, 951, 954 and RIBS2. These stops and lines are only accessible from the site through the Metro elevated walkways over the Dulles Toll Road during the Herndon Metro Station operating hours.

Fairfax Connector 921 (Herndon Circulator) This route runs between the Herndon Metro Station, Spring Street, Downtown Herndon, Elden Street, Parcher Avenue and Worldgate Drive. This bus line operates weekdays, Saturdays, and Sundays with approximately 40-minute headways.

Fairfax Connector 924 (NOVA-Loudoun-Herndon-Franklin Farm) This route runs between Wiehle-Reston East Metro Station, Sunset Hills Road, Reston Town Center Metro Station, Herndon Metro Station, Worldgate Drive and Dulles Airport. This bus line operates weekdays peak hours every 20-minute headways, and weekdays off peak, Saturdays, and Sundays with approximately 1-hour headways.

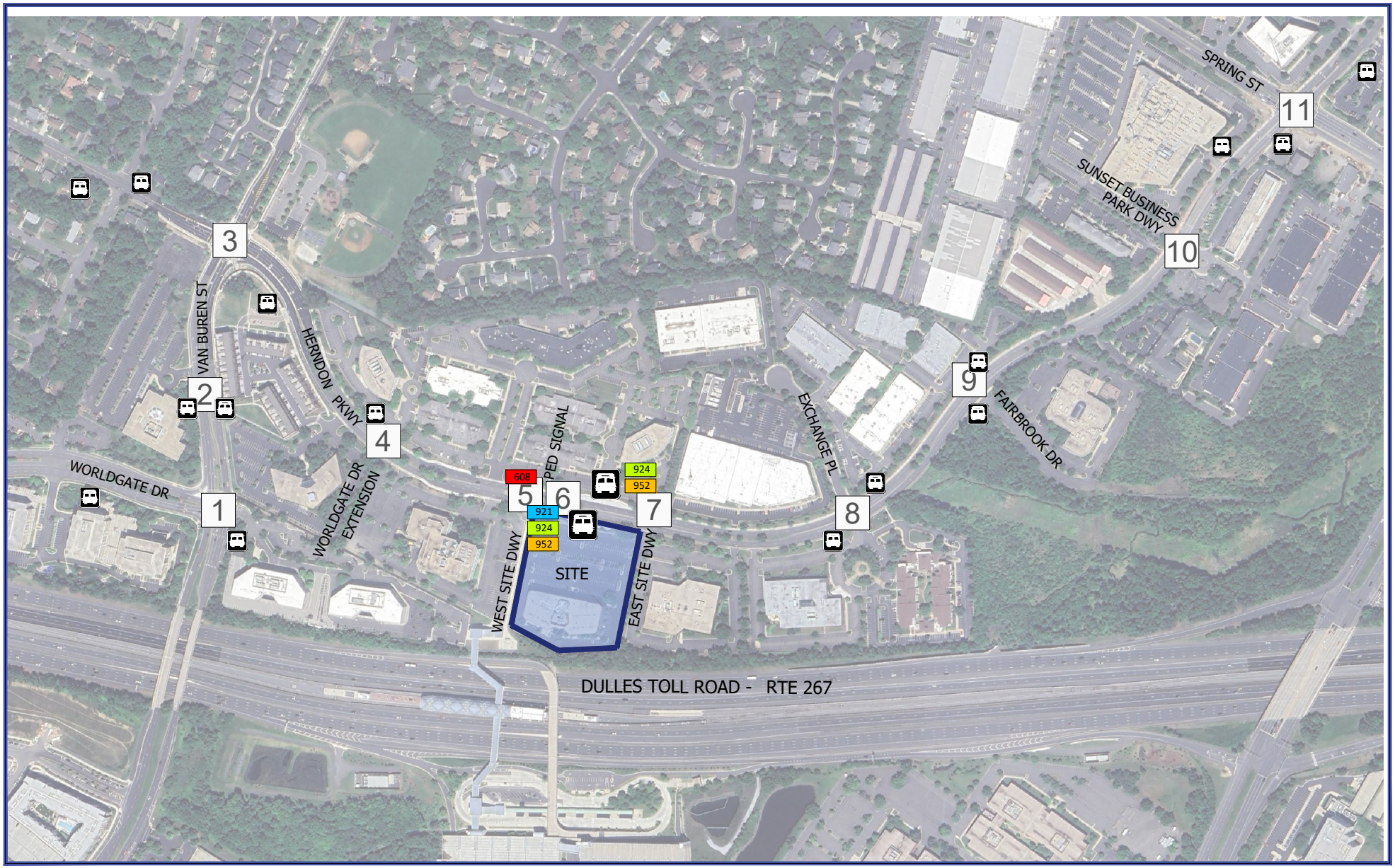


Figure 2-1
Bus Stop Locations

Bus Stop Location
XXX Bus Route

575 Herndon Parkway
Herndon, Virginia

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## BUS SERVICE AND BOARDING LOCATIONS

| Route | Destination | Board at |
|---|---|---|
| **FAIRFAX CONNECTOR** | | |
| 553 | Reston Town Center M | G |
| 553 | Kingstream | C |
| 901 | Centreville UMC Park & Ride | F |
| 921 | Herndon Circulator | H |
| 924 | NVCC Loudoun | A H |
| 924 | Kinross Circle | D J |
| 937 | Harbor House | B |

| Route | Destination | Board at |
|---|---|---|
| **FAIRFAX CONNECTOR** *(continued)* | | |
| 950 | Reston Town Center | E |
| 951 | Wiehle-Reston East M | D |
| 951 | Innovation Center M | B |
| 952 | Wiehle-Reston East M | H |
| 952 | Dulles Airport | J |
| 954 | Sterling Plaza | A |
| RIBS 2 | Reston - South Lakes Drive | C |

**F** Metrobus SHUTTLE

**In the event of an emergency, this bus stop will also be served by shuttle buses.**

### LEGEND

N

A Bus Stop *(on the street)*

A Bus Bay *(at the station)*

The lettered discs on this map will help you locate the bus stop or bay near this station. Be advised the letters are not displayed on the street bus stops.

- Elevator
- Escalator
- Metrorail Station and line
- Bike Rack
- Bike Locker/ Secure Bike Room

Herndon SVM-0622

SOURCE: WMATA.COM

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Figure 2-2
Herndon Station Vicinity Map

575 Herndon Parkway
Herndon, Virginia

Fairfax Connector 952 (Sunset Hills-Dulles Airport) This route runs between the Herndon Metro Station, Spring Street, Downtown Herndon, Elden Street, Parcher Avenue and Worldgate Drive. This bus line operates weekdays peak hours every 20-minute headways, and weekdays off peak, Saturdays, and Sundays with approximately 1-hour headways.

Omni Ride 608 (Manassas Express) The route runs between Manassas to Dulles Corridor/Herndon/Reston. The bus line operates only during the weekday AM and PM peak periods, with approximately 30-minute headways.

**Pedestrian and Bike Facilities.** A majority of the streets in the vicinity area provide sidewalks on both sides of the street and marked crosswalks at signalized intersections. All of the site frontages include sidewalks. An eight (8) foot wide sidewalk exists along the north side of Herndon Parkway with a six (6) foot sidewalk on the south side. Access to the Washington & Old Dominion (W&OD) Trail is provided from Herndon Parkway north of Spring Street.

**Herndon Metro Station Area Study.** According to the findings outlined in the Herndon Metro Station Area Study, there's a proposal to extend Worldgate Drive from its current endpoint at Van Buren Street to Herndon Parkway. Furthermore, there are plans for a new road link to connect Spring Street to Herndon Parkway via Fairbrook Drive Extended. However, it's important to note that neither of these enhancements is currently accounted for in this study due to uncertainty surrounding their timing and funding, as discussed, and agreed upon in the scoping meeting.

**Planned Future Roadway Improvement.** The roadway capacity improvements currently under construction at the intersection of Herndon Parkway and Spring Street are assumed completed by buildout year 2028 and are assumed in the future conditions analysis without and with development. Additionally, the intersection of Herndon Parkway and Fairbrook Drive is assumed to be signalized by the buildout year of 2028 with the construction of the Fairbrook Business Park redevelopment as a proffered improvement.

Other future planned improvements outside of the buildout year horizon of 2028 include the extension of Worldgate Drive to Herndon Parkway and the signalization of each unsignalized study intersection along Herndon Parkway. At the request of the Town, and for consistency with future traffic studies for the proposal along Hendron Parkway, these unsignalized intersections were included for reference only. The inclusion of the additional intersections were agreed to during the scoping process.

**Bicycle and Pedestrian Improvements.** The Town of Herndon has enacted a new Bicycle Network Master Plan, which outlines various recommendations for enhancing bicycle infrastructure, while also aiming to enhance the safety and accessibility of the bicycle network. These recommendations include a cycle track that is under construction along the south side of Herndon Parkway, which will be built out with TRG and HTOC redevelopment. Also included in the Bicycle Network Master Plan Map are bicycle lanes along Van Buren Street between Herndon Parkway and Spring Street, which have been

completed. The suggestion of a cycle track on Herndon Parkway aligns with the envisioned cross-sections outlined in the Town's Urban Design and Architectural Guidelines. Figure 2-3 shows the proposed bike lane and multimodal streets. It is noted that the Applicant has coordinated the design of the cycle track along the site frontage closely with the Town prior to the submission of the GDP.

**Trail Network.** The Town of Herndon Bicycle Network Master Plan shows the planned and existing trails network within the borders of the Town of Herndon, presented on Figure 2-4. The trails portrayed include mixed use trails, bicycle lanes, sharrows, and cycle tracks.

## Existing Transportation Facilities

**Roadway Network.** Vehicular access to/from the existing site is provided via two (2) curb cuts along Herndon Parkway. Regional access to/from the site is provided via Herndon Parkway (VA 120), Van Buren Street (Route 666) to the west and Spring Street (Route 675) to the east. The Virginia Department of Transportation Highway Road Classification are noted below along with the published 2022 Average Annual Daily Traffic (VPD).

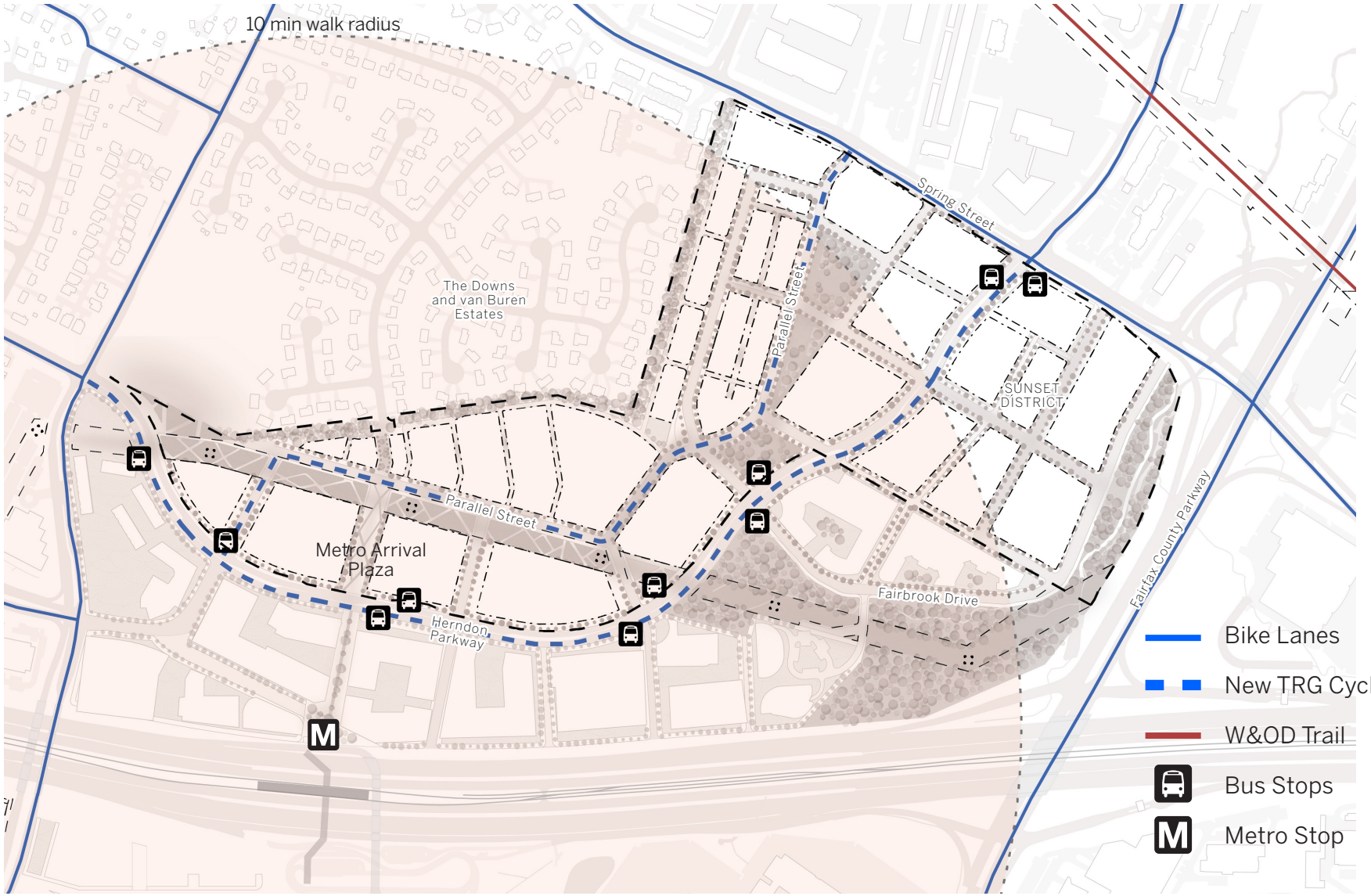
Existing lane use and traffic controls at the study intersections are shown on Figure 2-5. A description of each roadway in the vicinity of the site is provided below:

Herndon Parkway is a four-lane divided Minor Arterial with left and right turn lanes at all intersections. The roadway provides transportation circulation along the perimeter of the Town of Herndon. The posted speed limit within the vicinity of the proposed development is 35 mph. Based on available data from VDOT the segment of roadway adjacent to the site carries approximately 15,600 VPD.

Van Buren Street (South of Herndon Parkway) is four-lane divided Major Collector with left turns lanes at major intersections. The posted speed limit within the vicinity of the proposed development is 25 mph. Based on available data from VDOT, the VPD of this section of roadway adjacent to the site is approximately 14,600 (south of Herndon Parkway).

Van Buren Street (North of Herndon Parkway) is a two (2) lane Major Collector consisting of two lanes, and bike lanes on either side of the road. The posted speed limit for this link of Van Buren is 25 mph. Based on available data from VDOT, the VPD of this section of roadway is approximately 6,400.

Worldgate Drive is a four-lane Minor Collector, and is median divided with a posted speed of 35 mph. This roadway connects Centreville Road and Monroe Street/Van Buren Street. No VPD data is available.




**Multimodal Streets**

SOURCE: TRANSIT-RELATED SMALL AREA PLAN.,TOWN OF HERNDON

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Figure 2-3
Bike Map and Multimodal Streets

**GRAPHICAL REPRESENTATION SOURCED FROM TOWN OF HERNDON**

575 Herndon Parkway
Herndon, Virginia

VIKA




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Figure 2-4
Bicycle Network Master Plan

575 Herndon Parkway
Herndon, Virginia

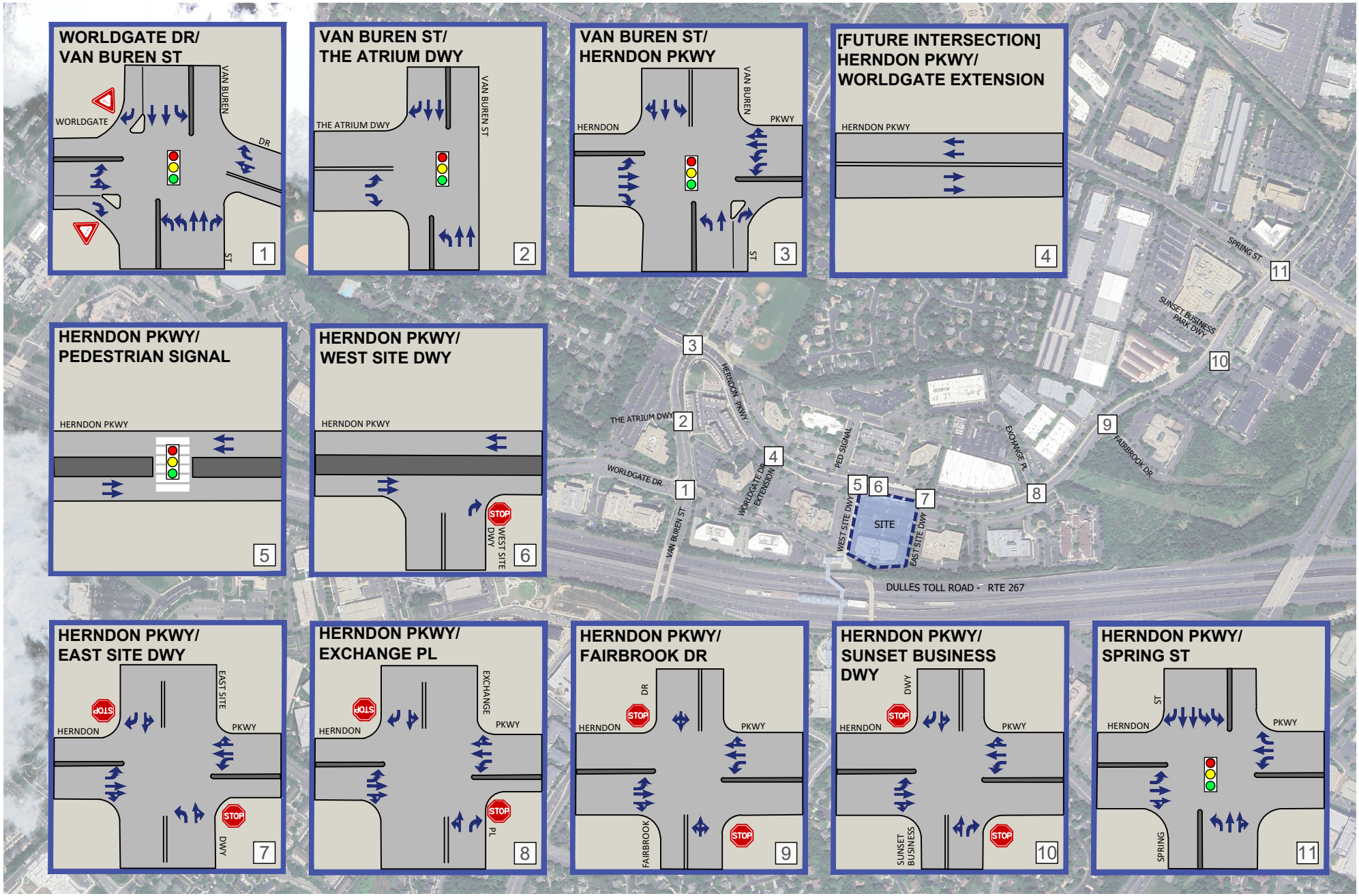


Figure 2-5
Existing Lane Use and Traffic Controls

575 Herndon Parkway
Herndon, Virginia

Spring Street (Route 675) Spring Street is a four-lane divided Minor Arterial spanning east to west, featuring turn lanes at major intersections throughout its stretch within the study area. The section of Spring Street, divided into four lanes, begins at Van Buren Street and extends to the Fairfax County Parkway, transitioning to Sunset Hills Road. Westward from Herndon Parkway, Spring Street is categorized as a Major Collector, while eastward, it is designated as a Minor Arterial. The speed limit in the proximity of the study segment is set at 30 mph. According to data sourced from VDOT, the VPD for this roadway segment adjacent to the site is approximately 9,700 vehicles west of Herndon Parkway and 33,900 vehicles east of Herndon Parkway.

### VDOT Crash Data

Crash data was requested from VDOT for the past three (3) years on Hendon Parkway in the vicinity of the site. This data was used to conduct a review of the safety of the study intersections. Based on the received data, a total of 76 crashes occurred within the study area from January 2020 through March 2024. This information is included in Appendix B for reference.

The types and number of crashes during the study period is as follows:

- Angle: 29 Crashes (38%)
- Rear End: 22 Crashes (29%)
- Fixed Object : 10 Crashes (13%)
- Sideswipe: 9 Crashes (12%)
- Others: 5 Crashes ( 7%)
- Pedestrians: 1 Crashes ( 1%)

The year with the highest number of crashes is 2022 with 23 crashes and the lowest number of crashes is 2021 with 14 crashes. As shown above, the most common type of crash found in the study area was angled crashes which accounted for 38% of the crashes followed by rear end crashes with 29%. From all these crashes, no fatalities were reported; with 53 reported injury crashes. Most of these chases occurred at the signalized intersections. Of the 76 crashes, only one (1) occurred in the vicinity of the site driveways, and it was a collision with a deer.

The signalized intersections with the highest number of crashes were the intersections of Herndon Parkway/Van Buren Street and Herndon Parkway/Spring Street. Based on a review of MUTCD section 4C.08 and Table 4C-2 it was concluded that no unsignalized study intersection would meet warrants for signalization based on the number of annual crashes.

A breakdown of crashes occurring at the primary signalized intersections, including types and severity, are presented below.

1. Worldgate Drive / Van Buren Street Intersection This intersection has seen 13 collisions in the last three years. The crash type with the highest number of occurrences is angled crashes, accounting for 38%. The crash type with the least number of occurrences is Side-swipe and Other, both accounting for 8%.

The KABCO Crash Severity Scale is used by VDOT to measure the severity of each crash, with “K” meaning a death occurred, and “O” meaning there was no injury. At the intersection of Worldgate Drive and Van Buren Street, there were largely either no injuries or non-incapacitating injuries.

2. Herndon Parkway / Van Buren Street Intersection This intersection has seen 26 collisions in the last three years. The crash type with the highest number of occurrences is angled crashes, accounting for 54%. The crash type with the least number of occurrences is Pedestrian, Head-On, Side-Swipe, Fixed Object, and Other, all accounting for 4%.

The KABCO Crash Severity Scale is used by VDOT to measure the severity of each crash, with “K” meaning a death occurred, and “O” meaning there was no injury. At the intersection of Herndon Parkway and Van Buren Street, there were largely either no injuries or non-incapacitating injuries, with only one crash resulting in “A”, or severe injury.

3. Spring Street / Herndon Parkway Intersection This intersection has seen 24 collisions in the last three years. The crash type with the highest number of occurrences is rear-end crashes, accounting for 38%. The crash type with the least number of occurrences is Fixed Object collisions, both accounting for 8%.

The KABCO Crash Severity Scale is used by VDOT to measure the severity of each crash, with “K” meaning a death occurred, and “O” meaning there was no injury. At the intersection of Herndon Parkway and Spring Street, there were largely either no injuries or non-incapacitating injuries. Appendix B includes an additional analysis for the above-mentioned intersections.

There is no data to show that this development will either worsen or improve crash rates in the study network.

# SECTION 3
# EXISTING CONDITIONS

## Existing Traffic Counts

Existing vehicular, pedestrian, and bicycle traffic counts were conducted on Tuesday, March 19, 2024, from 7:00 to 10:00 AM and 4:00 to 7:00 at the following study intersections:

- Worldgate Drive and Van Buren Street
- Van Buren Street and The Atrium Driveway
- Van Buren Street and Herndon Parkway
- Herndon Parkway and Signalized Pedestrian Crossing
- Herndon Parkway and Site Entrance West/Monroe Business Center Entrance
- Herndon Parkway and Site Entrance East
- Herndon Parkway and Spring Street

Additionally, after discussions with Town of Herndon Staff, traffic counts were collected at the following intersections on April 4, 2024, during the same time periods.

- Herndon Parkway and Exchange Place
- Herndon Parkway and Fairbrook Drive
- Herndon Parkway and Sunset Business Park

The weekday AM and PM peak hour vehicular, pedestrian, and bicycle traffic counts are summarized on Figures 3-1 through 3-3, respectively. Detailed sheets containing the count data are included in Appendix C.

A review of the vehicular count data indicates that the link of Hendon Parkway, adjacent to the site, currently carries approximately 982 AM peak hour trips and 1,336 PM peak hour trips. The west side driveway currently carries approximately 7 AM peak hour trips and 4 PM peak hour while the east side shared driveway carries approximately 21 AM peak hour trips and 20 PM peak. The minor traffic volume at these driveways is due to the low occupancy of both existing office buildings.

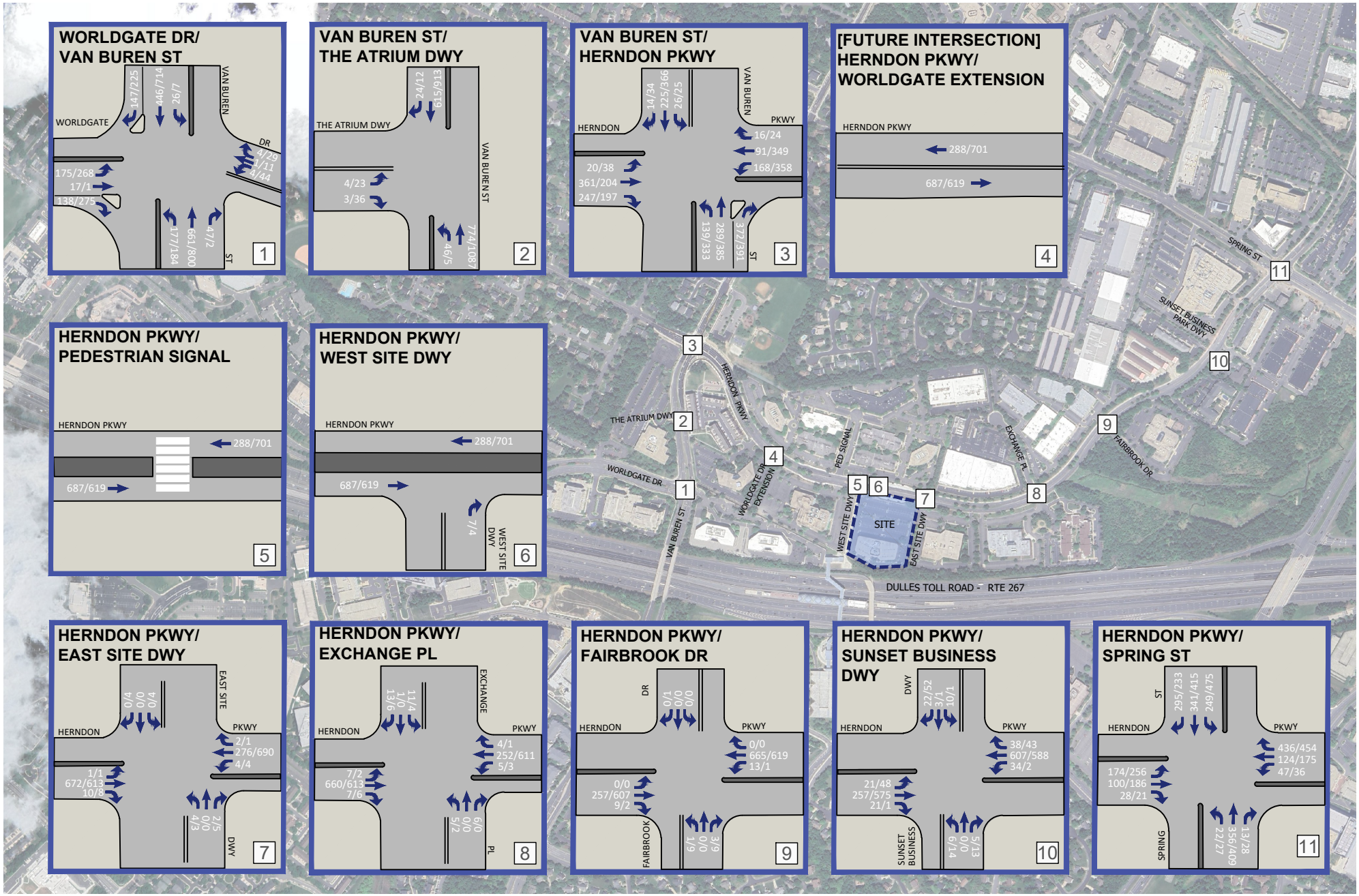


Figure 3-1
Existing Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

VIKA

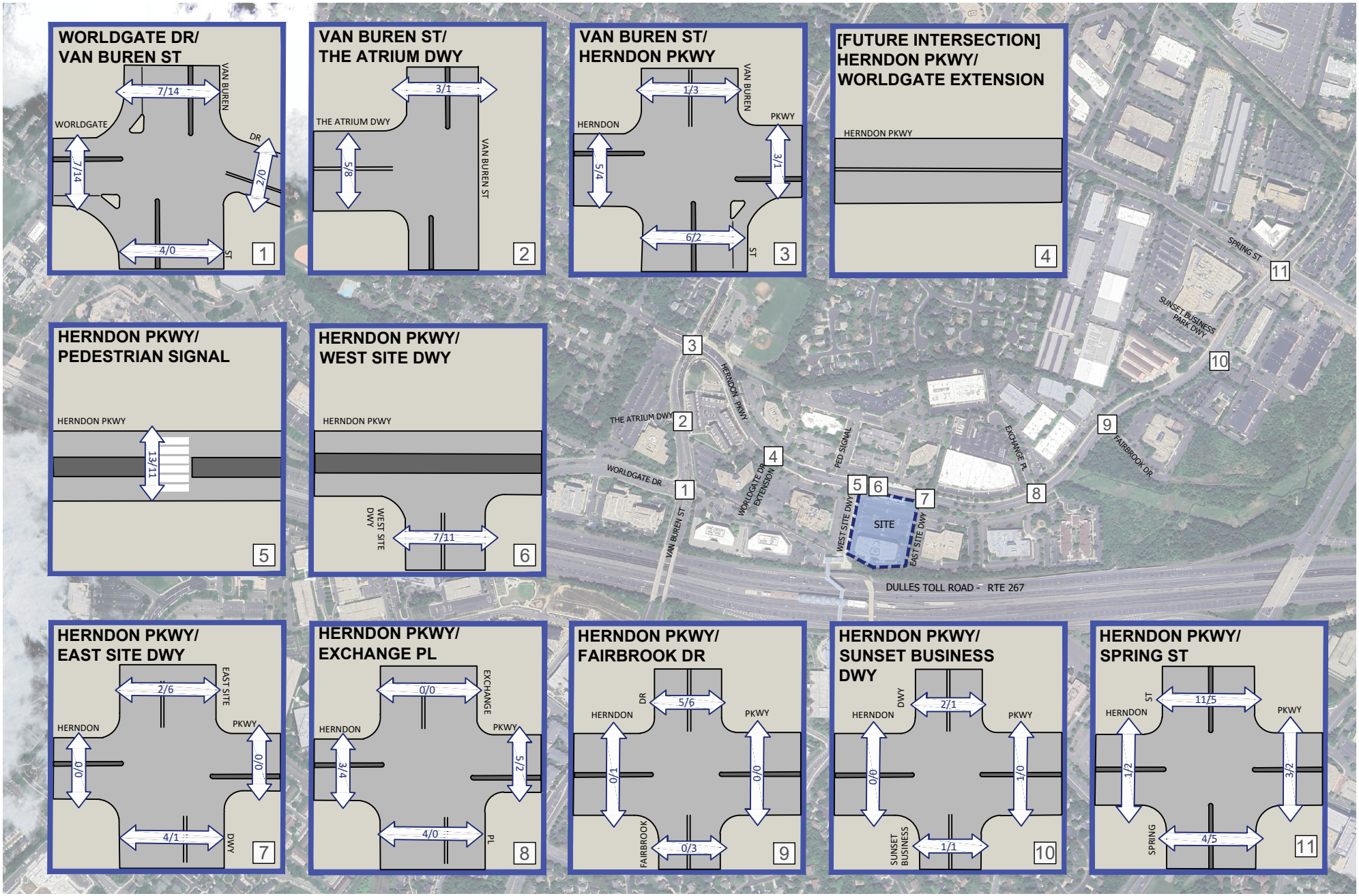


Figure 3-2
Existing Peak Hour Pedestrian Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

VIKA

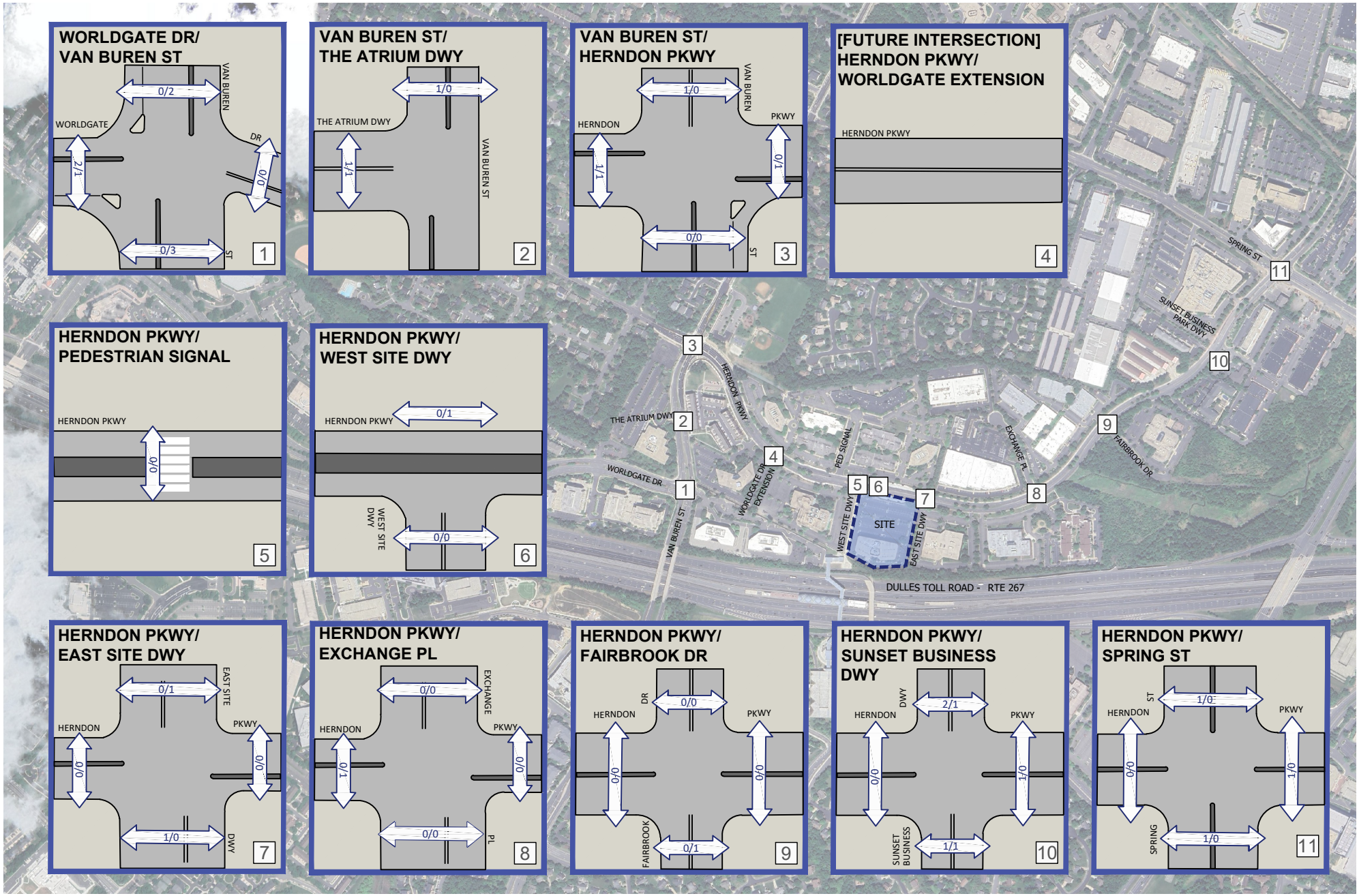


Figure 3-3
Existing Peak Hour Bike Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

VIKA

## Existing Conditions Operational Analysis

The existing peak hour LOS and queues were estimated at the study intersections based on; the existing lane use and traffic controls shown on Figure 2-5; existing traffic signal phasing/timings obtained from the Town of Herndon; the existing vehicular, pedestrian, and bicycle traffic counts shown on Figures 3-1 through 3-3; and the Highway Capacity Manual (HCM) 2000 methodologies, using Synchro Software, version 11.

The results of the existing conditions analysis are presented in Appendix D and summarized in Tables 3-1 and 3-2. In addition to the peak hour vehicular, pedestrian and bike volumes the following inputs were coded into Synchro: calculated peak hour factors by approach, lane widths, speed limits, adjacent parking lane, number parking maneuvers, and bus blockages.

As noted in the Town's Zoning Ordinance, Section 78-156.1, a proposed development may not cause the level of service for any signalized intersection located within the study area to be lower than LOS "D"; and no individual turning movement level of service at an intersection falls below LOS "E".

**Levels of Service.** As shown in Table 3-1 and summarized on Figure 3-4, the four (4) signalized study intersections currently operate at overall LOS "D" or better during the AM and PM peak hours, with most operating at LOS "B" or "C". All turning movements at signalized intersections currently operate at LOS "E" or better during both the AM and PM peak periods. At the stop-controlled intersections, all lane groups currently operate at LOS "C" or better during the AM and PM peak periods. Units used for Level of Service (LOS) table are seconds per vehicle, or S/Veh.

**Queuing.** Existing peak hour queues for study intersection were determined using the 50$^{th}$ and 95$^{th}$ percentile queues estimated by Synchro Software, version 11. The 50$^{th}$ and 95$^{th}$ percentile queues of existing conditions are used to establish a datum against which to compare future conditions. The 50$^{th}$ percentile (or average) queue is defined as the maximum back of queue associated with a typical signal cycle. The 95$^{th}$ percentile queue is defined as the maximum back of queue with 95$^{th}$ percentile traffic volumes. The 95$^{th}$ percentile queue is not necessarily ever observed, it is simply based on statistical calculations[1]. The results of the queueing analysis are presented in Appendix D and summarized in Table 3-2.

As shown on Table 3-2 the estimated average and 95$^{th}$ percentile queues, as calculate by Synchro, can be accommodated within the available turn lane storage provided at study intersections except for the southbound shared through-right lane on Van Buren Street at Herndon Parkway. It is noted that the right turn volumes are relatively low (14 AM/34 PM) and the estimated queue for the shared lane group would not extend back to or through the adjacent intersection of Senate Court/Haley M. Smith Park entrance/Van Buren Street.

[1] Synchro Studio 11, Traffic Signal Software – User Guide

Table 3-1
575 Herndon Parkway
Existing Conditions Intersection Level of Service Summary [1]

| Approach/ Lane Group | Existing Conditions (2024) | | | |
|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | |
| | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) |
| **1. Worldgate Dr/Van Buren St - Signalized** | | | | |
| EBL | D | 43.7 | D | 47.1 |
| EBT | D | 43.5 | D | 47.2 |
| EBR | D | 50.1 | D | 52.5 |
| WBLT | D | 48.5 | E | 59.1 |
| WBR | D | 47.9 | D | 48.3 |
| NBL | D | 46.8 | D | 46.8 |
| NBT | B | 17.1 | B | 15.7 |
| NBR | B | 13.1 | B | 10.9 |
| SBL | D | 51.4 | D | 54.6 |
| SBT | B | 19.6 | C | 22.5 |
| SBR | B | 17.4 | B | 18.2 |
| **Overall** | **C** | **26.3** | **C** | **28.7** |
| **2. Van Buren St/The Atrium Dr - Signalized** | | | | |
| EBL | B | 15.1 | B | 14.1 |
| EBR | B | 15.0 | B | 14.1 |
| NBL | B | 10.9 | B | 12.3 |
| NBT | B | 13.0 | B | 16.6 |
| SBT | C | 20.2 | C | 23.0 |
| SBR | A | 9.7 | A | 9.9 |
| **Overall** | **B** | **15.9** | **B** | **19.3** |
| **3. Van Buren St/Herndon Pkwy - Signalized** | | | | |
| EBL | C | 24.0 | B | 17.4 |
| EBT | D | 39.7 | C | 33.1 |
| EBR | D | 37.7 | C | 32.9 |
| WBL | E | 78.2 | E | 68.7 |
| WBTR | D | 52.0 | D | 47.3 |
| NBL | C | 26.5 | E | 57.8 |
| NBT | D | 38.3 | D | 48.3 |
| NBR | C | 25.2 | C | 23.0 |
| SBL | C | 31.3 | D | 40.5 |
| SBTR | D | 38.7 | D | 52.9 |
| **Overall** | **D** | **39.1** | **D** | **46.3** |
| **4. Herndon Pkwy/Future Worldgate Extended - Signalized** | | | | |
| **5. Herndon Pkwy/Pedestrian Crossing - Signalized** | | | | |
| EBT | B | 12.8 | B | 12.1 |
| WBT | B | 10.1 | B | 12.1 |
| **Overall** | **B** | **12.0** | **B** | **12.1** |
| **6. Herndon Pkwy/West Site Dwy - Unsignalized** | | | | |
| NBL | A | 9.0 | A | 8.9 |
| **7. Herndon Pkwy/East Site Dwy - Unsignalized** | | | | |
| EBL | A | 7.8 | A | 9.0 |
| WBL | A | 8.4 | A | 8.3 |
| NBL | B | 14.1 | C | 18.5 |
| NBTR | A | 8.8 | A | 8.7 |
| SBLTR | A | 0.0 | C | 19.4 |
| SBR | A | 0.0 | B | 10.5 |
| ***Herndon Pkwy/East Site Dwy - Signalized Comparison*** | | | | |
| EBL<br>EBT<br>WBL<br>WBTR<br>NBL<br>NBTR<br>SBLT<br>SBR<br>**Overall** | **PROFFERED FUTURE IMPROVEMENT** | | | |
| **8. Herndon Pkwy/Exchange Pl - Unsignalized** | | | | |
| EBL | A | 8.0 | A | 8.7 |
| WBL | A | 8.8 | A | 8.7 |
| NBLT | C | 18.0 | C | 21.8 |
| NBR | B | 10.3 | A | 0.0 |
| SBTL | C | 16.0 | C | 21.5 |
| SBR | A | 9.1 | B | 10.2 |
| ***Herndon Pkwy/Exchange Place - Right-Out Only Comparison*** | | | | |
| EBL<br>WBL<br>NBT<br>NBR<br>SBL<br>SBT | **ADDITIONAL ANALYSIS** | | | |
| **9. Herndon Pkwy/Fairbrook Dr - Unsignalized** | | | | |
| EBL | A | 7.9 | A | 9.0 |
| WBL | A | 0.0 | A | 0.0 |
| NBLTR | A | 0.0 | B | 10.5 |
| NBL<br>NBTR | **PROFFERED FUTURE IMPROVEMENT** | | | |
| SBLTR | B | 12.7 | C | 18.9 |
| ***Herndon Pkwy/Fairbrook Dr - Signalized Comparison*** | | | | |
| EBL<br>EBTR<br>WBL<br>WBTR<br>NBL<br>NBTR<br>SBLTR<br>**Overall** | **PROFFERED FUTURE IMPROVEMENT** | | | |
| **10. Herndon Pkwy/Sunset Business - Unsignalized** | | | | |
| EBL | A | 8.0 | A | 8.7 |
| WBL | A | 9.3 | A | 9.3 |
| NBLT | D | 30.3 | D | 30.1 |
| NBR | B | 10.8 | B | 11.0 |
| SBLT | C | 19.6 | D | 32.7 |
| SBR | A | 9.2 | B | 10.3 |
| **11. Herndon Pkwy/Spring St - Signalized** | | | | |
| EBL | C | 30.6 | C | 27.3 |
| EBTR | D | 40.4 | D | 37.9 |
| EBR | C | 32.3 | D | 39.4 |
| WBL | C | 26.1 | C | 33.5 |
| WBTR | C | 31.4 | C | 32.4 |
| NBL | D | 52.9 | D | 49.7 |
| NBT | C | 23.0 | C | 23.6 |
| NBR | B | 14.7 | B | 16.4 |
| SBL | E | 61.7 | E | 61.8 |
| SBTR | C | 31.9 | D | 41.3 |
| **Overall** | **C** | **30.9** | **D** | **36.0** |

Note(s):
1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 11.

Table 3-2
575 Herndon Parkway
Existing Conditions Intersection Queuing Summary [1, 2, 3, 4, 5]

| Approach / Lane Group | Storage Length (ft) | Existing Conditions (2024) | | | |
|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | |
| | | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile |
| **1. Worldgate Dr/Van Buren St - Signalized** | | | | | |
| EBL | - | 72 | 129 | 104 | 172 |
| EBT | - | 72 | 129 | 105 | 174 |
| EBR | - | 0 | 62 | 0 | #107 |
| WBT | - | 3 | 16 | 43 | 87 |
| WBR | - | 0 | 0 | 0 | 0 |
| NBL | 250 | 69 | 105 | 72 | 108 |
| NBT | - | 175 | 231 | 160 | 277 |
| NBR | 200 | 0 | 0 | 0 | 0 |
| SBL | 200 | 20 | 48 | 6 | 20 |
| SBT | - | 118 | 159 | 212 | 270 |
| SBR | - | 0 | 36 | 0 | 44 |
| **2. Van Buren St/The Atrium Dr - Signalized** | | | | | |
| EBL | - | 1 | 7 | 6 | 24 |
| EBR | 155 | 0 | 6 | 0 | 19 |
| NBL | 150 | 12 | 28 | 1 | 6 |
| NBT | - | 138 | 185 | 223 | 294 |
| SBT | - | 142 | 194 | 171 | 314 |
| SBR | 125 | 0 | 11 | 0 | 8 |
| **3. Van Buren St/Herndon Pkwy - Signalized** | | | | | |
| EBL | 125 | 12 | 30 | 18 | 38 |
| EBT | - | 160 | 214 | 75 | 112 |
| EBR | 165 | 0 | 66 | 0 | 57 |
| WBL | 350/100 | 100 | 140 | 185 | 238 |
| WBTR | - | 47 | 77 | 166 | 219 |
| NBL | - | 93 | 142 | 255 | #369 |
| NBT | - | 244 | 340 | 347 | 480 |
| NBR | 275 | 0 | 53 | 0 | 53 |
| SBL | 85 | 16 | 36 | 15 | 36 |
| SBTR | 150 | 101 | 144 | 188 | 245 |
| **4. Herndon Pkwy/Future Worldgate Extended - Signalized** | | | | | |
| **5. Herndon Pkwy/Pedestrian Crossing - Signalized** | | | | | |
| EBT | - | 84 | 126 | 73 | 111 |
| WBT | - | 30 | 51 | 73 | 111 |
| **6. Herndon Pkwy/West Site Dwy - Unsignalized** | | | | | |
| NBR | - | - | 1 | - | 8.9 |
| **7. Herndon Pkwy/East Site Dwy - Unsignalized** | | | | | |
| WBL | 150 | - | 0 | - | 0 |
| NBL | - | - | 0 | - | 1 |
| NBTR | - | - | 0 | - | 1 |
| SBT | - | - | - | - | - |
| SBR | - | - | - | - | - |
| ***Herndon Pkwy/East Site Dwy - Signalized Comparison*** | | | | | |
| EBL | - | **PROFFERED FUTURE IMPROVEMENT** | | | |
| EBT | | | | | |
| WBL | 150 | | | | |
| WBT | - | | | | |
| NBL | - | | | | |
| NBTR | - | | | | |
| NBLTR | | | | | |
| SBT | - | | | | |
| SBR | - | | | | |
| **8. Herndon Pkwy/Exchange Pl - Unsignalized** | | | | | |
| NBT | - | - | 1 | - | 1 |
| NBR | - | - | 1 | - | 0 |
| SBT | - | - | 3 | - | 1 |
| SBR | - | - | 1 | - | 1 |
| ***Herndon Pkwy/Exchange Pl - Right-Out Comparison*** | | | | | |
| EBL | - | **ADDITIONAL ANALYSIS** | | | |
| NBR | - | | | | |
| SBL | - | | | | |
| SBT | - | | | | |
| **9. Herndon Pkwy/Fairbrook Dr - Unsignalized** | | | | | |
| EBL | 175 | - | 1 | - | 0 |
| WBL | 200 | - | 0 | - | 0 |
| NBL | - | - | 0 | - | 0 |
| NBTR | - | - | 0 | - | 0 |
| SBLTR | - | - | 1 | - | 6 |
| ***Herndon Pkwy/Fairbrook Dr - Signalized Comparison*** | | | | | |
| EBL | 175 | **FUTURE IMPROVEMENT PROFFERED BY OTHERS** | | | |
| EBTR | - | | | | |
| WBL | 200 | | | | |
| WBTR | - | | | | |
| NBL | - | | | | |
| NBTR | - | | | | |
| SBLTR | - | | | | |
| **10. Herndon Pkwy/Sunset Business - Unsignalized** | | | | | |
| EBL | 100 | - | 2 | - | 0 |
| WBL | 150 | - | 2 | - | 5 |
| NBLT | - | - | 7 | - | 1 |
| NBR | - | - | 3 | - | 7 |
| SBLT | - | - | 2 | - | 8 |
| SBR | - | - | 0 | - | 2 |
| **11. Herndon Pkwy/Spring St - Signalized** | | | | | |
| EBL | 275 | 26 | 53 | 20 | 44 |
| EBT | - | 94 | 155 | 127 | 198 |
| EBR | 350 | 0 | 82 | 0 | 99 |
| WBL | - | 105 | 163 | 163 | 241 |
| WBT | - | 36 | 64 | 71 | 107 |
| NBL | 300/560 | 109 | 150 | 205 | 253 |
| NBT | - | 103 | 140 | 128 | 170 |
| NBR | 175 | 58 | 112 | 36 | 82 |
| SBL | 135 | 19 | 49 | 23 | 56 |
| SBT | - | 126 | 180 | 173 | 241 |

Notes:
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.
4. Analysis for the 2028 Background and Total Future at Spring Street/Herndon Pkwy intersection assumes proposed improvements.
5. Unit of measure for queue length is feet.

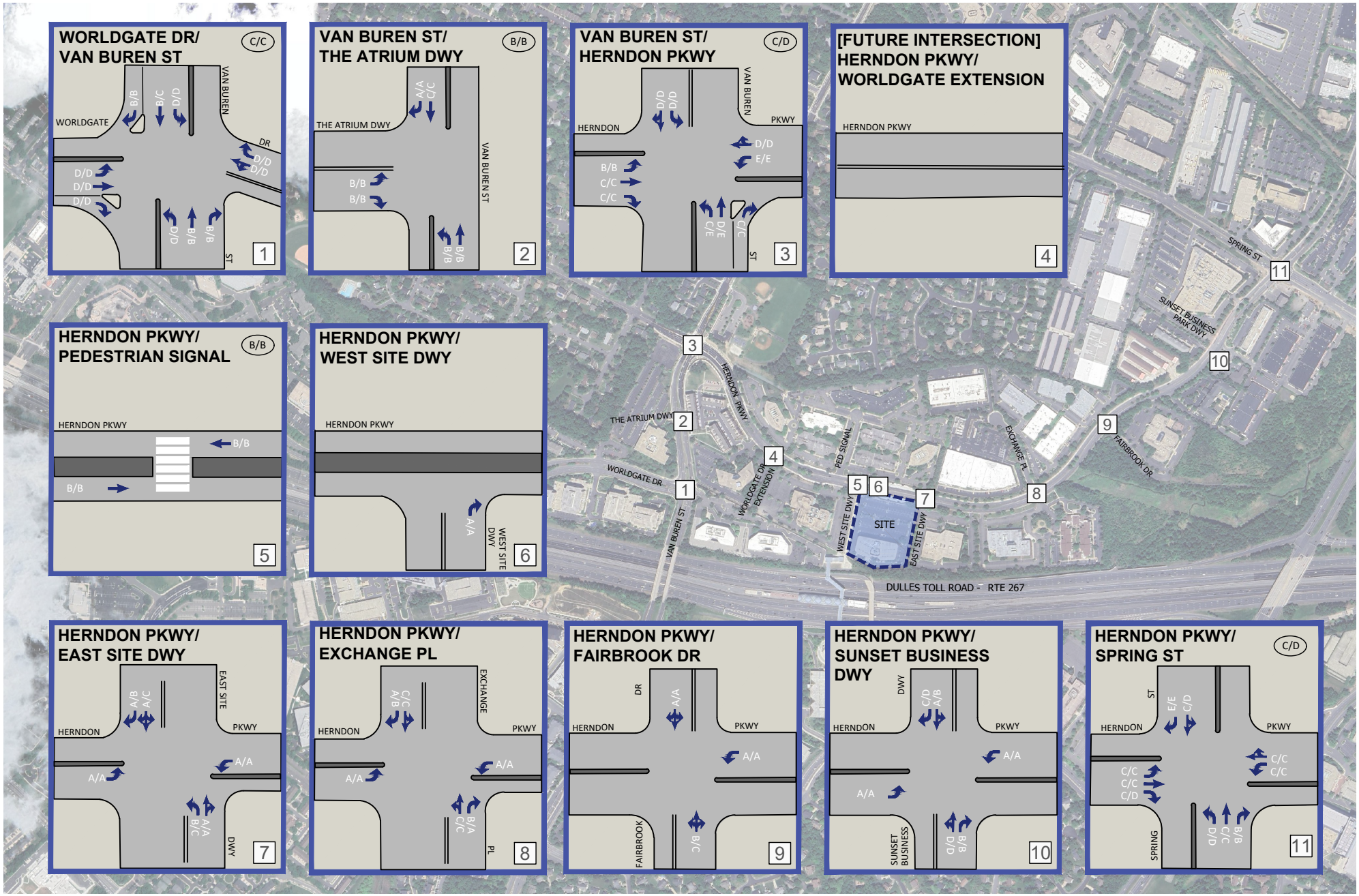


Figure 3-4
Existing Intersection Movement LOS and Overall Intersection LOS

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

# SECTION 4
# FUTURE CONDITIONS WITHOUT DEVELOPMENT (2028)

## Background Conditions

This section presents an analysis of the future transportation conditions including projections of 2028 future traffic forecasts without the proposed development, as well as capacity and queuing analyses under this condition.

**Methodology/Assumptions.** It was assumed that the proposed redevelopment would be constructed and fully occupied by 2028, as specified in the traffic scoping document. The 2028 future traffic forecasts without site redevelopment were developed based on a composite of existing baseline 2024 traffic volumes, trips generated by nearby pipeline developments, and regional traffic growth.

**Pipeline Developments.** As outlined in the scoping document, three (3) pipeline developments were identified within the study area for inclusion in this study. The location of these developments is shown on Figure 4-1.

- 555 Herdon Parkway (Phase 1) – Located immediately east of the proposed site, this parcel is planned to include 400 residential units and 25,000 SF of retail. This development will have a shared access drive along its west façade with the subject development proposal.

- Fairbrook Business Park (Phase 1) – This site is located to the east of the subject site, and is planned for 1,080 residential units, a 10,000 SF daycare and 10,000 SF of retail in two (2) mixed-use buildings.

- Herndon Hotel – This site is located just northeast of the Fairbrook Business Park site and is planned as a 250-room facility. Access to this hotel will be initially provided via Herndon Parkway through Sunset Business Park, with additional future access via the Fairbrook Drive Extension to Spring Street.

Table 4-1 summarizes the estimated weekday peak hour trips expected to be generated by the noted developments. The pipelines development peak hour trips were assigned to the roadway network using distributions provided in the developments respective traffic studies. The combined peak hour pipeline development trips are shown on Figure 4-2.

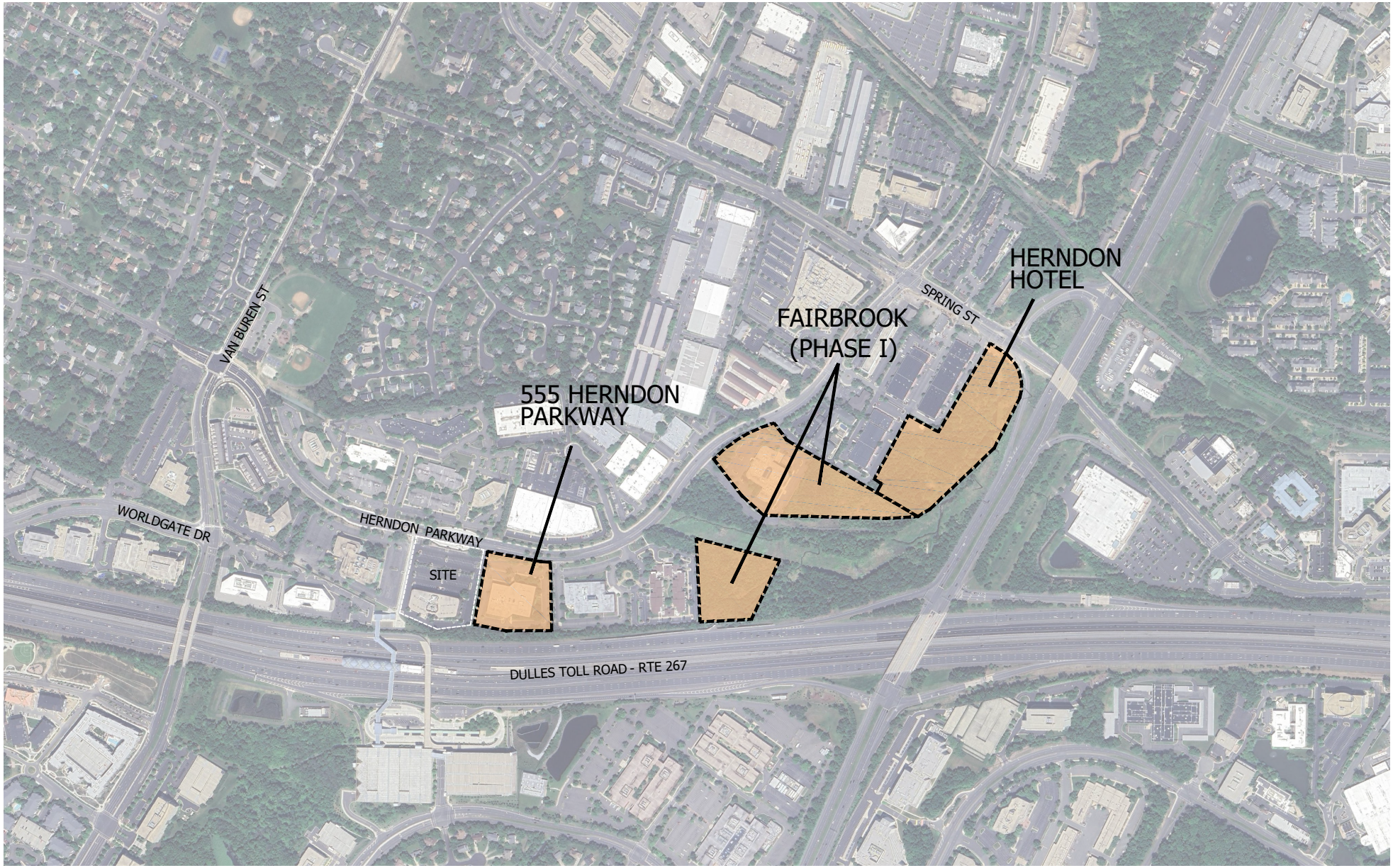


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Figure 4-1
Pipeline Development Locations

575 Herndon Parkway
Herndon, Virginia

Table 4-1
575 Herndon Parkway
2028 - Pipeline Development Trip Generation

| 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 Daily |
|---|---|---|---|---|---|---|---|---|---|---|
| **555 Herndon Parkway** | | | | | | | | | | |
| Apartments | 221 | 400 | DU | 38 | 126 | 164 | 95 | 61 | 156 | 1,862 |
| | | *30% Non-Auto Mode Share* | | *(11)* | *(38)* | *(49)* | *(29)* | *(18)* | *(47)* | *(559)* |
| Retail | 822 | 25,000 | GSF | 35 | 24 | 59 | 83 | 82 | 165 | 1,361 |
| | | *25% Non-Auto Mode Share* | | *(9)* | *(6)* | *(15)* | *(21)* | *(21)* | *(42)* | *(340)* |
| | | | **Total** | **53** | **106** | **159** | **128** | **104** | **232** | **2,324** |
| **Fairbrook** | | | | | | | | | | |
| Apartments | 221 | 1,080 | DU | 107 | 357 | 464 | 257 | 165 | 422 | 5,105 |
| | | *25% Non-Auto Mode Share* | | *(27)* | *(89)* | *(116)* | *(64)* | *(41)* | *(105)* | *(1,276)* |
| Retail | 822 | 10,000 | GSF | 14 | 10 | 24 | 33 | 33 | 66 | 545 |
| | | *25% Non-Auto Mode Share* | | *(4)* | *(3)* | *(7)* | *(8)* | *(8)* | *(16)* | *(136)* |
| Daycare | 565 | 10,000 | SF | 58 | 52 | 110 | 52 | 59 | 111 | 476 |
| | | *25% Non-Auto Mode Share* | | *(15)* | *(13)* | *(28)* | *(13)* | *(15)* | *(28)* | *(119)* |
| | | | **Total** | **133** | **314** | **447** | **257** | **193** | **450** | **4,595** |
| **Herndon Hotel** | | | | | | | | | | |
| Hotel | 310 | 250 | Rooms | **66** | **52** | **118** | **80** | **77** | **157** | **2,286** |

Notes:
1. Trip Generation obtained from ITE's Trip Generation Manual, 11th Edition. Setting Location: General Urban/Suburban
2. Non-auto mode share in inclusive of internal capture.

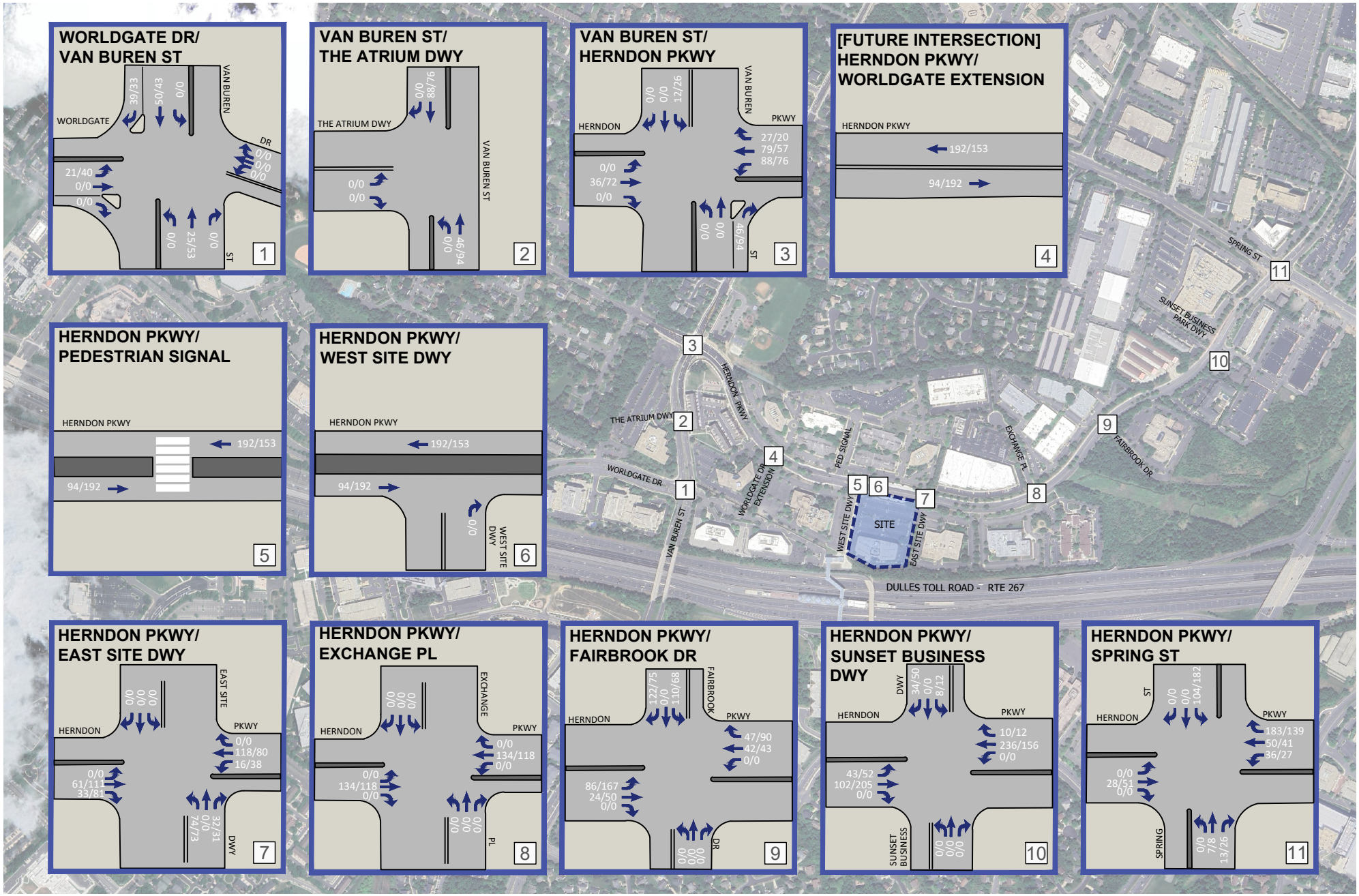


Figure 4-2
Pipeline Peak Hour Traffic Forecasts

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

**Regional Growth.** An increase in traffic associated with regional growth from 2024 to 2028 was estimated at 1.0 percent per year, compounded annually, for all turning movements on the mainlines as agreed to with Town staff during scoping. This regional growth accounts for increases in traffic resulting from potential development and influences outside of the immediate study area. The growth rate was applied to all turning movements, except for the movements in/out of commercial driveways along Van Buren Street and Herndon Parkway. The regional growth at each of the study intersections is shown on Figure 4-3.

The resulting 2028 future traffic forecasts without development are shown on Figure 4-4.

**Planned Improvements.** As noted previously, the Spring Street at Herndon Parkway intersection improvement are currently under construction and are assumed completed by 2028. This improvement includes:

- A northbound shared through-right and right turn lane provided.
- Second southbound left turn lane provided.
- Third eastbound through lane provided.

The future lane use and traffic controls without development are shown on Figure 4-5.

Additionally, a traffic signal is planned as a proffered improvement to be constructed at the Herndon Parkway/Fairbrook Drive intersection (Intersection 9) as part of the Fairbrook Business Park development by 2028. Since the traffic signal is subject to a future signal warrant study the intersection will be analyzed as both stop-controlled and signalized. The future lane use shown on Figure 4-5 for the intersection was obtained from the GDP for the Fairbrook Business Park development.

At the Town's request during scoping, the stop-controlled intersections within the study area have been included because each intersection is planned for signalization in the future as development occurs on adjacent parcel with direct vehicular access. This includes the following intersections:

- Herndon Parkway and Worldgate Extension (Intersection 4)
- Herndon Parkway and Exchange Place (Intersection 8)
- Herndon Parkway and Sunset Business Park Driveway (Intersection 10)

For the purposes of this study each intersection will be analyzed under stop-controlled conditions. Future signalization will likely mitigate any queueing and/or level of service issues identified herein.

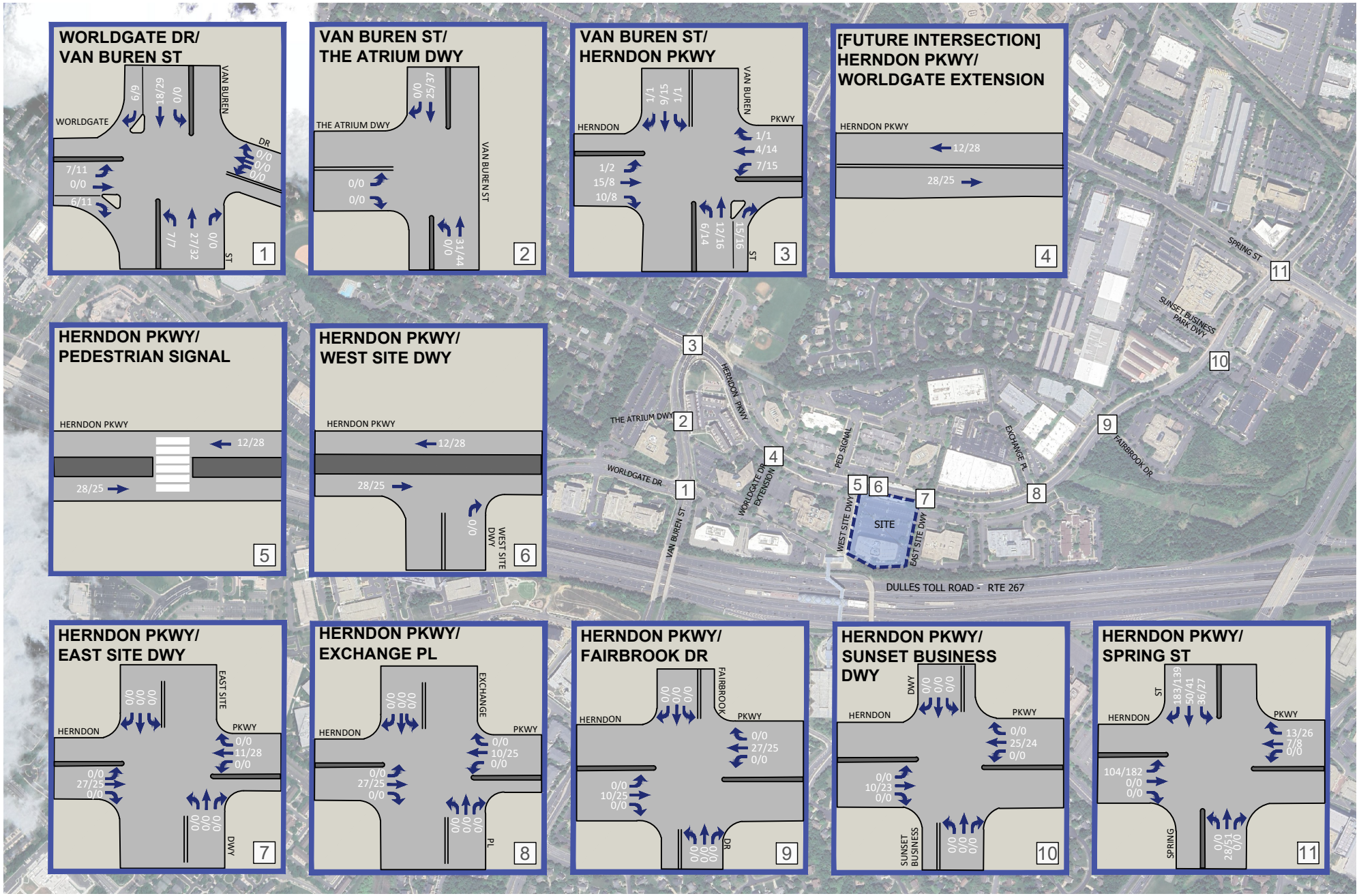


Figure 4-3
Regional Growth Buildout (2024-2028)

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

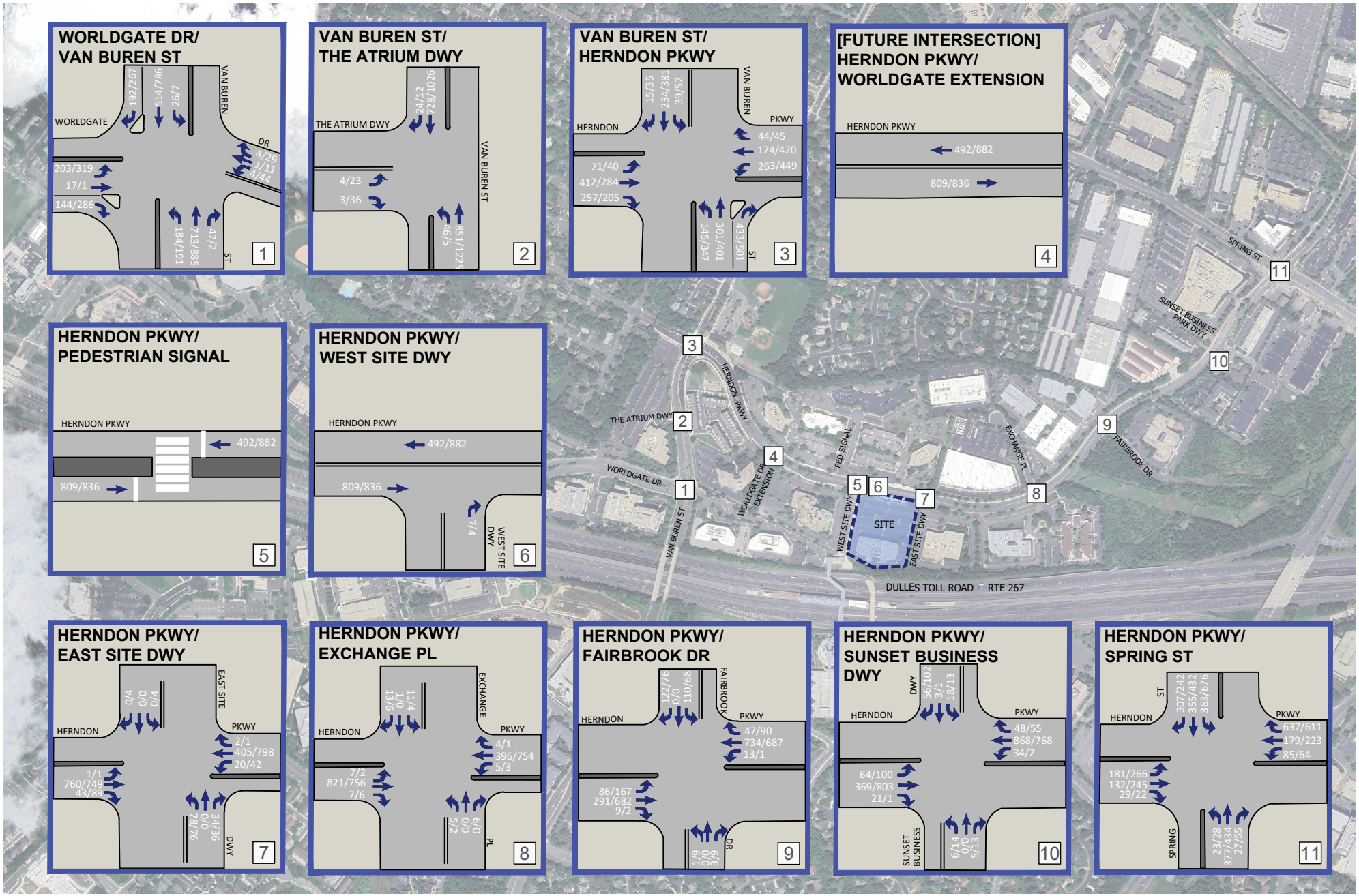


Figure 4-4
Future Peak Hour Traffic Forecasts without Development

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

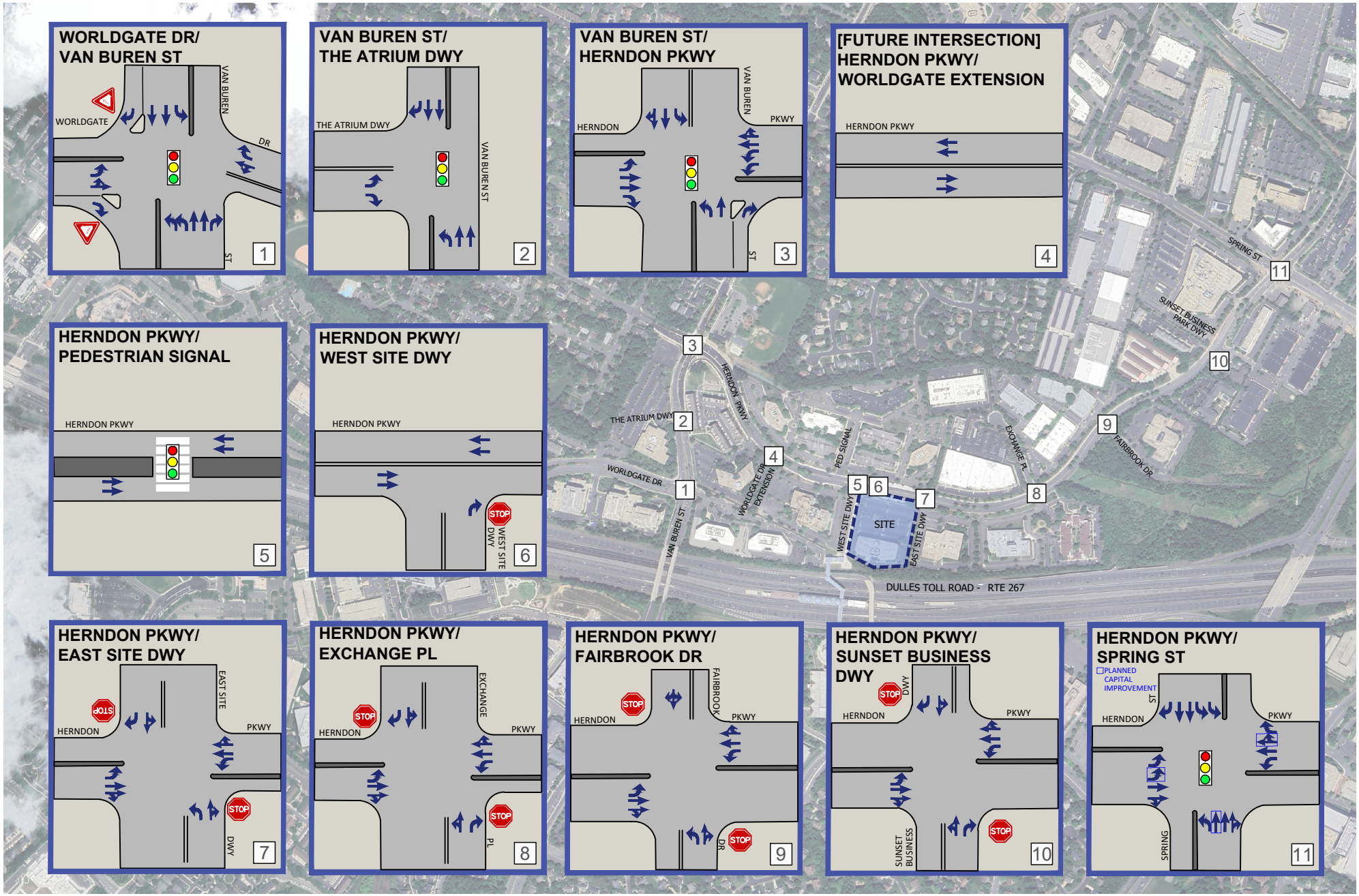


Figure 4-5
2028 Background Lane Use and Traffic Controls

575 Herndon Parkway
Herndon, Virginia

VIKA

## Future Conditions without Development Operational Analysis (2028)

Future peak hour LOS and 50th and 95th percentile queues without the redevelopment of the 575 Herndon Parkway site in year 2028 were estimated at the study intersections based on the existing conditions, future planned improvements noted above and as shown on Figure 4-5; existing traffic signal phasing/timings obtained from the Town; the future peak hour traffic forecasts without redevelopment are shown on Figure 4-4; and the HCM 2000 methodologies using Synchro Software, version 11. The LOS and queue results are presented in Appendix E and summarized in Tables 4-2 and 4-3.

**Levels of Service.** As shown in Table 4-2 and summarized Figure 4-6, with increases in traffic due to regional growth and pipeline developments, all signalized study intersections would continue to operate at overall levels of service, LOS “D” or better, during the AM and PM peak hours. Additionally, all lane groups at signalized study intersection would continue to operate at LOS “E” or better during peak periods. Units used for Level of Service (LOS) table are seconds per vehicle, or S/Veh.

All of the stop-controlled study intersections would continue to operate similar to existing conditions, with all movements operating at LOS “E” or better with the exception of select movements at the private driveway approaches to Herndon Parkway at Fairbrook Drive (Intersection #9) and Sunset Business Park driveway (Intersection #10) during the PM peak hour.

The delay reported at Intersection #9 under stop-controlled conditions is a direct result of the additional traffic generated by the Fairbrook Business Park pipeline development. As shown in Table 4-2, with the proffer traffic signal constructed, the intersection would operate at overall LOS “B” or better and individual lane groups would operate at LOS “C” or better during the AM and PM peak periods.

The delay reported at Intersection #10 is a result of the low side street low and incremental increases in traffic along Herndon Parkway with the addition of regional growth and the pipeline developments. A review of the peak hour queueing indicates these approaches would have queues of approximately one (1) vehicle. As previously discussed, the intersection of Herndon Parkway/Sunset Business Park Driveway is being considered for future signalization per conversations with Town of Herndon Staff during scoping meetings. It is to be noted that this future improvement is beyond the site buildout year and therefore not considered under any of the future scenarios. With this future improvement would likely mitigate side street/driveway delays.

**Queuing.** Queuing analysis was conducted for the 2028 background conditions and compared to existing conditions. As shown on Table 4-3, the results of the queueing analysis are similar to those described in under existing conditions. Some movements would experience slight increases in queueing as a result of increased traffic from regional growth and pipeline developments.

Table 4-2
575 Herndon Parkway
Future Conditions without Development Intersection Level of Service Summary [1]

| Approach/ Lane Group | Existing Conditions (2024) | | | | Future Conditions without Development (2028) | | | |
|---|---|---|---|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) |
| **1. Worldgate Dr/Van Buren St - Signalized** | | | | | | | | |
| EBL | D | 43.7 | D | 47.1 | D | 44.6 | D | 49.7 |
| EBT | D | 43.5 | D | 47.2 | D | 44.5 | D | 49.9 |
| EBR | D | 50.1 | D | 52.5 | D | 50.1 | D | 52.7 |
| WBLT | D | 48.5 | E | 59.1 | D | 48.5 | E | 58.9 |
| WBR | D | 47.9 | D | 48.3 | D | 47.9 | D | 48.3 |
| NBL | D | 46.8 | D | 46.8 | D | 46.8 | D | 46.8 |
| NBT | B | 17.1 | B | 15.7 | B | 17.3 | B | 16.1 |
| NBR | B | 13.1 | B | 10.9 | B | 13.1 | B | 10.9 |
| SBL | D | 51.4 | D | 54.6 | D | 51.3 | D | 54.6 |
| SBT | B | 19.6 | C | 22.5 | C | 20.1 | C | 23.2 |
| SBR | B | 17.4 | B | 18.2 | B | 17.7 | B | 18.5 |
| **Overall** | **C** | **26.3** | **C** | **28.7** | **C** | **26.4** | **C** | **29.2** |
| **2. Van Buren St/The Atrium Dr - Signalized** | | | | | | | | |
| EBL | B | 15.1 | B | 14.1 | B | 15.1 | B | 14.1 |
| EBR | B | 15.0 | B | 14.1 | B | 15.0 | B | 14.1 |
| NBL | B | 10.9 | B | 12.3 | B | 11.4 | B | 13.2 |
| NBT | B | 13.0 | B | 16.6 | B | 13.5 | B | 18.9 |
| SBT | C | 20.2 | C | 23.0 | C | 21.6 | C | 25.9 |
| SBR | A | 9.7 | A | 9.9 | A | 9.7 | A | 9.9 |
| **Overall** | **B** | **15.9** | **B** | **19.3** | **B** | **17.0** | **C** | **21.8** |
| **3. Van Buren St/Herndon Pkwy - Signalized** | | | | | | | | |
| EBL | C | 24.0 | B | 17.4 | B | 16.7 | B | 17.9 |
| EBT | D | 39.7 | C | 33.1 | C | 33.3 | D | 35.8 |
| EBR | D | 37.7 | C | 32.9 | C | 31.2 | C | 34.5 |
| WBL | E | 78.2 | E | 68.7 | E | 67.4 | E | 75.5 |
| WBTR | D | 52.0 | D | 47.3 | D | 44.2 | D | 49.5 |
| NBL | C | 26.5 | E | 57.8 | C | 30.3 | E | 62.9 |
| NBT | D | 38.3 | D | 48.3 | D | 45.8 | D | 53.3 |
| NBR | C | 25.2 | C | 23.0 | C | 27.1 | C | 24.7 |
| SBL | C | 31.3 | D | 40.5 | D | 35.7 | D | 40.0 |
| SBTR | D | 38.7 | D | 52.9 | D | 44.5 | D | 53.3 |
| **Overall** | **D** | **39.1** | **D** | **46.3** | **D** | **39.3** | **D** | **49.0** |
| **4. Herndon Pkwy/Future Worldgate Extended - Signalized** | | | | | **NOT PART OF THIS ANALYSIS** | | | |
| **5. Herndon Pkwy/Pedestrian Crossing - Signalized** | | | | | | | | |
| EBT | B | 12.8 | B | 12.1 | B | 14.1 | B | 14.1 |
| WBT | B | 10.1 | B | 12.1 | B | 11.3 | B | 14.8 |
| **Overall** | **B** | **12.0** | **B** | **12.1** | **B** | **13.1** | **B** | **14.4** |
| **6. Herndon Pkwy/West Site Dwy - Unsignalized** | | | | | | | | |
| NBL | A | 9.0 | A | 8.9 | A | 9.2 | A | 9.2 |
| **7. Herndon Pkwy/East Site Dwy - Unsignalized** | | | | | | | | |
| EBL | A | 7.8 | A | 9.0 | A | 8.1 | A | 9.3 |
| WBL | A | 8.4 | A | 8.3 | A | 8.6 | A | 8.8 |
| NBL | B | 14.1 | C | 18.5 | C | 20.3 | E | 36.8 |
| NBTR | A | 8.8 | A | 8.7 | A | 9.2 | A | 9.3 |
| SBLTR | A | 0.0 | C | 19.4 | A | 0.0 | D | 25.8 |
| SBR | A | 0.0 | B | 10.5 | A | 0.0 | B | 11.0 |
| ***Herndon Pkwy/East Site Dwy - Signalized Comparison*** | | | | | | | | |
| EBL | **PROFFERED FUTURE IMPROVEMENT** | | | | B | 17.7 | B | 18.2 |
| EBT | | | | | C | 25.9 | C | 27.0 |
| WBL | | | | | C | 20.7 | C | 28.6 |
| WBTR | | | | | C | 20.7 | C | 26.3 |
| NBL | | | | | C | 26.5 | C | 25.5 |
| NBTR | | | | | C | 25.4 | C | 24.4 |
| SBLT | | | | | A | 0.0 | C | 24.4 |
| SBR | | | | | A | 0.0 | C | 24.3 |
| **Overall** | | | | | **C** | **24.3** | **C** | **26.6** |
| **8. Herndon Pkwy/Exchange Pl - Unsignalized** | | | | | | | | |
| EBL | A | 8.0 | A | 8.7 | A | 8.4 | A | 9.3 |
| WBL | A | 8.8 | A | 8.7 | A | 9.2 | A | 8.8 |
| NBLT | C | 18.0 | C | 21.8 | C | 22.7 | E | 36.8 |
| NBR | B | 10.3 | A | 0.0 | B | 10.3 | A | 9.3 |
| SBTL | C | 16.0 | C | 21.5 | C | 20.2 | D | 25.8 |
| SBR | A | 9.1 | B | 10.2 | A | 9.5 | B | 11.0 |
| ***Herndon Pkwy/Exchange Place - Right-Out Only Comparison*** | | | | | | | | |
| EBL | **ADDITIONAL ANALYSIS** | | | | A | 8.4 | A | 9.2 |
| WBL | | | | | A | 9.2 | A | 9.0 |
| NBT | | | | | A | 0.0 | A | 0.0 |
| NBR | | | | | B | 10.3 | A | 10.0 |
| SBL | | | | | C | 20.4 | D | 26.4 |
| SBT | | | | | A | 9.5 | B | 10.9 |
| **9. Herndon Pkwy/Fairbrook Dr - Unsignalized** | | | | | | | | |
| EBL | A | 7.9 | A | 9.0 | A | 7.9 | A | 9.1 |
| WBL | A | 0.0 | A | 0.0 | B | 10.2 | B | 10.9 |
| NBLTR | A | 0.0 | B | 10.5 | ***MOVEMENT REMOVED*** | | | |
| NBL | **PROFFERED FUTURE IMPROVEMENT** | | | | F | 131.5 | F | 273.8 |
| NBTR | | | | | B | 13.1 | B | 12.3 |
| SBLTR | B | 12.7 | C | 18.9 | C | 24.0 | F | 50.2 |
| ***Herndon Pkwy/Fairbrook Dr - Signalized Comparison*** | | | | | | | | |
| EBL | **PROFFERED FUTURE IMPROVEMENT** | | | | A | 7.5 | A | 6.9 |
| EBTR | | | | | B | 10.5 | A | 9.9 |
| WBL | | | | | A | 4.3 | A | 3.9 |
| WBTR | | | | | A | 3.6 | A | 3.3 |
| NBL | | | | | C | 29.3 | C | 30.3 |
| NBTR | | | | | C | 26.7 | C | 28.5 |
| SBLTR | | | | | C | 26.3 | C | 28.3 |
| **Overall** | | | | | **B** | **11.6** | **A** | **8.6** |
| **10. Herndon Pkwy/Sunset Business - Unsignalized** | | | | | | | | |
| EBL | A | 8.0 | A | 8.7 | A | 8.4 | A | 9.5 |
| WBL | A | 9.3 | A | 9.3 | B | 10.4 | B | 10.7 |
| NBLT | D | 30.3 | D | 30.1 | F | 68.4 | F | 69.8 |
| NBR | B | 10.8 | B | 11.0 | B | 10.5 | B | 13.0 |
| SBLT | C | 19.6 | D | 32.7 | D | 30.6 | F | 104.9 |
| SBR | A | 9.2 | B | 10.3 | A | 9.6 | B | 11.0 |
| **11. Herndon Pkwy/Spring St - Signalized** | | | | | | | | |
| EBL | C | 30.6 | C | 27.3 | C | 27.8 | C | 30.5 |
| EBTR | D | 40.4 | D | 37.9 | D | 37.0 | D | 41.1 |
| EBR | C | 32.3 | D | 39.4 | D | 36.2 | D | 38.2 |
| WBL | C | 26.1 | C | 33.5 | E | 60.6 | E | 74.1 |
| WBTR | C | 31.4 | C | 32.4 | C | 29.3 | C | 32.4 |
| NBL | D | 52.9 | D | 49.7 | E | 58.9 | E | 60.6 |
| NBT | C | 23.0 | C | 23.6 | C | 28.8 | C | 27.0 |
| NBR | B | 14.7 | B | 16.4 | C | 20.0 | B | 17.3 |
| SBL | E | 61.7 | E | 61.8 | E | 68.1 | E | 68.3 |
| SBTR | C | 31.9 | D | 41.3 | D | 40.5 | D | 48.6 |
| **Overall** | **C** | **30.9** | **D** | **36.0** | **D** | **38.5** | **D** | **44.3** |

Note(s):

1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 11.

Table 4-3
575 Herndon Parkway
Future Conditions without Development Intersection Queuing Summary [1, 2, 3, 4, 5]

| Approach / Lane Group | Storage Length (ft) | Existing Conditions (2024) | | | | Future Conditions without Development (2028) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile |
| **1. Worldgate Dr/Van Buren St - Signalized** | | | | | | | | | |
| EBL | - | 72 | 129 | 104 | 172 | 81 | 142 | 122 | 200 |
| EBT | - | 72 | 129 | 105 | 174 | 81 | 143 | 123 | 202 |
| EBR | - | 0 | 62 | 0 | #107 | 0 | 65 | 0 | #118 |
| WBT | - | 3 | 16 | 43 | 87 | 3 | 16 | 42 | 87 |
| WBR | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NBL | 250 | 69 | 105 | 72 | 108 | 70 | 106 | 72 | 110 |
| NBT | - | 175 | 231 | 160 | 277 | 184 | 247 | 176 | 308 |
| NBR | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SBL | 200 | 20 | 48 | 6 | 20 | 19 | 47 | 6 | 21 |
| SBT | - | 118 | 159 | 212 | 270 | 135 | 181 | 231 | 296 |
| SBR | - | 0 | 36 | 0 | 44 | 0 | 42 | 0 | 48 |
| **2. Van Buren St/The Atrium Dr - Signalized** | | | | | | | | | |
| EBL | - | 1 | 7 | 6 | 24 | 1 | 7 | 6 | 24 |
| EBR | 155 | 0 | 6 | 0 | 19 | 0 | 6 | 0 | 19 |
| NBL | 150 | 12 | 28 | 1 | 6 | 12 | 28 | 1 | 6 |
| NBT | - | 138 | 185 | 223 | 294 | 155 | 206 | 266 | 348 |
| SBT | - | 142 | 194 | 171 | 314 | 173 | 234 | 199 | #398 |
| SBR | 125 | 0 | 11 | 0 | 8 | 0 | 11 | 0 | 8 |
| **3. Van Buren St/Herndon Pkwy - Signalized** | | | | | | | | | |
| EBL | 125 | 12 | 30 | 18 | 38 | 10 | 25 | 19 | 40 |
| EBT | - | 160 | 214 | 75 | 112 | 156 | 215 | 111 | 152 |
| EBR | 165 | 0 | 66 | 0 | 57 | 0 | 62 | 0 | 58 |
| WBL | 350/100 | 100 | 140 | 185 | 238 | 136 | 179 | 235 | #314 |
| WBTR | - | 47 | 77 | 166 | 219 | 85 | 123 | 214 | 274 |
| NBL | - | 93 | 142 | 255 | #369 | 97 | 152 | 266 | #401 |
| NBT | - | 244 | 340 | 347 | 480 | 259 | 371 | 372 | 518 |
| NBR | 275 | 0 | 53 | 0 | 53 | 18 | 86 | 19 | 95 |
| SBL | 85 | 16 | 36 | 15 | 36 | 25 | 51 | 33 | 63 |
| SBTR | 150 | 101 | 144 | 188 | 245 | 106 | 155 | 196 | 255 |
| **4. Herndon Pkwy/Future Worldgate Extended - Signalized** | | | | | | | | | |
| **5. Herndon Pkwy/Pedestrian Crossing - Signalized** | | | | | | | | | |
| EBT | - | 84 | 126 | 73 | 111 | 104 | 154 | 107 | 158 |
| WBT | - | 30 | 51 | 73 | 111 | 55 | 87 | 116 | 171 |
| **6. Herndon Pkwy/West Site Dwy - Unsignalized** | | | | | | | | | |
| NBR | - | - | 1 | - | 8.9 | - | 9.2 | - | 9.2 |
| **7. Herndon Pkwy/East Site Dwy - Unsignalized** | | | | | | | | | |
| WBL | 150 | - | 0 | - | 0 | - | 0 | - | 3 |
| NBL | - | - | 0 | - | 1 | - | 2 | - | 45 |
| NBTR | - | - | 0 | - | 1 | - | 24 | - | 3 |
| SBT | - | - | - | - | - | - | 3 | - | 2 |
| SBR | - | - | - | - | - | - | 0 | - | 1 |
| ***Herndon Pkwy/East Site Dwy - Signalized Comparison*** | | | | | | | | | |
| EBL | - | PROFFERED FUTURE IMPROVEMENT | | | | 0 | 4 | 0 | 4 |
| EBT | | | | | | 192 | 255 | 199 | 265 |
| WBL | 150 | | | | | 7 | 25 | 17 | 50 |
| WBT | - | | | | | 84 | 121 | 190 | 254 |
| NBL | - | | | | | 35 | 71 | 33 | 68 |
| NBTR | - | | | | | 0 | 0 | 0 | 0 |
| NBLTR | | | | | | ***ADDITIONAL ANALYSIS*** | | | |
| SBT | - | | | | | - | - | 2 | 10 |
| SBR | - | | | | | - | - | 0 | 0 |
| **8. Herndon Pkwy/Exchange Pl - Unsignalized** | | | | | | | | | |
| NBT | - | - | 1 | - | 1 | - | 2 | - | 1 |
| NBR | - | - | 1 | - | 0 | - | 1 | - | 0 |
| SBT | - | - | 3 | - | 1 | - | 4 | - | 2 |
| SBR | - | - | 1 | - | 1 | - | 1 | - | 1 |
| ***Herndon Pkwy/Exchange Pl - Right-Out Comparison*** | | | | | | | | | |
| EBL | - | ADDITIONAL ANALYSIS | | | | - | 0 | - | 0 |
| NBR | - | | | | | - | 1 | - | 0 |
| SBL | - | | | | | - | 4 | - | 2 |
| SBT | - | | | | | - | 1 | - | 1 |
| **9. Herndon Pkwy/Fairbrook Dr - Unsignalized** | | | | | | | | | |
| EBL | 175 | - | 1 | - | 0 | - | 1 | - | 0 |
| WBL | 200 | - | 0 | - | 0 | - | 10 | - | 22 |
| NBL | - | - | 0 | - | 0 | - | 157 | - | 149 |
| NBTR | - | - | 0 | - | 0 | - | 22 | - | 12 |
| SBLTR | - | - | 1 | - | 6 | - | 2 | - | 18 |
| ***Herndon Pkwy/Fairbrook Dr - Signalized Comparison*** | | | | | | | | | |
| EBL | 175 | FUTURE IMPROVEMENT PROFFERED BY OTHERS | | | | 3 | 14 | 0 | 3 |
| EBTR | - | | | | | 114 | 218 | 101 | 219 |
| WBL | 200 | | | | | 10 | 35 | 18 | 63 |
| WBTR | - | | | | | 18 | 50 | 43 | 120 |
| NBL | - | | | | | 51 | 99 | 30 | 67 |
| NBTR | - | | | | | 0 | 0 | 0 | 0 |
| SBLTR | - | | | | | 0 | 0 | 0 | 0 |
| **10. Herndon Pkwy/Sunset Business - Unsignalized** | | | | | | | | | |
| EBL | 100 | - | 2 | - | 0 | - | 3 | - | 0 |
| WBL | 150 | - | 2 | - | 5 | - | 9 | - | 13 |
| NBLT | - | - | 7 | - | 1 | - | 35 | - | 18 |
| NBR | - | - | 3 | - | 7 | - | 10 | - | 18 |
| SBLT | - | - | 2 | - | 8 | - | 5 | - | 26 |
| SBR | - | - | 0 | - | 2 | - | 0 | - | 2 |
| **11. Herndon Pkwy/Spring St - Signalized** | | | | | | | | | |
| EBL | 275 | 26 | 53 | 20 | 44 | 47 | 82 | 38 | 70 |
| EBT | - | 94 | 155 | 127 | 198 | 78 | 136 | 135 | 199 |
| EBR | 350 | 0 | 82 | 0 | 99 | 0 | 83 | 0 | 85 |
| WBL | - | 105 | 163 | 163 | 241 | 87 | 129 | 134 | #203 |
| WBT | - | 36 | 64 | 71 | 107 | 48 | 75 | 98 | 137 |
| NBL | 300/560 | 109 | 150 | 205 | 253 | 175 | 230 | 330 | #418 |
| NBT | - | 103 | 140 | 128 | 170 | 128 | 171 | 151 | 196 |
| NBR | 175 | 58 | 112 | 36 | 82 | 83 | 151 | 43 | 93 |
| SBL | 135 | 19 | 49 | 23 | 56 | 22 | 54 | 26 | 61 |
| SBT | - | 126 | 180 | 173 | 241 | 115 | 152 | 150 | 190 |

Notes:
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.
4. Analysis for the 2028 Background and Total Future at Spring Street/Herndon Pkwy intersection assumes proposed improvements.
5. Unit of measure for queue length is feet.

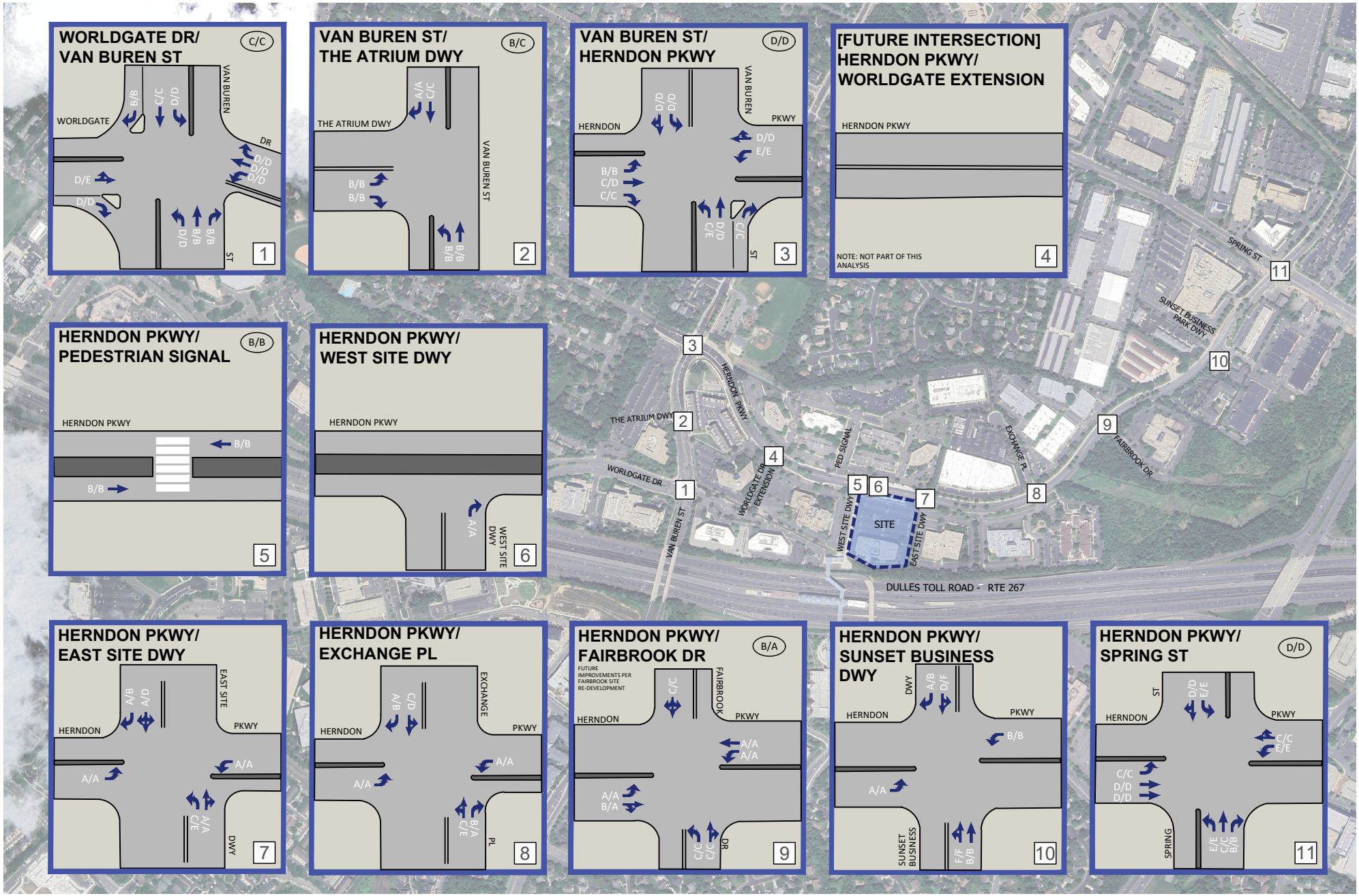


Figure 4-6
Background Intersection Movement LOS and Overall Intersection LOS

AM PEAK HOUR LOS
PM PEAK HOUR LOS
000 / 000

575 Herndon Parkway
Herndon, Virginia

**SimTraffic.** As requested during the review of the first submission SimTraffic simulations were run for all future scenarios included herein. SimTraffic simulations were completed for the peak AM and PM hours with development for all movements with estimated queue lengths exceeding available storage, utilizing a 10-minute seeding time and a 60-minute recording time. Using the VDOT Microsimulation Run Determination Tool Version 2.0, it was determined that all AM peak hour scenarios would undergo 18 simulations, and all PM peak hour scenarios would undergo 30 simulations. Results of the VDOT Microsimulation tool are provided in Appendix F. The queue results presented in Table 6-3 an average of the 18 AM and 30 PM runs. The results of the SimTraffic analysis are generally consistent with the Synchro queue results summarized previously.

Table 4-4
575 Herndon Parkway
SimTraffic Future Conditions without Development Peak Hour Queue Results

| Approach / Lane Group | Storage Length (ft) | Future Conditions without Development (2028) | | | |
|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | |
| | | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile |
| **3. Van Buren St/Herndon Pkwy - Signalized** | | | | | |
| EBL | 125 | 18 | 71 | 25 | 76 |
| EBT | - | 162 | 236 | 129 | 206 |
| EBT | - | 121 | 221 | 98 | 185 |
| EBR | 165 | 79 | 152 | 71 | 124 |
| WBL | 350 | 107 | 171 | 178 | 231 |
| WBL | 400 | 133 | 201 | 202 | 262 |
| WBT | - | 75 | 148 | 145 | 198 |
| WBTR | - | 97 | 143 | 164 | 215 |
| NBL | - | 87 | 197 | 231 | 370 |
| NBT | - | 177 | 285 | 209 | 318 |
| NBR | 275 | 96 | 225 | 85 | 211 |
| SBL | 85 | 44 | 101 | 70 | 149 |
| SBT | - | 106 | 181 | 196 | 317 |
| SBR | 150 | 74 | 153 | 154 | 251 |
| **11. Herndon Pkwy/Spring St - Signalized** | | | | | |
| EBL | 275 | 31 | 74 | 25 | 54 |
| EBT | - | 48 | 98 | 65 | 117 |
| EBTR | - | 71 | 122 | 92 | 148 |
| EBR | - | 62 | 102 | 80 | 123 |
| WBL | 350 | 60 | 152 | 127 | 207 |
| WBL | 350 | 118 | 182 | 159 | 212 |
| WBT | - | 47 | 41 | 83 | 146 |
| WBTR | - | 14 | 41 | 32 | 97 |
| NBL | 300 | 139 | 206 | 250 | 347 |
| NBL | 560 | 158 | 232 | 291 | 417 |
| NBT | - | 117 | 183 | 142 | 235 |
| NBT | - | 76 | 161 | 94 | 214 |
| NBR | 175 | 142 | 235 | 91 | 155 |
| SBL | 135 | 21 | 76 | 31 | 109 |
| SBT | - | 156 | 237 | 174 | 239 |
| SBT | - | 128 | 212 | 138 | 221 |
| SBTR | - | 43 | 135 | 69 | 158 |
| ***Herndon Pkwy/Spring St - Timing Improvements - Signalized*** | | | | | |
| EBL | 275 | | | | |
| EBT | - | | | | |
| EBTR | - | | | | |
| EBR | - | | | | |
| WBL | 350 | | | | |
| WBL | 350 | | | | |
| WBT | - | | | | |
| WBTR | - | **FUTURE CONDITION** | | | |
| NBL | 300 | | | | |
| NBL | 560 | **NOT ANALYZED** | | | |
| NBT | - | | | | |
| NBT | - | | | | |
| NBR | 175 | | | | |
| SBL | 135 | | | | |
| SBT | - | | | | |
| SBT | - | | | | |
| SBTR | - | | | | |

Notes:
Unit of measure for queue length is feet.

# SECTION 5
# PROPOSED SITE DESCRIPTION, TRIP GENERATION, DISTRIBUTIONS & ASSIGNMENTS

## Proposed Site Redevelopment Description

The site is currently occupied by 139,200 square feet of office space and surface parking. The existing site would be razed and redeveloped with a mixed-use development consisting of up to 525 residential units and 13,788 SF of commercial space. The proposal is consistent with the Town of Herndon's Comprehensive Plans, especially the planned Herndon Transit-Oriented Core. Total site buildout is planned for the year 2028.

## Site Access

Access to the site is currently provided by two (2) driveways along Herndon Parkway, with the eastern driveway shared with the neighboring building to the east (555 Herndon Parkway). The proposal will consolidate access points along Herndon Parkway with the closure of the western driveway and continue to share the construction of a new north/south street at the location of the existing eastern driveway as shown on Figure 1-2. Access to the garage and loading would occur from the new north/south street.

## Site Trip Generation Analysis

The number of vehicular trips anticipated to be generated by the redevelopment were estimated for proposed development based on ITE's Trip Generation Manual, 11th Edition Land Use Codes (LUC) 221, Multifamily Mid-Rise, and LUC 932, High-Turnover Sit-Down Restaurant. General Urban / Suburban rates were utilized along with a 45% non-auto reduction for the residential use and a 25% non-auto reduction for the restaurant use. For purpose of this study, high-turnover sit-down restaurant was assumed as the commercial land use to provide a more conservative analysis and to account for a more intense trip generating use. This assumption was made in coordination with Town staff during scoping to accommodate a range of commercial uses given uncertain market conditions and to allow for maximum flexibility. Given the assumed non-auto reductions, no additional reductions were assumed for internal capture given the synergy of planned residential and commercial uses.

As shown on Table 5-1, the proposed development program (525 residential units/13,788 high-turnover sit-down restaurant) is anticipated to generate 219 AM peak hour trips (82 in and 137 out) and 207 PM peak hour trips (126 in and 81 out).

Table 5-1
575 Herndon Parkway

Site Multimodal Trip Generation Analysis with Non-Auto Reductions [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 Daily |
|---|---|---|---|---|---|---|---|---|---|---|
| **Proposed** | | | | | | | | | | |
| Multifamily Housing (Mid-Rise) | 221 | 525 | DU | 50 | 169 | 219 | 125 | 80 | 205 | 2,458 |
| *45% Non-Auto Mode Share* | | | | *(23)* | *(76)* | *(99)* | *(56)* | *(36)* | *(92)* | *(1,106)* |
| Restaurant (High-Turnover Sit-Down) | 932 | 13,788 | SF | 73 | 59 | 132 | 76 | 49 | 125 | 1,478 |
| *25% Non-Auto Mode Share* | | | | *(18)* | *(15)* | *(33)* | *(19)* | *(12)* | *(31)* | *(370)* |
| | | | **Total** | **82** | **137** | **219** | **126** | **81** | **207** | **2,460** |

Notes:
1. Trip Generation obtained from ITE's Trip Generation Manual, 11th Edition. *Setting Location: General Urban/Suburban, Not Close to Transit*
2. Non-auto mode share based on proximity to Herndon Metro, bus acces in front of site, availability of other non-auto modes and a planned TDM Plan.

## Site Trip Distribution and Assignment

The total vehicular trips generated by the mixed-use development were assigned to the roadway network using trip distributions developed from the traffic count data and existing observed intersection splits and directions of approaches. The trips were assigned to the site driveway on Hendon Parkway. These distributions were confirmed with Town staff through the scoping process.

The directional distribution for new site generated trips is as follows:

| | |
|---|---|
| To/From the West on Hendon Parkway: | 20% |
| To/From the East on Hendon Parkway: | 10% |
| To/From the North on Van Buren Street: | 5% |
| To/From the South on Van Buren Street: | 25% |
| To/From the West on Worldgate Drive: | 10% |
| To/From the East on Spring Street: | 25% |
| To/From the West on Spring Street: | 5% |
| Total: | 100% |

The existing site trips generated by the office building were removed from the driveway and study road network. Refer to Figure 5-1 for removed existing site trips. Peak hour traffic forecasts for the proposed used are summarized on Figure 5-2.

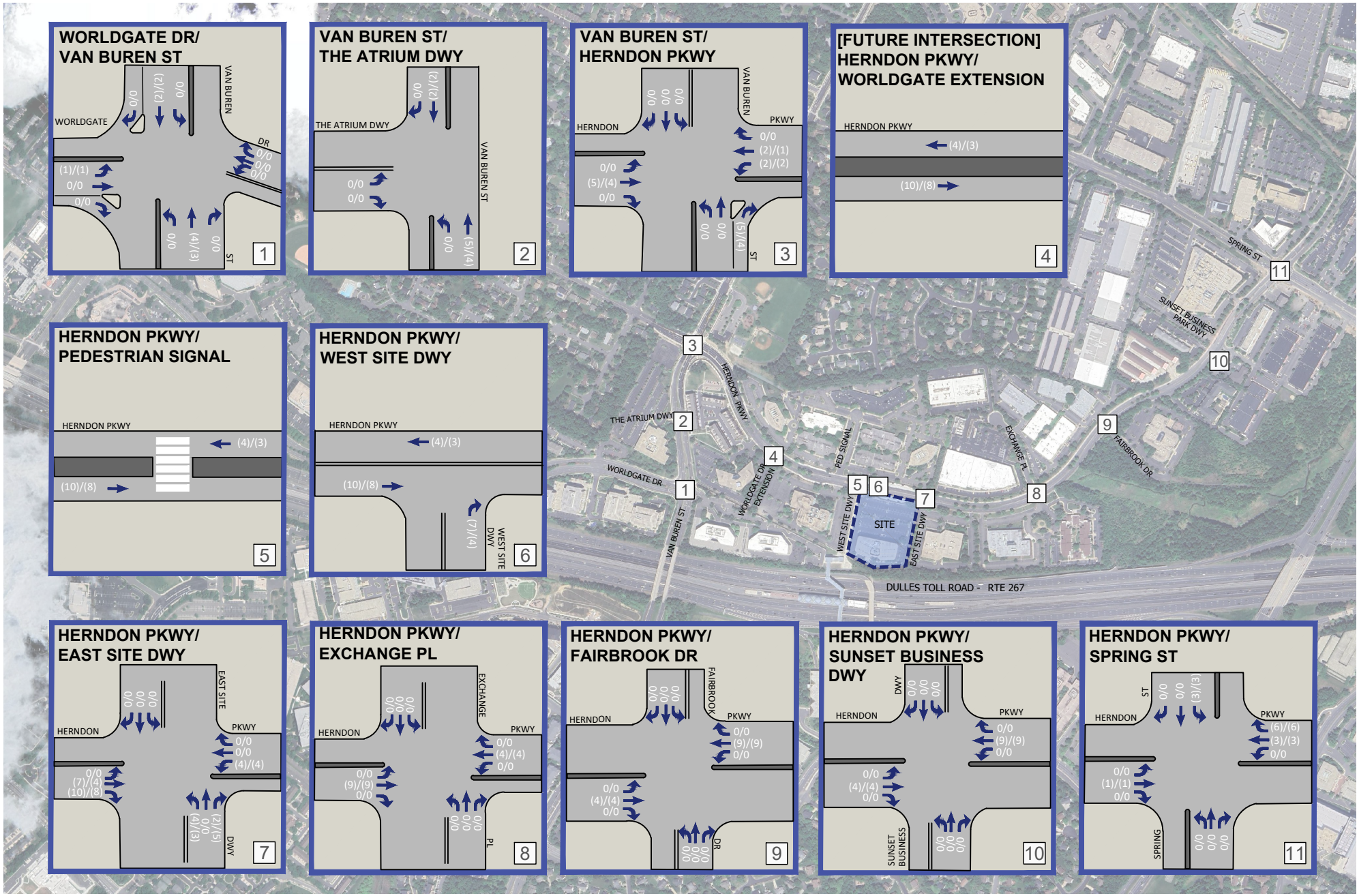


Figure 5-1
Existing Peak Hour Site Driveway Trips Removed

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

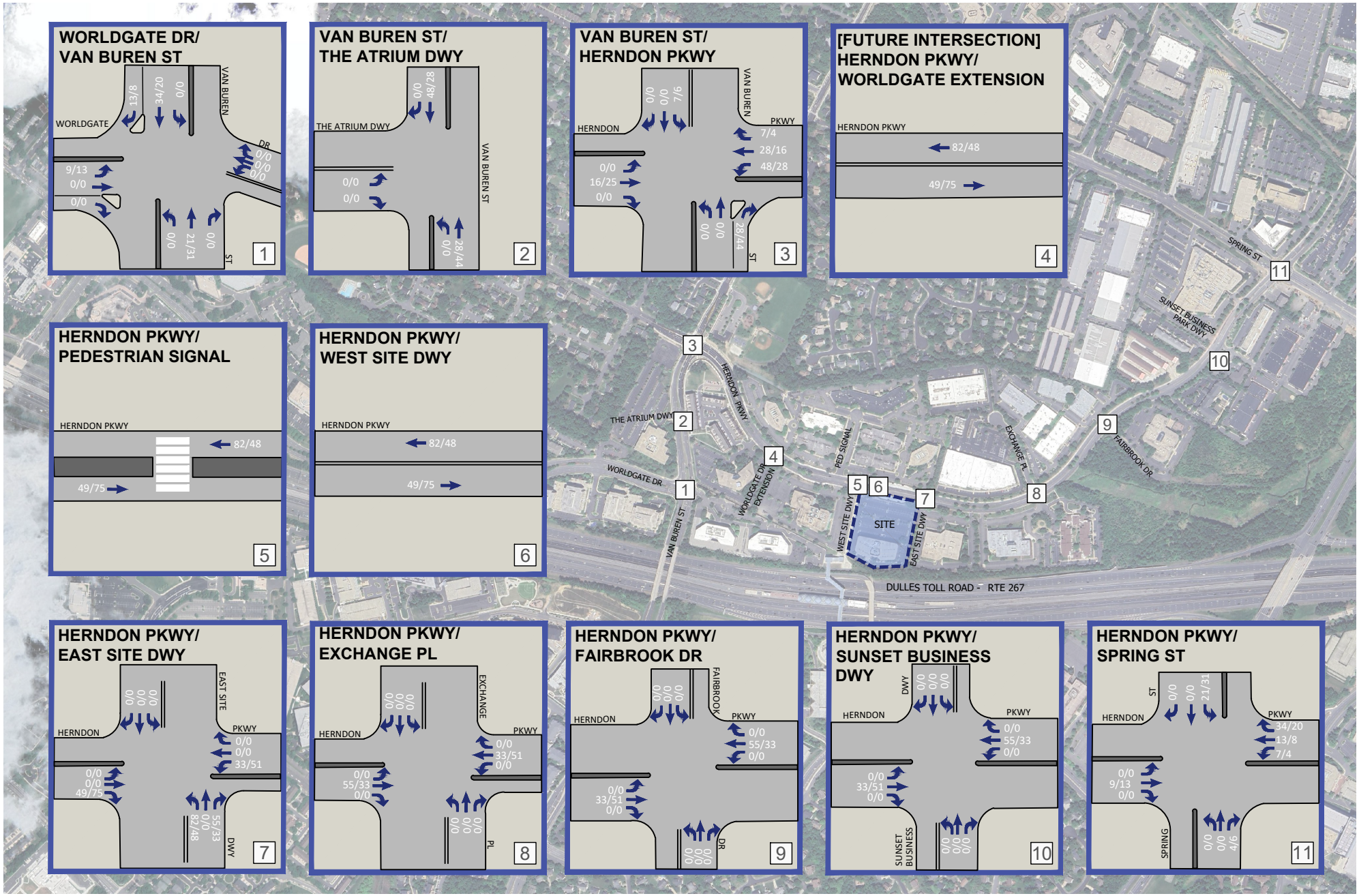


Figure 5-2
Site Peak Hour Traffic Forecasts

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

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# SECTION 6
# FUTURE CONDITIONS WITH DEVELOPMENT (2028)

This section presents an analysis of the future conditions including projections of 2028 future traffic forecasts with the proposed development, as well as capacity and queuing analyses.

## Future Traffic Forecasts with Development (2028)

The resulting future traffic forecasts with the proposed development shown on Figure 6-1 were derived by adding the 2028 future traffic forecasts without development, the removal of existing site traffic (Figure 5-1) and the additional of forecasted site generated trips shown on Figure 5-2.

## Operational Analysis of Future Conditions with the Proposed Development

Future peak hour LOS and 50$^{th}$ and 95$^{th}$ percentile queues with the proposed development were estimated at the study intersections based on the future peak hour traffic forecasts with redevelopment shown on Figure 6-1; the existing traffic signal phasing/timings obtained from Town of Herndon; and the HCM 2000 methodologies using Synchro Software, version 11. It is noted the traffic signal phasing/timings assumed in this condition are consistent with phasing/timings used in the future conditions without development to provide an “apples to apples” comparison. The results are presented in Appendix G and summarized in Table 6-1 and Table 6-2. Future lane use is presented in Figure 6-2 and the total future with development LOS is summarized on Figure 6-3.

**Levels of Service.** As shown in Table 6-1, with increases in traffic due to regional growth and pipeline developments, and the addition of the new proposed development, all signalized study intersections would continue to operate at acceptable overall levels of service, LOS “D” or better, during the AM and PM peak hours. Additionally, all lane groups at signalized study intersection would continue to operate at acceptable LOS “E” or better during peak periods. Units used for Level of Service (LOS) table are seconds per vehicle, or S/Veh.

All of the stop-controlled study intersections would continue to operate similar to the 2028 future conditions without development, with the exception of the northbound left turn lane at Herndon Parkway and the planned north/south road planned between the site and adjacent 555 Herndon Parkway development (Intersection #7), the northbound left at Herndon Parkway and Exchange Street (Intersection #8) and the north and southbound approaches at the Herndon Parkway and Sunset Business (Intersection #10) which degrade to LOS “F”. As noted previously, these minor street/driveway approaches would likely be mitigated by future signalization as development occurs on the adjoining parcels.

The northbound left movement at the intersection of Herndon Parkway and Exchange Place degraded from an LOS “E” to an LOS “F” in the future conditions with development. As this degradation is the result of two (2) existing trips and the addition of through traffic on Herndon Parkway, the restriction of the northbound left movement would mitigate this delay. However, given the low volume of the turning movements the mitigation is not recommended for implementation. An additional analysis was conducted showing this potential mitigation measure, and the results are presented in Table 6-1. As shown in Table 6-1, the restriction of northbound left turns would alleviate the failing movement, and only slightly degrade the LOS of the northbound right movement.

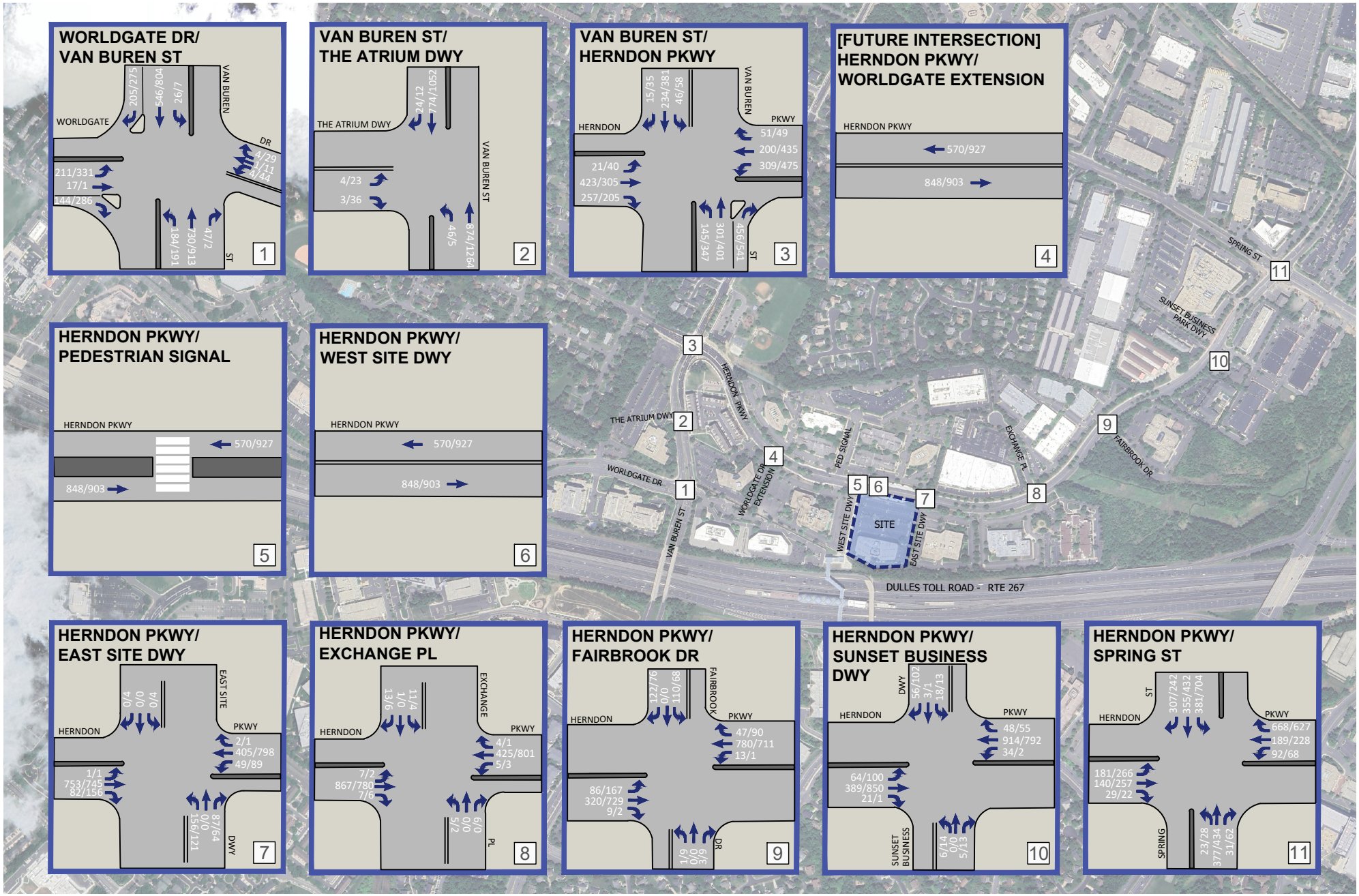


Figure 6-1
Future Peak Hour Traffic Forecasts with Development

AM PEAK HOUR
PM PEAK HOUR
000 / 000

575 Herndon Parkway
Herndon, Virginia

Table 6-1
575 Herndon Parkway
Future Conditions with Development Intersection Level of Service Summary [1]

| Approach/ Lane Group | Existing Conditions (2024) | | | | Future Conditions without Development (2028) | | | | Future Conditions with Development (2028) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) |
| **1. Worldgate Dr/Van Buren St - Signalized** | | | | | | | | | | | | |
| EBL | D | 43.7 | D | 47.1 | D | 44.6 | D | 49.7 | D | 45.1 | D | 50.6 |
| EBT | D | 43.5 | D | 47.2 | D | 44.5 | D | 49.9 | D | 44.7 | D | 50.7 |
| EBR | D | 50.1 | D | 52.5 | D | 50.1 | D | 52.7 | D | 50.1 | D | 52.7 |
| WBLT | D | 48.5 | E | 59.1 | D | 48.5 | E | 58.9 | D | 48.5 | E | 58.9 |
| WBR | D | 47.9 | D | 48.3 | D | 47.9 | D | 48.3 | D | 47.9 | D | 48.3 |
| NBL | D | 46.8 | D | 46.8 | D | 46.8 | D | 46.8 | D | 46.8 | D | 46.8 |
| NBT | B | 17.1 | B | 15.7 | B | 17.3 | B | 16.1 | B | 17.5 | B | 16.4 |
| NBR | B | 13.1 | B | 10.9 | B | 13.1 | B | 10.9 | B | 13.1 | B | 10.9 |
| SBL | D | 51.4 | D | 54.6 | D | 51.3 | D | 54.6 | D | 51.3 | D | 54.6 |
| SBT | B | 19.6 | C | 22.5 | C | 20.1 | C | 23.2 | C | 20.4 | C | 23.4 |
| SBR | B | 17.4 | B | 18.2 | B | 17.7 | B | 18.5 | B | 17.8 | B | 18.6 |
| **Overall** | **C** | **26.3** | **C** | **28.7** | **C** | **26.4** | **C** | **29.2** | **C** | **26.4** | **C** | **29.3** |
| **2. Van Buren St/The Atrium Dr - Signalized** | | | | | | | | | | | | |
| EBL | B | 15.1 | B | 14.1 | B | 15.1 | B | 14.1 | B | 15.1 | B | 14.1 |
| EBR | B | 15.0 | B | 14.1 | B | 15.0 | B | 14.1 | B | 15.0 | B | 14.1 |
| NBL | B | 10.9 | B | 12.3 | B | 11.4 | B | 13.2 | B | 11.7 | B | 13.4 |
| NBT | B | 13.0 | B | 16.6 | B | 13.5 | B | 18.9 | B | 13.7 | C | 20.0 |
| SBT | C | 20.2 | C | 23.0 | C | 21.6 | C | 25.9 | C | 22.4 | C | 26.8 |
| SBR | A | 9.7 | A | 9.9 | A | 9.7 | A | 9.9 | A | 9.7 | A | 9.9 |
| **Overall** | **B** | **15.9** | **B** | **19.3** | **B** | **17.0** | **C** | **21.8** | **B** | **17.5** | **C** | **22.8** |
| **3. Van Buren St/Herndon Pkwy - Signalized** | | | | | | | | | | | | |
| EBL | C | 24.0 | B | 17.4 | B | 16.7 | B | 17.9 | B | 16.8 | B | 18.1 |
| EBT | D | 39.7 | C | 33.1 | C | 33.3 | D | 35.8 | D | 35.1 | D | 36.5 |
| EBR | D | 37.7 | C | 32.9 | C | 31.2 | C | 34.5 | C | 32.6 | C | 34.9 |
| WBL | E | 78.2 | E | 68.7 | E | 67.4 | E | 75.5 | E | 67.2 | E | 79.6 |
| WBTR | D | 52.0 | D | 47.3 | D | 44.2 | D | 49.5 | D | 44.8 | D | 50.0 |
| NBL | C | 26.5 | E | 57.8 | C | 30.3 | E | 62.9 | C | 30.3 | E | 69.7 |
| NBT | D | 38.3 | D | 48.3 | D | 45.8 | D | 53.3 | D | 46.3 | D | 53.6 |
| NBR | C | 25.2 | C | 23.0 | C | 27.1 | C | 24.7 | C | 26.7 | C | 25.5 |
| SBL | C | 31.3 | D | 40.5 | D | 35.7 | D | 40.0 | D | 35.7 | D | 40.0 |
| SBTR | D | 38.7 | D | 52.9 | D | 44.5 | D | 53.3 | D | 44.5 | D | 53.3 |
| **Overall** | **D** | **39.1** | **D** | **46.3** | **D** | **39.3** | **D** | **49.0** | **D** | **40.2** | **D** | **50.4** |
| **4. Herndon Pkwy/Future Worldgate Extended - Signalized** | | | | | | | | | | | | |
| **5. Herndon Pkwy/Pedestrian Crossing - Signalized** | | | | | | | | | | | | |
| EBT | B | 12.8 | B | 12.1 | B | 14.1 | B | 14.1 | B | 14.6 | B | 14.9 |
| WBT | B | 10.1 | B | 12.1 | B | 11.3 | B | 14.8 | B | 11.9 | B | 15.4 |
| **Overall** | **B** | **12.0** | **B** | **12.1** | **B** | **13.1** | **B** | **14.4** | **B** | **13.5** | **B** | **15.2** |
| **6. Herndon Pkwy/West Site Dwy - Unsignalized** | | | | | | | | | | | | |
| NBL | A | 9.0 | A | 8.9 | A | 9.2 | A | 9.2 | **INTERSECTION REMOVED** | | | |
| **7. Herndon Pkwy/East Site Dwy - Unsignalized** | | | | | | | | | | | | |
| EBL | A | 7.8 | A | 9.0 | A | 8.1 | A | 9.3 | A | 8.1 | A | 9.3 |
| WBL | A | 8.4 | A | 8.3 | A | 8.6 | A | 8.8 | A | 8.8 | A | 9.1 |
| NBL | B | 14.1 | C | 18.5 | C | 20.3 | E | 36.8 | D | 32.9 | F | 89.1 |
| NBTR | A | 8.8 | A | 8.7 | A | 9.2 | A | 9.3 | A | 9.6 | A | 9.6 |
| SBLTR | A | 0.0 | C | 19.4 | A | 0.0 | D | 25.8 | A | 0.0 | D | 31.8 |
| SBR | A | 0.0 | B | 10.5 | A | 0.0 | B | 11.0 | A | 0.0 | B | 11.1 |
| ***Herndon Pkwy/East Site Dwy - Signalized Comparison*** | | | | | | | | | | | | |
| EBL | **PROFFERED FUTURE IMPROVEMENT** | | | | B | 17.7 | B | 18.2 | B | 18.1 | A | 10.0 |
| EBT | | | | | C | 25.9 | C | 27.0 | C | 27.7 | B | 14.1 |
| WBL | | | | | C | 20.7 | C | 28.6 | C | 31.1 | B | 14.2 |
| WBTR | | | | | C | 20.7 | C | 26.3 | C | 21.3 | B | 13.2 |
| NBL | | | | | C | 26.5 | C | 25.5 | C | 26.8 | C | 21.7 |
| NBTR | | | | | C | 25.4 | C | 24.4 | C | 24.7 | C | 20.2 |
| SBLT | | | | | A | 0.0 | C | 24.4 | A | 0.0 | C | 20.7 |
| SBR | | | | | A | 0.0 | C | 24.3 | A | 0.0 | C | 20.7 |
| **Overall** | | | | | **C** | **24.3** | **C** | **26.6** | **C** | **25.8** | **B** | **14.4** |
| **8. Herndon Pkwy/Exchange Pl - Unsignalized** | | | | | | | | | | | | |
| EBL | A | 8.0 | A | 8.7 | A | 8.4 | A | 9.3 | A | 8.1 | A | 9.3 |
| WBL | A | 8.8 | A | 8.7 | A | 9.2 | A | 8.8 | A | 8.8 | A | 9.1 |
| NBLT | C | 18.0 | C | 21.8 | C | 22.7 | E | 36.8 | D | 32.9 | F | 89.1 |
| NBR | B | 10.3 | A | 0.0 | B | 10.3 | A | 9.3 | A | 9.6 | A | 9.6 |
| SBTL | C | 16.0 | C | 21.5 | C | 20.2 | D | 25.8 | A | 0.0 | D | 31.8 |
| SBR | A | 9.1 | B | 10.2 | A | 9.5 | B | 11.0 | A | 0.0 | B | 11.1 |
| ***Herndon Pkwy/Exchange Place - Right-Out Only Comparison*** | | | | | | | | | | | | |
| EBL | **ADDITIONAL ANALYSIS** | | | | A | 8.4 | A | 9.2 | A | 8.5 | A | 9.4 |
| WBL | | | | | A | 9.2 | A | 9.0 | A | 9.4 | A | 9.1 |
| NBT | | | | | A | 0.0 | A | 0.0 | A | 0.0 | A | 0.0 |
| NBR | | | | | B | 10.3 | A | 10.0 | B | 10.6 | B | 10.3 |
| SBL | | | | | C | 20.4 | D | 26.4 | C | 22.5 | D | 29.6 |
| SBT | | | | | A | 9.5 | B | 10.9 | A | 9.6 | B | 11.1 |
| **9. Herndon Pkwy/Fairbrook Dr - Unsignalized** | | | | | | | | | | | | |
| EBL | A | 7.9 | A | 9.0 | A | 7.9 | A | 9.1 | A | 8 | A | 9.3 |
| WBL | A | 0.0 | A | 0.0 | B | 10.2 | B | 10.9 | B | 10.4 | B | 11.1 |
| NBLTR | A | 0.0 | B | 10.5 | ***MOVEMENT REMOVED*** | | | | **MOVEMENT REMOVED** | | | |
| NBL | **PROFFERED FUTURE IMPROVEMENT** | | | | F | 131.5 | F | 273.8 | F | 175 | F | 328.2 |
| NBTR | | | | | B | 13.1 | B | 12.3 | B | 13.5 | B | 12.4 |
| SBLTR | B | 12.7 | C | 18.9 | C | 24.0 | F | 50.2 | D | 26.4 | F | 57 |
| ***Herndon Pkwy/Fairbrook Dr - Signalized Comparison*** | | | | | | | | | | | | |
| EBL | **PROFFERED FUTURE IMPROVEMENT** | | | | A | 7.5 | A | 6.9 | A | 7.5 | A | 6.9 |
| EBTR | | | | | B | 10.5 | A | 9.9 | B | 10.8 | B | 10.0 |
| WBL | | | | | A | 4.3 | A | 3.9 | A | 4.5 | A | 4 |
| WBTR | | | | | A | 3.6 | A | 3.3 | A | 3.6 | A | 3.4 |
| NBL | | | | | C | 29.3 | C | 30.3 | C | 29.3 | C | 30.3 |
| NBTR | | | | | C | 26.7 | C | 28.5 | C | 26.7 | C | 28.5 |
| SBLTR | | | | | C | 26.3 | C | 28.3 | C | 26.3 | C | 28.3 |
| **Overall** | | | | | **B** | **11.6** | **A** | **8.6** | **B** | **11.5** | **A** | **8.6** |
| **10. Herndon Pkwy/Sunset Business - Unsignalized** | | | | | | | | | | | | |
| EBL | A | 8.0 | A | 8.7 | A | 8.4 | A | 9.5 | A | 8.5 | A | 9.7 |
| WBL | A | 9.3 | A | 9.3 | B | 10.4 | B | 10.7 | B | 11.3 | B | 10.9 |
| NBLT | D | 30.3 | D | 30.1 | F | 68.4 | F | 69.8 | F | 114.1 | F | 77.4 |
| NBR | B | 10.8 | B | 11.0 | B | 10.5 | B | 13.0 | B | 13.2 | B | 13.2 |
| SBLT | C | 19.6 | D | 32.7 | D | 30.6 | F | 104.9 | E | 44.8 | F | 121.8 |
| SBR | A | 9.2 | B | 10.3 | A | 9.6 | B | 11.0 | A | 9.7 | B | 11.2 |
| **11. Herndon Pkwy/Spring St - Signalized** | | | | | | | | | | | | |
| EBL | C | 30.6 | C | 27.3 | C | 27.8 | C | 30.5 | C | 27.9 | C | 30.5 |
| EBTR | D | 40.4 | D | 37.9 | D | 37.0 | D | 41.1 | D | 37.5 | D | 41.3 |
| EBR | C | 32.3 | D | 39.4 | D | 36.2 | D | 38.2 | D | 36.5 | D | 38.3 |
| WBL | C | 26.1 | C | 33.5 | E | 60.6 | E | 74.1 | E | 60.6 | E | 74.1 |
| WBTR | C | 31.4 | C | 32.4 | C | 29.3 | C | 32.4 | C | 29.5 | C | 32.6 |
| NBL | D | 52.9 | D | 49.7 | E | 58.9 | E | 60.6 | E | 59.5 | E | 63.7 |
| NBT | C | 23.0 | C | 23.6 | C | 28.8 | C | 27.0 | C | 28.8 | C | 27.0 |
| NBR | B | 14.7 | B | 16.4 | C | 20.0 | B | 17.3 | C | 20.0 | B | 17.3 |
| SBL | E | 61.7 | E | 61.8 | E | 68.1 | E | 68.3 | E | 68.1 | E | 68.3 |
| SBTR | C | 31.9 | D | 41.3 | D | 40.5 | D | 48.6 | D | 40.9 | D | 49.0 |
| **Overall** | **C** | **30.9** | **D** | **36.0** | **D** | **38.5** | **D** | **44.3** | **D** | **38.8** | **D** | **45.1** |

Note(s):

1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 11.

Table 6-2
575 Herndon Parkway
Future Conditions with Development Intersection Queuing Summary [1, 2, 3, 4, 5]

| Approach / Lane Group | Storage Length (ft) | Existing Conditions (2024) | | | | Future Conditions without Development (2028) | | | | Future Conditions with Development (2028) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile |
| **1. Worldgate Dr/Van Buren St - Signalized** | | | | | | | | | | | | | |
| EBL | - | 72 | 129 | 104 | 172 | 81 | 142 | 122 | 200 | 84 | 147 | 127 | 208 |
| EBT | - | 72 | 129 | 105 | 174 | 81 | 143 | 123 | 202 | 84 | 146 | 128 | 208 |
| EBR | - | 0 | 62 | 0 | #107 | 0 | 65 | 0 | #118 | 0 | 65 | 0 | #118 |
| WBT | - | 3 | 16 | 43 | 87 | 3 | 16 | 42 | 87 | 3 | 16 | 42 | 87 |
| WBR | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NBL | 250 | 69 | 105 | 72 | 108 | 70 | 106 | 72 | 110 | 70 | 106 | 72 | 110 |
| NBT | - | 175 | 231 | 160 | 277 | 184 | 247 | 176 | 308 | 190 | 254 | 185 | 323 |
| NBR | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SBL | 200 | 20 | 48 | 6 | 20 | 19 | 47 | 6 | 21 | 19 | 47 | 6 | 21 |
| SBT | - | 118 | 159 | 212 | 270 | 135 | 181 | 231 | 296 | 145 | 193 | 238 | 305 |
| SBR | - | 0 | 36 | 0 | 44 | 0 | 42 | 0 | 48 | 0 | 43 | 0 | 49 |
| **2. Van Buren St/The Atrium Dr - Signalized** | | | | | | | | | | | | | |
| EBL | - | 1 | 7 | 6 | 24 | 1 | 7 | 6 | 24 | 1 | 7 | 6 | 24 |
| EBR | 155 | 0 | 6 | 0 | 19 | 0 | 6 | 0 | 19 | 0 | 6 | 0 | 19 |
| NBL | 150 | 12 | 28 | 1 | 6 | 12 | 28 | 1 | 6 | 12 | 28 | 1 | 6 |
| NBT | - | 138 | 185 | 223 | 294 | 155 | 206 | 266 | 348 | 162 | 215 | 280 | 367 |
| SBT | - | 142 | 194 | 171 | 314 | 173 | 234 | 199 | #398 | 187 | 252 | 206 | #415 |
| SBR | 125 | 0 | 11 | 0 | 8 | 0 | 11 | 0 | 8 | 0 | 11 | 0 | 8 |
| **3. Van Buren St/Herndon Pkwy - Signalized** | | | | | | | | | | | | | |
| EBL | 125 | 12 | 30 | 18 | 38 | 10 | 25 | 19 | 40 | 10 | 25 | 19 | 40 |
| EBT | - | 160 | 214 | 75 | 112 | 156 | 215 | 111 | 152 | 165 | 225 | 120 | 162 |
| EBR | 165 | 0 | 66 | 0 | 57 | 0 | 62 | 0 | 58 | 0 | 64 | 0 | 58 |
| WBL | 350/100 | 100 | 140 | 185 | 238 | 136 | 179 | 235 | #314 | 160 | 207 | 251 | #345 |
| WBTR | - | 47 | 77 | 166 | 219 | 85 | 123 | 214 | 274 | 100 | 142 | 224 | 285 |
| NBL | - | 93 | 142 | 255 | #369 | 97 | 152 | 266 | #401 | 97 | 152 | 268 | #417 |
| NBT | - | 244 | 340 | 347 | 480 | 259 | 371 | 372 | 518 | 261 | 373 | 373 | 520 |
| NBR | 275 | 0 | 53 | 0 | 53 | 18 | 86 | 19 | 95 | 40 | 121 | 56 | 166 |
| SBL | 85 | 16 | 36 | 15 | 36 | 25 | 51 | 33 | 63 | 29 | 58 | 36 | 69 |
| SBTR | 150 | 101 | 144 | 188 | 245 | 106 | 155 | 196 | 255 | 106 | 155 | 197 | 255 |
| **4. Herndon Pkwy/Future Worldgate Extended - Signalized** | | | | | | | | | | | | | |
| **5. Herndon Pkwy/Pedestrian Crossing - Signalized** | | | | | | | | | | | | | |
| EBT | - | 84 | 126 | 73 | 111 | 104 | 154 | 107 | 158 | 111 | 164 | 120 | 176 |
| WBT | - | 30 | 51 | 73 | 111 | 55 | 87 | 116 | 171 | 66 | 102 | 125 | 183 |
| **6. Herndon Pkwy/West Site Dwy - Unsignalized** | | | | | | | | | | | | | |
| NBR | - | - | 1 | - | 8.9 | - | 9.2 | - | 9.2 | **INTERSECTION REMOVED** | | | |
| **7. Herndon Pkwy/East Site Dwy - Unsignalized** | | | | | | | | | | | | | |
| WBL | 150 | - | 0 | - | 0 | - | 0 | - | 3 | - | 4 | - | 8 |
| NBL | - | - | 0 | - | 1 | - | 2 | - | 45 | - | 78 | - | 130 |
| NBTR | - | - | 0 | - | 1 | - | 24 | - | 3 | - | 8 | - | 6 |
| SBT | - | - | - | - | - | - | 3 | - | 2 | - | 0 | - | 2 |
| SBR | - | - | - | - | - | - | 0 | - | 1 | - | 0 | - | 1 |
| ***Herndon Pkwy/East Site Dwy - Signalized Comparison*** | | | | | | | | | | | | | |
| EBL | - | **PROFFERED FUTURE IMPROVEMENT** | | | | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 4 |
| EBT | | | | | | 192 | 255 | 199 | 265 | 200 | 268 | 108 | #300 |
| WBL | 150 | | | | | 7 | 25 | 17 | 50 | 20 | 58 | 20 | #120 |
| WBT | - | | | | | 84 | 121 | 190 | 254 | 84 | 122 | 96 | 256 |
| NBL | - | | | | | 35 | 71 | 33 | 68 | 70 | 125 | 37 | 93 |
| NBTR | - | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NBLTR | | | | | | ***ADDITIONAL ANALYSIS*** | | | | ***ADDITIONAL ANALYSIS*** | | | |
| SBT | - | | | | | - | - | 2 | 10 | - | - | 1 | 9 |
| SBR | - | | | | | - | - | 0 | 0 | - | - | 0 | 0 |
| **8. Herndon Pkwy/Exchange Pl - Unsignalized** | | | | | | | | | | | | | |
| NBT | - | - | 1 | - | 1 | - | 2 | - | 1 | - | 2 | - | 1 |
| NBR | - | - | 1 | - | 0 | - | 1 | - | 0 | - | 1 | - | 0 |
| SBT | - | - | 3 | - | 1 | - | 4 | - | 2 | - | 4 | - | 2 |
| SBR | - | - | 1 | - | 1 | - | 1 | - | 1 | - | 1 | - | 1 |
| ***Herndon Pkwy/Exchange Pl - Right-Out Comparison*** | | | | | | | | | | | | | |
| EBL | - | **ADDITIONAL ANALYSIS** | | | | - | 0 | - | 0 | - | 1 | - | 0 |
| NBR | - | | | | | - | 1 | - | 0 | - | 1 | - | 0 |
| SBL | - | | | | | - | 4 | - | 2 | - | 4 | - | 2 |
| SBT | - | | | | | - | 1 | - | 1 | - | 1 | - | 1 |
| **9. Herndon Pkwy/Fairbrook Dr - Unsignalized** | | | | | | | | | | | | | |
| EBL | 175 | - | 1 | - | 0 | - | 1 | - | 0 | - | 1 | - | 0 |
| WBL | 200 | - | 0 | - | 0 | - | 10 | - | 22 | - | 10 | - | 23 |
| NBL | - | - | 0 | - | 0 | - | 157 | - | 149 | - | 179 | - | 159 |
| NBTR | - | - | 0 | - | 0 | - | 22 | - | 12 | - | 23 | - | 13 |
| SBLTR | - | - | 1 | - | 6 | - | 2 | - | 18 | - | 2 | - | 20 |
| ***Herndon Pkwy/Fairbrook Dr - Signalized Comparison*** | | | | | | | | | | | | | |
| EBL | 175 | **FUTURE IMPROVEMENT PROFFERED BY OTHERS** | | | | 3 | 14 | 0 | 3 | 3 | 14 | 0 | 3 |
| EBTR | - | | | | | 114 | 218 | 101 | 219 | 123 | 236 | 105 | 228 |
| WBL | 200 | | | | | 10 | 35 | 18 | 63 | 10 | 35 | 18 | 63 |
| WBTR | - | | | | | 18 | 50 | 43 | 120 | 21 | 55 | 46 | 130 |
| NBL | - | | | | | 51 | 99 | 30 | 67 | 51 | 99 | 30 | 67 |
| NBTR | - | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SBLTR | - | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **10. Herndon Pkwy/Sunset Business - Unsignalized** | | | | | | | | | | | | | |
| EBL | 100 | - | 2 | - | 0 | - | 3 | - | 0 | - | 3 | - | 0 |
| WBL | 150 | - | 2 | - | 5 | - | 9 | - | 13 | - | 9 | - | 13 |
| NBLT | - | - | 7 | - | 1 | - | 35 | - | 18 | - | 40 | - | 20 |
| NBR | - | - | 3 | - | 7 | - | 10 | - | 18 | - | 10 | - | 19 |
| SBLT | - | - | 2 | - | 8 | - | 5 | - | 26 | - | 6 | - | 29 |
| SBR | - | - | 0 | - | 2 | - | 0 | - | 2 | - | 0 | - | 2 |
| **11. Herndon Pkwy/Spring St - Signalized** | | | | | | | | | | | | | |
| EBL | 275 | 26 | 53 | 20 | 44 | 47 | 82 | 38 | 70 | 51 | 88 | 40 | 73 |
| EBT | - | 94 | 155 | 127 | 198 | 78 | 136 | 135 | 199 | 91 | 151 | 141 | 206 |
| EBR | 350 | 0 | 82 | 0 | 99 | 0 | 83 | 0 | 85 | 0 | 85 | 0 | 86 |
| WBL | - | 105 | 163 | 163 | 241 | 87 | 129 | 134 | #203 | 87 | 129 | 134 | #203 |
| WBT | - | 36 | 64 | 71 | 107 | 48 | 75 | 98 | 137 | 52 | 80 | 103 | 143 |
| NBL | 300/560 | 109 | 150 | 205 | 253 | 175 | 230 | 330 | #418 | 184 | 241 | 348 | #457 |
| NBT | - | 103 | 140 | 128 | 170 | 128 | 171 | 151 | 196 | 128 | 171 | 151 | 196 |
| NBR | 175 | 58 | 112 | 36 | 82 | 83 | 151 | 43 | 93 | 83 | 151 | 43 | 93 |
| SBL | 135 | 19 | 49 | 23 | 56 | 22 | 54 | 26 | 61 | 22 | 54 | 26 | 61 |
| SBT | - | 126 | 180 | 173 | 241 | 115 | 152 | 150 | 190 | 117 | 153 | 151 | 191 |

Notes:
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.
4. Analysis for the 2028 Background and Total Future at Spring Street/Herndon Pkwy intersection assumes proposed improvements.
5. Unit of measure for queue length is feet.

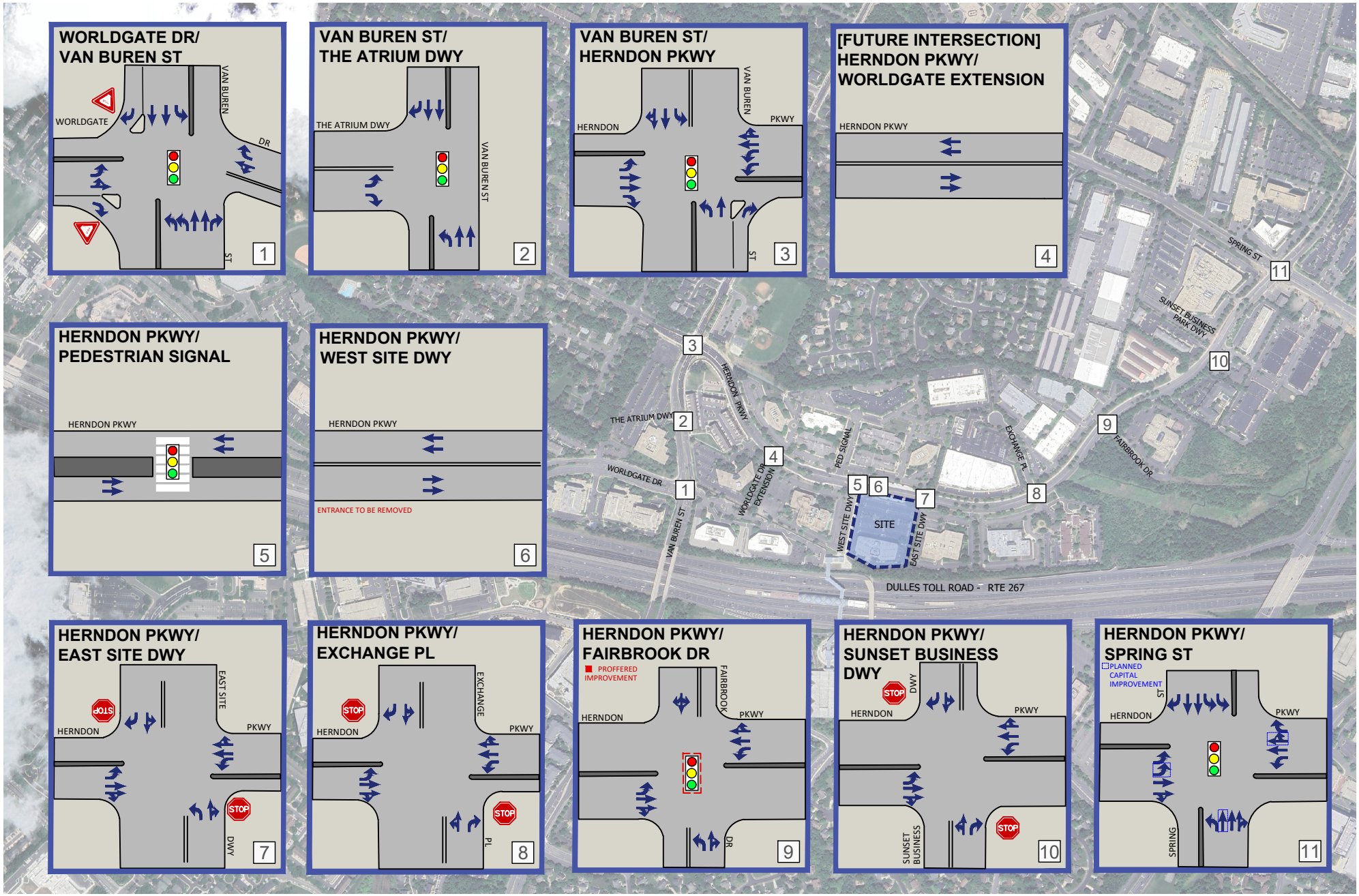


Figure 6-2
2028 Lane Use and Traffic Controls with Development

575 Herndon Parkway
Herndon, Virginia

VIKA

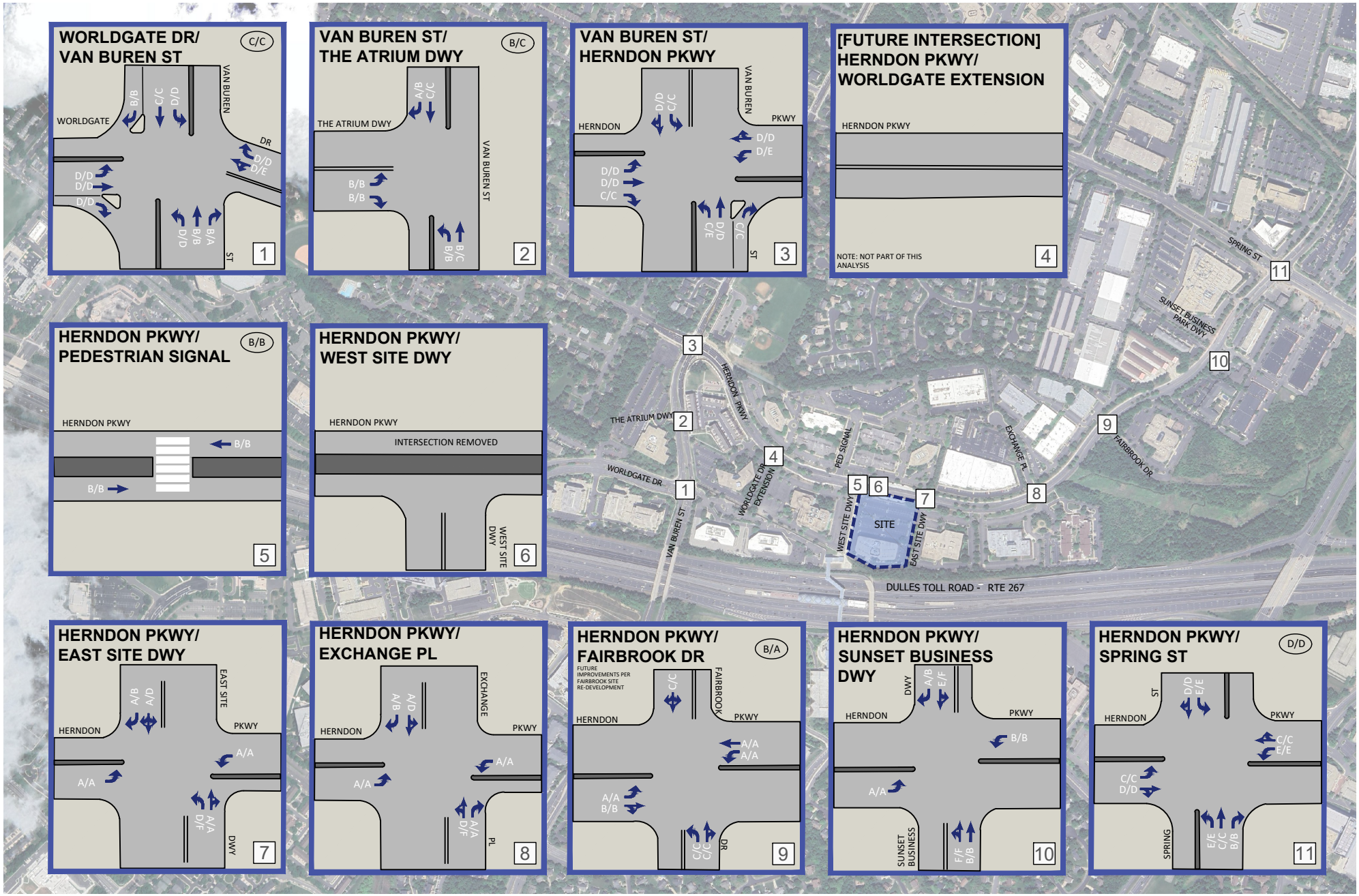


Figure 6-3
Future Intersection Movement LOS and Overall Intersection LOS

AM PEAK HOUR LOS
PM PEAK HOUR LOS
000 / 000

575 Herndon Parkway
Herndon, Virginia

**Levels of Service (continued).** Specific to Intersection #7 which provides direct vehicular access to the proposed development and neighboring 555 Herndon Parkway redevelopment a traffic signal, subject to a future traffic signal warrant analysis, would mitigate the minor street approach failing level of service. As shown on Table 6-1, with signalization the intersection would operate at an overall LOS "B" during peak periods and all lane groups would operate at LOS "C" or better. Units used for Level of Service (LOS) table are Seconds per Vehicle (Sec/V).

**Queuing.** Queuing analysis was conducted for the future conditions with development and compared to future conditions without development. As shown on Table 6-2, the results of the queueing analysis are generally consistent with those described in under future conditions without development. Some movements that are forecasted to carry site generated traffic would experience minor increases in queueing. Under stop-controlled conditions peak hour queues from the planned north/south road (Intersection #7) are estimated to be approximately three (3) vehicles during the AM peak hour and five (5) vehicles during the PM peak hour. The queues could be expected once or twice during a typical peak hour. Similar queueing on the minor street approaches would be anticipated with signalization in addition to queueing along Herndon Parkway that is not expected under stop-controlled conditions. Thus, signalization should be carefully considered in the future and constructed/installed only if warranted.

Three turning movements would operate at or beyond queueing capacity due to the combination of regional growth, pipeline developments, and site generate traffic. It is important to note that site generated traffic did not cause the above-capacity queues. The movements include:

- The westbound left movement at the intersection of Herndon Parkway and Van Buren Street experiences at-capacity or slightly above capacity queueing during the PM peak hour total future scenario. Due to the limited queueing excess (6'), no mitigation is proposed.

- The southbound right movement at the intersection of Herndon Parkway and Van Buren Street experiences queues above capacity during the PM peak hour for both the background and total future scenarios. These queue lengths are caused by a variety of factors including lane configuration causing drivers making a right turn to be caught in the through movement queue, as well as a restricted right-of-way along the west side of the road preventing any expansion of the right turn storage lane. Due to these issues, as well as the limited impact on queueing caused by the proposed development, and that all movements operate at or better than LOS "E", no mitigation is proposed.

- The northbound left movement at the intersection of Herndon Parkway and Spring Street experiences queues beyond capacity during the PM peak hour during both the background and total future scenarios. An additional study was conducted analyzing potential timing improvements.

It was concluded that the queueing could be mitigated by providing the northbound leg (Spring Street) with more green time. It is recommended that the Town consider potential timing adjustments and/or periodically review the allocation of green time to certain movements given the recent capacity improvements at the intersection. Tables presenting the LOS and Queue for this analysis are presented below. SimTraffic results for this scenario are presented in Table 6-3.

Herndon Pkwy / Spring St Timing Improvement Additional Analysis 1

| Approach/ Lane Group | Future Conditions with Development (2028) | | | |
|---|---|---|---|---|
| | AM Peak Hour | | PM Peak Hour | |
| | LOS | Delay (S/VEH) | LOS | Delay (S/VEH) |
| **Herndon Pkwy/Spring St - Signalized** | | | | |
| EBL | NO QUEUEING ISSUES REPORTED<br><br>NO ADDITIONAL ANALYSIS CONDUCTED | | C | 34.4 |
| EBTR | | | D | 48.4 |
| EBR | | | D | 44 |
| WBL | | | E | 78.4 |
| WBTR | | | D | 38.8 |
| NBL | | | E | 57.1 |
| NBT | | | C | 25.4 |
| NBR | | | B | 15.6 |
| SBL | | | E | 73.7 |
| SBTR | | | D | 51.6 |
| **Overall** | | | **D** | **46.5** |

Herndon Pkwy / Spring St Timing Improvement Additional Analysis [1, 2, 3]

| Approach / Lane Group | Storage Length (ft) | Future Conditions with Development (2028) Timing Improvement Analysis | | | |
|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | |
| | | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile |
| **Herndon Pkwy/Spring St - Signalized** | | | | | |
| EBL | 275 | NO QUEUEING ISSUES REPORTED<br><br>NO ADDITIONAL ANALYSIS CONDUCTED | | 127 | 208 |
| EBT | - | | | 128 | 208 |
| EBR | 350 | | | 0 | #118 |
| WBT | - | | | 42 | 87 |
| WBR | - | | | 0 | 0 |
| NBL | 300/560 | | | 72 | 110 |
| NBT | - | | | 185 | 323 |
| NBR | 175 | | | 0 | 0 |
| SBL | 135 | | | 6 | 21 |
| SBT | - | | | 238 | 305 |
| SBR | - | | | 0 | 49 |

No turning bay storage at off-site study intersections would operate beyond capacity due to the addition of the site. In the future, with the improvements mentioned herein to off-site study intersections, no capacity constraints are a result of the proposed development, except for Intersection #7 which provides direct vehicular access to the site. It should be noted that since Intersection #7 also provides direct access to the neighboring 555 Herndon Parkway redevelopment and future redevelopment on the north side of Herndon Parkway cost sharing of improvements at the intersection should be considered. Mitigation to eliminate this degradation of service will be in the form of proffered commitment to signalization. The proposed development has proffered to evaluate traffic signal warrants and if warranted construct a new traffic signal, similar to the proffer provided by the adjacent 555 Herndon Parkway pipeline development.

**SimTraffic.** Similar to future conditions without development SimTraffic simulations were completed for the peak AM and PM hours with development for all movements with estimated queue lengths exceeding available storage. Simulations were completed utilizing a 10-minute seeding time and a 60-minute recording time. Using the VDOT Microsimulation Run Determination Tool Version 2.0, it was determined that all AM peak hour scenarios would undergo 18 simulations, and all PM peak hour scenarios would undergo 30 simulations. The queue results presented in Table 6-3 an average of the 18 AM and 30 PM runs. The results of the SimTraffic analysis are generally consistent with the Synchro queue results summarized previously. Thus, no further capacity improvements are recommended.

Table 6-3
575 Herndon Parkway
SimTraffic Future Conditions with Development Peak Hour Queue Results

| Approach / Lane Group | Storage Length (ft) | Future Conditions without Development (2028) | | | | Future Conditions with Development (2028) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile | 50th Pecentile | 95th Pecentile |
| **3. Van Buren St/Herndon Pkwy - Signalized** | | | | | | | | | |
| EBL | 125 | 18 | 71 | 25 | 76 | 15 | 69 | 26 | 77 |
| EBT | - | 162 | 236 | 129 | 206 | 166 | 257 | 124 | 193 |
| EBT | - | 121 | 221 | 98 | 185 | 137 | 245 | 81 | 159 |
| EBR | 165 | 79 | 152 | 71 | 124 | 79 | 168 | 79 | 154 |
| WBL | 350 | 107 | 171 | 178 | 231 | 134 | 236 | 240 | 356 |
| WBL | 400 | 133 | 201 | 202 | 262 | 151 | 241 | 262 | 373 |
| WBT | - | 75 | 148 | 145 | 198 | 96 | 201 | 198 | 290 |
| WBTR | - | 97 | 143 | 164 | 215 | 123 | 189 | 201 | 276 |
| NBL | - | 87 | 197 | 231 | 370 | 122 | 234 | 175 | 325 |
| NBT | - | 177 | 285 | 209 | 318 | 228 | 358 | 192 | 316 |
| NBR | 275 | 96 | 225 | 85 | 211 | 92 | 242 | 120 | 246 |
| SBL | 85 | 44 | 101 | 70 | 149 | 45 | 120 | 63 | 144 |
| SBT | - | 106 | 181 | 196 | 317 | 119 | 251 | 204 | 307 |
| SBR | 150 | 74 | 153 | 154 | 251 | 84 | 173 | 175 | 256 |
| **11. Herndon Pkwy/Spring St - Signalized** | | | | | | | | | |
| EBL | 275 | 31 | 74 | 25 | 54 | 42 | 80 | 25 | 64 |
| EBT | - | 48 | 98 | 65 | 117 | 49 | 102 | 64 | 115 |
| EBTR | - | 71 | 122 | 92 | 148 | 79 | 132 | 87 | 140 |
| EBR | - | 62 | 102 | 80 | 123 | 73 | 135 | 73 | 133 |
| WBL | 350 | 60 | 152 | 127 | 207 | 110 | 197 | 119 | 223 |
| WBL | 350 | 118 | 182 | 159 | 212 | 153 | 232 | 165 | 236 |
| WBT | - | 47 | 41 | 83 | 146 | 39 | 86 | 81 | 135 |
| WBTR | - | 14 | 41 | 32 | 97 | 24 | 64 | 43 | 110 |
| NBL | 300 | 139 | 206 | 250 | 347 | 144 | 229 | 276 | 385 |
| NBL | 560 | 158 | 232 | 291 | 417 | 160 | 276 | 374 | 642 |
| NBT | - | 117 | 183 | 142 | 235 | 125 | 207 | 245 | 573 |
| NBT | - | 76 | 161 | 94 | 214 | 76 | 173 | 175 | 458 |
| NBR | 175 | 142 | 235 | 91 | 155 | 128 | 204 | 96 | 178 |
| SBL | 135 | 21 | 76 | 31 | 109 | 44 | 139 | 34 | 107 |
| SBT | - | 156 | 237 | 174 | 239 | 159 | 250 | 166 | 239 |
| SBT | - | 128 | 212 | 138 | 221 | 125 | 221 | 131 | 212 |
| SBTR | - | 43 | 135 | 69 | 158 | 37 | 108 | 63 | 149 |
| ***Herndon Pkwy/Spring St - Timing Improvements - Signalized*** | | | | | | | | | |
| EBL | 275 | | | | | | | 34 | 78 |
| EBT | - | | | | | | | 83 | 143 |
| EBTR | - | | | | | | | 109 | 169 |
| EBR | - | | | | | | | 82 | 148 |
| WBL | 350 | | | | | | | 159 | 239 |
| WBL | 350 | | | | | | | 197 | 276 |
| WBT | - | | | | | **NO QUEUING ISSUES** | | 94 | 180 |
| WBTR | - | **FUTURE CONDITION** | | | | **REPORTED** | | 70 | 159 |
| NBL | 300 | | | | | | | 223 | 320 |
| NBL | 560 | **NOT ANALYZED** | | | | **NO SIMTRAFFIC** | | 255 | 356 |
| NBT | - | | | | | **ANALYSIS CONDUCTED** | | 161 | 238 |
| NBT | - | | | | | | | 120 | 217 |
| NBR | 175 | | | | | | | 75 | 139 |
| SBL | 135 | | | | | | | 23 | 97 |
| SBT | - | | | | | | | 178 | 261 |
| SBT | - | | | | | | | 154 | 231 |
| SBTR | - | | | | | | | 66 | 148 |

Notes:
Unit of measure for queue length is feet.

# SECTION 7
# TRANSPORTATION DEMAND MANAGEMENT PROGRAM

To effectively address the potential impacts of development, limit the use of single occupied vehicles, leverage the site's proximity to the Herndon Metrorail station, encourage the use of transit (Metrorail, Fairfax Connector, Metrobus, or other public transit service) and other active non-auto modes of transportation a comprehensive Transportation Demand Management (TDM) program will be implemented.

A TDM program encompasses various strategies aimed at optimizing the utilization of the surrounding transportation resources already available. These strategies range from enhancing transportation options to incentivizing more efficient travel behaviors and even reducing the necessity for physical travel through alternative mobility options or smarter land use. TDM strategies can alter travel timing, routes, destinations, or modes.

The TDM Program would be implemented through a Transportation Demand Management Work Plan developed by the Applicant in coordination with and approval by the Town of Herndon Department of Community Development. Typically, the TDM Work Plan will be adapted over time to respond to changes in transportation related circumstance of the subject site, surrounding community, technology advancements and other infrastructure improvements.

The TDM Work Plan should incorporate any combination of the following elements best suited for the subject site.

- Assisting residents and employees in making informed commuting decisions.
- Disseminating information about Metrorail, Fairfax Connector, ridesharing, and other pertinent transit options to new residents, tenants, and employees.
- Disseminate details to transit users concerning free guaranteed rides home in emergency situations.
- Seeking support from entities such as the Metropolitan Washington Council of Governments (MWCOG) Commuter Connections program, the Washington Metropolitan Area Transit Authority (WMATA), Town of Herndon, and others.
- Provide ride sharing and carpool parking spaces.
- Provide ample bicycle parking.
- Encouraging residents and employees to bike or walk to work.
- Contributions to residents and employees Metro fare cards or other micro mobility modes (bike/scooter).

- Contributions to Fairfax Connector, WMATA, or other public transit services approved by the Town.
- Provide tenants incentives to participate in yearly transportation management surveys.

Finally, the TDM Program could implement monitoring strategies similar to neighboring jurisdictions in order to confirm that the strategies employed for the site are resulting in the anticipated reduction in overall single occupancy vehicle (SOV) trips. These strategies could include, but are not limited to, person surveys, vehicular traffic counts to/from the garage, or other such methods as may be reviewed and approved by the Town of Herndon.

# SECTION 8
# CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this study are as follows:

1. The site is well-served by a multimodal transportation system that includes arterial, collector, and local streets; a connected network of sidewalks with ramps and pedestrian facilities; proximity to a Metro Station and numerous bus lines providing easy access to other points of interests.

2. The four (4) signalized study intersections currently operate at overall LOS “D” or better during the AM and PM peak hours. All lane groups at signalized intersections operate at acceptable LOS “E” or better during peak periods. All lane groups at the unsignalized study intersections currently operate at acceptable LOS “E” during the AM or PM peak hour.

3. The 2028 future condition without development includes improvements at the Spring Street/Herndon Parkway intersection with the current reconstructions of the existing traffic signal and capacity improvements. Subject to completion of a traffic signal warrant analysis signalization of the Herndon Parkway/Fairbrook Drive intersection is anticipated with the planned Fairbrook Business Park redevelopment.

4. In the 2028 future condition without development, the four (4) signalized study intersections would experience minor increases in delay as a result of nearby development and regional growth but would continue to operate at acceptable LOS “D” or better. Additionally, all lane groups at signalized intersections would continue to operate at acceptable LOS “E” or better during peak periods. Some minor street approaches at unsignalized study intersections are estimated to operate at LOS “F” in the future. These approaches are private driveways planned for future signalization as development occurs which will mitigate operations.

5. Upon completion, the proposed development is expected to generate 219 AM peak hour trips (82 in and 137 out) and 207 PM peak hour trips (126 in and 81 out). This assumes a non-auto mode share of 45% for the residential use and a 25% non-auto mode share for commercial uses which would be leveraged by the site’s immediate proximity to the Herndon Metro station.

   The sit-down restaurant use assumed in this TIS represents a more trip intense commercial use when compared to the other commercials uses being considered for the site (office and general retail). This assumption was made in coordination with Town staff during scoping to accommodate a range of commercial uses given uncertain market conditions to allow for maximum flexibility. As such, the results of this study should be considered conservative.

6. In the 2028 future condition with development, the four (4) signalized study intersections would continue to operate at acceptable LOS “D” or better. Additionally, all lane groups at signalized intersections would continue to operate at acceptable LOS “E” or better during peak periods.

   Intersection #7 which provides direct vehicular access to the proposed development and neighboring 555 Herndon Parkway redevelopment a traffic signal, subject to a future traffic signal warrant analysis, would mitigate the minor street approach failing level of service. With signalization the intersection would operate at an overall LOS “B” during peak periods and all lane groups would operate at LOS “C” or better. The Applicant has also proffered to signalization that would mitigate potential delays and queueing.

   Intersection #8, Herndon Parkway at Exchange Place, will experience a degradation in its northbound left movement between future conditions without development and future conditions with development. This degradation is due to the two (2) existing left turns and additional through traffic on Herndon Parkway as development occurs. A potential mitigation strategy is to restrict that movement. However, given the low volumes it turning restriction is not recommended.

   Intersection #9, Herndon Parkway at Fairbrook Drive, experiences a degradation of all movements between existing and future conditions without development. This degradation is due to a number of factors including regional growth as well as additional pipeline developments agreed upon during the scoping process. As discussed with Town staff, any additional degradation occurring between background and total future conditions would be mitigated with the planned signalization of the intersection. Additional analyses were conducted showing LOS and queueing for both stop controlled and signalized conditions. Further, an analysis was conducted removing the Fairbrook pipeline development from the total future scenario and as a result all movement operated at acceptable levels of service. Thus, the delay is directly associated with the pipeline development.

   Intersection #3 has two movements with Synchro queues that are at or exceed capacity. The first, the westbound left movement, experiences a queue in the total future scenario that exceeds capacity of 6’, which has no effect on efficiency, no mitigation is provided. SimTraffic also shows queues can be accommodated within available storage for the movement. The southbound right experiences queues exceeding capacity during the PM peak hour for both the background and total future scenarios. These queue lengths are caused by a variety of factors including lane configuration causing drivers making a right turn to be caught in the through movement queue, as well as a restricted right-of-way along the west side of the road preventing any expansion of the right turn storage lane. Because all movements operate at LOS “E” or better, and the limited effect the proposed development has on the queue length, no mitigation is proposed.

The northbound left movement (on Spring Street) at the intersection of Herndon Parkway and Spring Street experiences queues beyond capacity during the PM peak hour during both the background and total future scenarios. An additional study was conducted analyzing potential timing improvements.

It was concluded that the excessive queueing could be mitigated by providing the northbound leg with more green time. It is recommended that the Town consider potential timing adjustments given the recently completed capacity improvements. Tables presenting the LOS and Queue for this analysis are presented below. SimTraffic results for this scenario are presented in Table 6-3.

7. A TDM Program will be implemented through a TDM Work Plan developed by the Applicant in coordination with the Town of Herndon Department of Community Development. The TDM program will encompass various strategies aimed at optimizing the utilization of the surrounding transportation resources available. The TDM Plan will leverage the site's proximity to the Herndon Metrorail station, encourage the use of transit and other active non-auto modes of transportation