

**Multimodal Transportation Assessment**

**2480 S Glebe Road**

**Arlington, Virginia**

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**GOROVE SLADE**  
Transportation Planners and Engineers

**Prepared by:**



225 Reinekers Lane, Suite 750, Alexandria, VA 22314  
703.721.3044

4114 Legato Road, Suite 650, Fairfax, VA 22033  
1140 Connecticut Ave NW, Suite 1010, Washington, DC 20036  
4951 Lake Brook Drive, Suite 250, Glen Allen, VA 23060  
4550 Montgomery Avenue, Suite 400, Bethesda, MD 20814

[www.groveslade.com](http://www.groveslade.com)

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## Executive Summary

The following report is a Multimodal Transportation Assessment (MMTA) for the proposed development located at 2480 S Glebe Road in the Green Valley area of Arlington, Virginia.

### Site Location and Study Area

The project site is located at 2480 S Glebe Road in the Nauck neighborhood, also known as Green Valley, in South Arlington, Virginia. The site is bounded by 24<sup>th</sup> Road S to the north, S Glebe Road to the east, an existing church, cemetery, and industrial properties to the west, and commercial buildings and I-395 to the south, as shown in Figure 4.

The general extents of the study area are S Glebe Road to the east, Shirlington Road to the west, 24<sup>th</sup> Road S to the north, and 26<sup>th</sup> Road S to the south. The vehicular study area consists of eight (8) intersections along 24<sup>th</sup> Road S, S Glebe Road, I-395 off-ramps, and 26<sup>th</sup> Road S, as vetted and approved by Arlington County.

The site is currently zoned as RA-H: Hotel Districts in Arlington County's Zoning Ordinance and partially classified as Medium Residential and Service Industry use in the General Land Use Plan (GLUP).

### Proposed Project

The proposed development will construct 37 single-family attached townhomes and a multi-family residential building with approximately 495 dwelling units. The existing hotels will be demolished as part of the proposed development.

The proposed development will construct approximately 582 parking spaces, with 74 parking spaces for the single-family attached townhomes and 508 new parking spaces in an above-grade parking garage for the multi-family residential building.

The number of on-site loading facilities will accommodate the practical needs of the development.

### Policies and Goals

The Arlington County Master Transportation Plan (MTP), adopted in 2011 and updated in 2019, outlines goals to improve various modes of transportation throughout the County. Similarly, the Four Mile Run Valley Area Plan, adopted in 2018, developed a series of goals and objectives specifically for the surrounding areas. The proposed development achieves several of the goals and policies of both the MTP, Four Mile Run Valley Area Plan, and other guiding documents for the County.

## Multi-Modal Overview

### Transit

The subject site is well-served by transit:

- There are 11 bus stops within a quarter mile of the site. These stops are directly served by WMATA (Metrobus) and Arlington Transit (ART) routes.

### Bicycle

The site has access to several on- and off-street bicycle facilities, including bicycle lanes on Shirlington Road, and off-street trails on the Four Mile Run and W&OD trail.

The recently adopted Bicycle Element of the Arlington County Master Transportation Plan recommends that S Glebe Road between Columbia Pike and W Glebe Road be upgraded in the future with a bicycle lane.

### Pedestrian

The site is surrounded by a well-connected pedestrian network. There are minor pinch points on 24<sup>th</sup> Road S, but overall, there is good connectivity and quality infrastructure.

As a result of the proposed development, pedestrian facilities along the perimeter of the site will be improved by adding and improving sidewalks adjacent to the site so that they meet or exceed Arlington County and ADA standards.

### Vehicular

The site is well connected via several principal arterials such as VA-120 (S Glebe Road). The arterials create connections to VA-244 (Columbia Pike), I-395, and ultimately the Capital Beltway (I-495) and I-95. These principal arterial roadways bring vehicular traffic within a half-mile of the site, at which point minor arterials, collectors, and local roads can be used to access the site directly.

### Existing Conditions

Intersection capacity analyses were performed for the morning and afternoon peak hours at study area intersections. Synchro version 11 was used to analyze the study intersections based on the *Highway Capacity Manual* (HCM) 2000 methodology.

The existing conditions analysis shows many intersections and movements operate at an acceptable level of service during the morning and afternoon peak hours. However, one (1) study intersection has one or more movements that operate at levels beyond Level of Service (LOS) E or better in one or more peak hours. LOS E is typically used as the acceptable LOS threshold



in the County; although LOS F is generally accepted in urbanized areas if vehicular improvements would be a detriment to safety or to non-auto modes of transportation. The capacity analysis results also show that three (3) intersections have 95<sup>th</sup> percentile queues that exceed the available storage length in one or more peak hours in existing conditions.

### Travel Demand Assumptions

Mode split (also called mode share) is the percentage of travelers using a particular type (or mode) of transportation when traveling. The main source of mode split information for this report was based on Census data using Traffic Analysis Districts (TADs), Traffic Analysis Zones (TAZs), data contained in the WMATA Ridership Survey, the Arlington County Mode Share Assumptions for Shirlington/South Arlington, and transportation studies from previous developments near the project site.

The following mode splits were assumed in the analysis, as vetted and approved by Arlington County:

- Residential
  - Auto – 65%, Transit – 25%, Bike – 4%, Walk – 6%

Weekday peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation*, 11<sup>th</sup> Edition.

Proposed residential trip generation is based on the development program of 495 residential dwelling units for the multi-family building and 37 single-family attached townhomes. Residential trip generation was calculated based on ITE Land Use codes 221 (Multi-family Housing – Mid-Rise) and 215 (Single-Family Attached Townhomes), using the setting/location of General Urban/Suburban and Not Close to Rail, splitting trips into different modes using assumptions outlined in the mode split section of this report.

### Future Improvements

A number of planned transportation improvements in the vicinity of the proposed development are expected to be complete by 2027. The full list of improvements is detailed in the report, but examples include:

- South and West Glebe Road Intersection Improvements
- Shirlington and Road Bridge Improvements and Addition
- South Four Mile Run Drive Complete Streets Project
- Shirlington Road – Resurfacing for Complete Streets

### Future Traffic Operations

A capacity analysis was developed to compare the future roadway network without the proposed development to the future roadway network with the proposed development. Intersection capacity analyses were performed for the morning and afternoon peak hours at study area intersections. Synchro version 11 was used to analyze the study intersections based on the *Highway Capacity Manual* (HCM) 2000 methodology.

Traffic projections for 2027 are based on existing volumes, plus inherent growth on the roadway (representing regional traffic growth), traffic generated by approved nearby background developments (representing local traffic) growth, and traffic generated by the proposed development. The methodology of using an inherent growth rate to account for regional growth and background development trips to account for local growth has been vetted and approved by the County.

### Mitigations

Mitigation measures were identified based on Arlington County standards. Following these guidelines, no impacts were identified at the study intersections as a result of the proposed development.

### Transportation Management Plan

A Transportation Management Plan (TMP) will be provided for the project based on the County's requirements, and a framework for a TMP is included in this report. This TMP will include typical components such as the establishment of a TMP coordinator, the distribution of transit literature, the establishment of ride-sharing programs, and the on-site sale of discounted fare media. Management measures taken by the proposed development can be monitored and adjusted as needed to continually create opportunities to reduce the amount of vehicular traffic generated by the site.

### Summary and Recommendations

This report concludes that the proposed development will not have a detrimental impact to the surrounding transportation and roadway network, assuming that all planned site design elements and recommended mitigation measures are implemented.

The development has many positive elements contained within its design that minimize potential transportation impacts, including:

- 
- The proposed development's close proximity to multiple bus lines including WMATA (Metrobus) and Arlington Transit (ART) routes.
  - Improvements to the pedestrian facilities adjacent to the site that meet or exceed Arlington County and ADA requirements.
  - The inclusion of secure-long-term bicycle parking that meets zoning requirements.
  - The installation of short-term bicycle parking spaces around the perimeter of the site that meets zoning requirements.
  - The provided on-site parking will be right-sized to meet the practical demand of the site.
  - A Transportation Management Plan (TMP) that aims to reduce the demand of single-occupancy, private vehicles to/from the proposed development during peak period travel times or shifts single-occupancy vehicular demand to off-peak periods.

## Introduction

This report presents the findings of a Multimodal Transportation Assessment (MMTA) conducted for the proposed development at 2480 S Glebe Road in Arlington, VA.

The proposed project is located at 2480 S Glebe Road and will redevelop the existing hotels on the site into 37 single-family attached townhomes and a multi-family residential building with approximately 495 dwelling units. The primary access point is proposed to be located on S Glebe Road, with an additional access point to the multi-family residential garage on 24<sup>th</sup> Road S. The project will provide approximately 582 parking spaces, with 74 parking spaces for the single-family attached townhomes and 508 parking spaces in an above-grade garage for the multi-family residential building. The conceptual site plan for the ground floor and level 2 of the proposed development are shown in Figure 1 and Figure 2.

The site is currently zoned as RA-H: Hotel Districts in Arlington County's Zoning Ordinance and partially classified as Medium Residential and Service Industry use in the General Land Use Plan (GLUP).

### Purpose of Study

The purpose of this study is to evaluate the transportation network in the vicinity of the site and identify any potential transportation impacts that may result from the proposed redevelopment. Elements of this report include a description of the proposed development, an evaluation of the existing multimodal transportation network, and evaluations of the future transportation network with and without the proposed development.

### Study Tasks

The following tasks were completed as part of this study:

- A scoping form dated January 2, 2024, was submitted by Gorove Slade to Arlington County. This scope includes discussions about the parameters of the study and relevant background information. A copy of the scoping document is included in the Technical Appendix.
- Traffic counts at the study area intersections were conducted on Thursday, November 16, 2023, during the morning hours between 6:30 and 9:30 AM and evening hours between 4:00 and 7:00 PM.
- Proposed site traffic volumes were generated based on the methodology outlined in ITE *Trip Generation, 11<sup>th</sup> Edition*.
- Existing trips associated with the hotel uses are removed from the network based on field-collected driveway count data.
- Intersection capacity analyses were performed using the software package Synchro, Version 11 based on the *Highway Capacity Manual* (HCM) methodology. Traffic analyses were performed for existing conditions (2023) and future conditions (2027) with and without development.
- A Transportation Management Plan (TMP) framework was developed as a TMP will be necessary to meet County requirements.

## Project Summary

### Site Location

The project site is located at 2480 S Glebe Road in the Nauck neighborhood, also known as Green Valley, in South Arlington, Virginia. Figure 3 shows the regional location of the project. The project site is bounded by 24<sup>th</sup> Road S to the north, S Glebe Road to the east, an existing church, cemetery, and industrial properties to the west, and commercial buildings/I-395 to the south. The site location is shown in Figure 4.

### Parcel Information

The project site is currently occupied by an existing hotel bounded by S Glebe Road to the east and another existing hotel that is bounded by commercial buildings/I-395 to the south. A parcel map showing the location of the property is presented in Figure 5.

### General Land Use Plan Recommendations

According to Arlington County's General Land Use Plan (GLUP), this site is listed as Medium Residential and Service Industry use. The GLUP map for the site is shown in Figure 6. The site is currently zoned as RA-H: Hotel Districts. The zoning map is shown in Figure 7.

### Proposed Site Plan

The proposed development will construct 37 single-family attached townhomes and a multi-family residential building with approximately 495 dwelling units. The existing hotels will be demolished as part of the proposed development. The proposed development will construct approximately 582 parking spaces, with 74 parking spaces for the single-family attached townhomes and 508 new parking spaces in an above-grade parking garage for the multi-family residential building. Vehicular access to the above-grade garage includes one (1) proposed entrance on 24<sup>th</sup>

Road S leading to Level 2 of the garage and another via 24<sup>th</sup> Road S that connects to the private internal driveway leading to Level 1. Loading access and access to the townhomes will be provided via the same private internal driveway through 24<sup>th</sup> Road S.

### Scope and Limits of the Study Area

The study area is generally bounded by S Glebe Road to the east, Shirlington Road to the west, 24<sup>th</sup> Road S to the north, and 26<sup>th</sup> Road S to the south. The following intersections were identified for inclusion in the vehicular study area, as shown in Figure 8. The study intersections for the proposed development are as follows:

1. 24th Road S & S Glebe Road (North)
2. 24th Road S & Shirlington Road
3. 24th Road S & Alister Arlington Ridge Driveway / Future Site Driveway
4. 24th Road S & S Glebe Road (South)
5. S Glebe Road & Existing Site Driveway
6. S Glebe Road & I-395 Off-Ramp / Existing Site Driveway
7. S Glebe Road & 26th Road S / I-395 Off-Ramp
8. 24th Road S & Future Site Driveway

### Data Sources

Sources of data for this study include Arlington County, the Virginia Department of Transportation (VDOT), the Institute of Transportation Engineers (ITE) *Trip Generation*, 11<sup>th</sup> Edition, Census Transportation Planning Products (CTPP), and the office files and field reconnaissance efforts of Gorove Slade Associates, Inc.

### Contents of Study

This report contains 10 chapters as follows:

- Study Area Overview  
This chapter reviews the area near and adjacent to the project and includes an overview of the site location.
- Project Design  
This chapter reviews the transportation components of the project, including the site plan and access.
- Transit Facilities  
This chapter summarizes the existing and future transit service adjacent to the site, reviews how the project's transit demand will be accommodated, outlines impacts, and presents recommendations as needed.
- Pedestrian Facilities

This chapter summarizes existing and future pedestrian access to the site, reviews walking routes to and from the project site, outlines impacts, and presents recommendations as needed.

- Bicycle Facilities

This chapter summarizes existing and future bicycle access to the site, reviews the quality of cycling routes to and from the project site, outlines impacts, and presents recommendations as needed.

- Travel Demand Assumptions

This chapter outlines the travel demand of the proposed project. It summarizes the expected mode splits and multimodal trip generation of the project.

- Traffic Operations

This chapter provides a summary of the existing roadway facilities and an analysis of the existing and future roadway capacity in the study area. It summarizes the routing assumptions used in the analysis. This chapter highlights the vehicular impacts of the project, including presenting mitigation measures for minimizing impacts as needed.

- Safety Review

This chapter reviews the findings of a crash data analysis of adjacent intersections and frontage of the proposed project.

- Transportation Management Plan

This chapter outlines the components of the proposed development's Transportation Management Plan (TMP).

- Summary and Conclusions

This chapter presents a summary of the recommended mitigation measures by mode and presents overall findings and conclusions.



Figure 1: Conceptual Site Plan – Ground Floor Plan



Figure 2: Conceptual Site Plan – Level 2 Plan

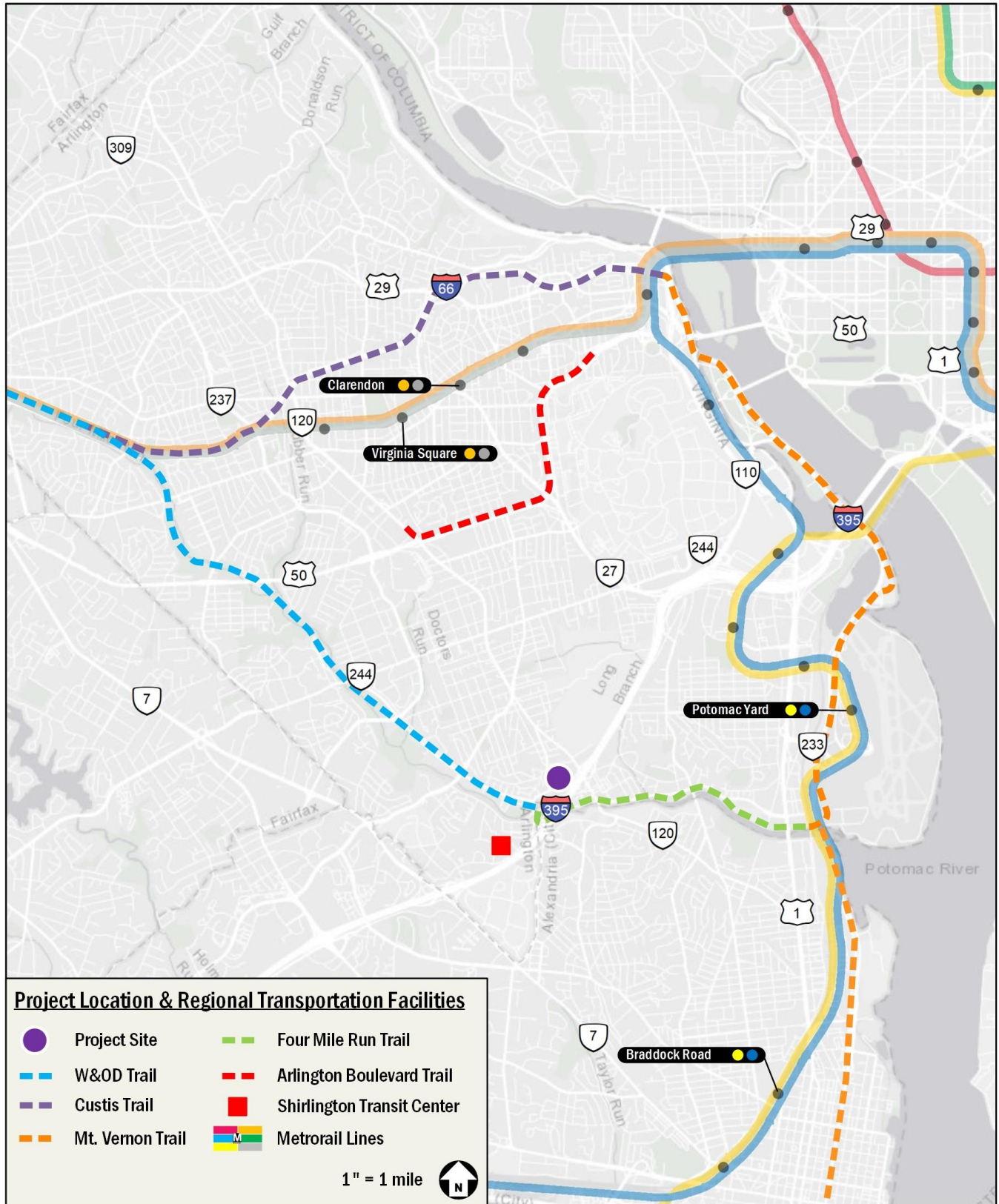


Figure 3: Project Location and Regional Transportation Facilities

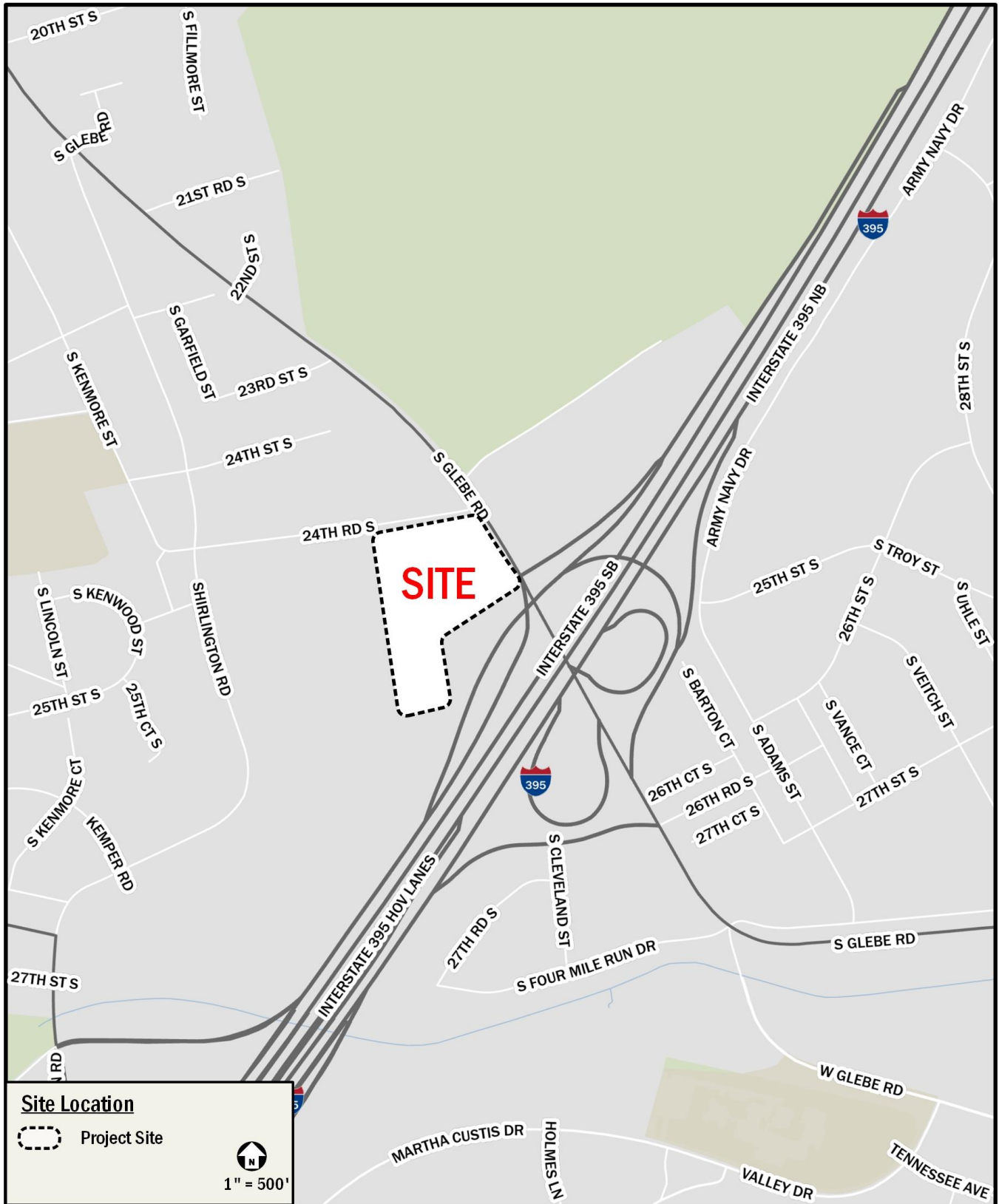
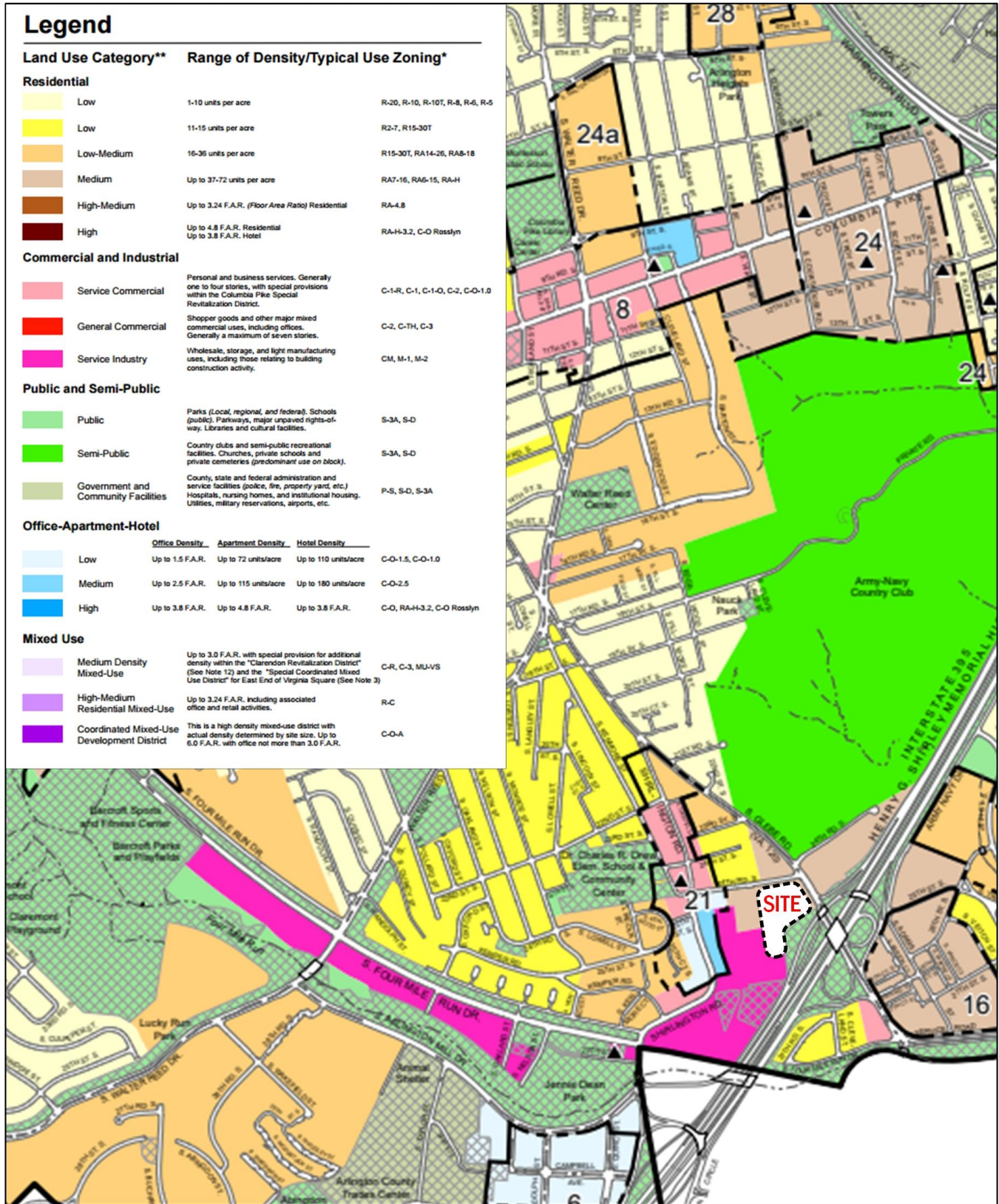


Figure 4: Site Location





Figure 5: Parcel Map (Source: Arlington County Real Estate Map, January 2022)



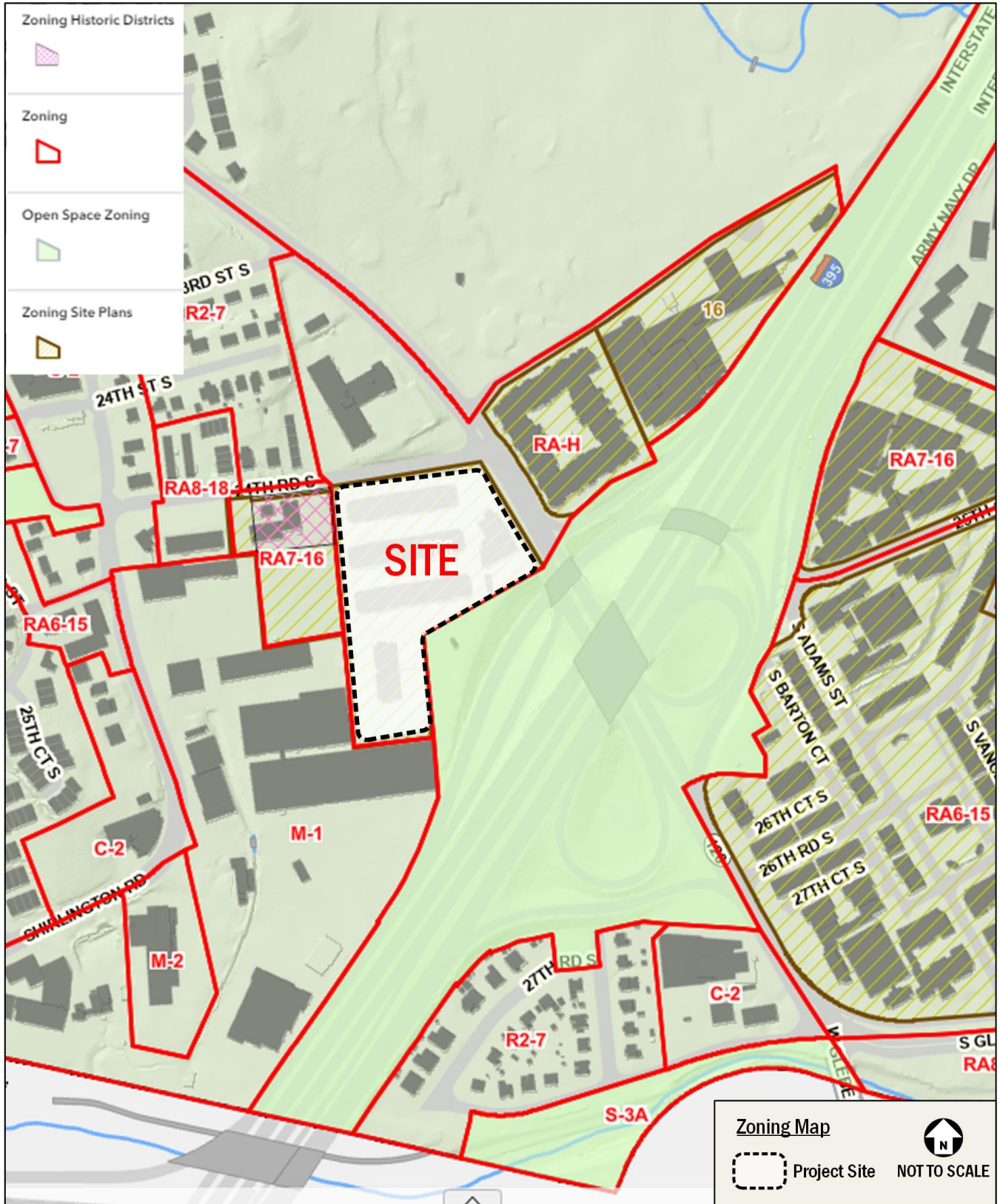


Figure 7: Zoning Map (Source: Arlington County)



Figure 8: Study Intersections

## Study Area Overview

This chapter reviews the existing conditions of the surrounding transportation network and includes an overview of the site location, including a summary of the major transportation characteristics of the area and of future regional projects. Detailed characteristics of each mode and their subsequent study areas will be defined in the following chapters.

The following conclusions are reached within this chapter:

- The site is surrounded by an extensive regional and local transportation system that will accommodate the residents of the proposed development.
- The site is well-served by public transportation with access to various bus lines that connect to the greater Northern Virginia and Washington Metropolitan area.
- The site is surrounded by a well-connected pedestrian environment. In the vicinity of the site, sidewalks generally meet standards recommended by the Arlington County Master Transportation Plan with some gaps in the system.
- The site has access to several on- and off-street bicycle facilities, including bike lanes on Shirlington Road, and off-street trails including the W&OD and Four Mile Run trails.
- Local initiatives will positively impact the study area, such as planned bicycle lanes on S Glebe Road.

## Major Transportation Features

### Overview of Regional Access

Under existing conditions, the proposed project site has ample access to regional vehicular and transit-based transportation options, as shown in Figure 1, that connect the site to destinations within Virginia, the District, and Maryland.

The site is accessible from several principal arterials such as VA-120 (S Glebe Road). The arterials create connections to VA-244 (Columbia Pike), I-395, and ultimately the Capital Beltway (I-495) and I-95. These principal arterial roadways bring vehicular traffic within half-mile of the site, at which point minor arterials, collectors, and local roads can be used to access the site directly.

Bus transit routes serving the site make connections to Pentagon, Pentagon City, and Crystal City Metro stations. These stations include the Blue and Yellow Lines which provide connections to areas in Virginia, the District, and Maryland. The

Blue Line connects Springfield, VA with Largo, MD and the Yellow Line connects Huntington, VA with the Mount Vernon Square neighborhood in Washington, DC; both lines provide access to the District core. Both lines also provide connections to the Red Line, which provides a direct connection to Union Station, a hub for commuter rail – such as Amtrak, MARC, and VRE – in addition to all additional Metrorail lines, allowing for access to much of the DC Metropolitan area.

The proposed development is located approximately 0.5 miles from the W&OD Trail, a 45-mile off-street bicycle trail running through densely populated urban and suburban communities in Northern Virginia from Shirlington to Purcellville. The W&OD Trail connects to the Four Mile Run Trail and Mount Vernon Trails in Arlington County, providing regional bicycle connectivity to Rosslyn and the District. A detailed review of existing bicycle infrastructure is provided in a later chapter of this report.

Overall, the site has access to several regional roadways, transit, and bicycle options, making it convenient to travel between the site and destinations in Virginia, the District, and Maryland.

### Overview of Local Access

There are several local transportation options near the site that serve vehicular, transit, walking, and cycling trips under existing conditions, as shown on Figure 9.

In addition to several principal arterials, the site is served by a local vehicular network that includes collectors such as 24<sup>th</sup> Road S and Shirlington Road. In addition, there is an existing network of local roadways that provide access to the site.

The site has access to several bus transit routes including those served by WMATA Metrobus and ART Transit. These routes serve the local area and provide connections to regional rail transit. Specific route information and bus stop inventory are highlighted later in the Transit chapter of this report.

As shown in Figure 9, there are multiple bus routes that serve the site. In the vicinity of the site the majority of routes travel along Shirlington Road, 24<sup>th</sup> Street S, 26<sup>th</sup> Road S, S Adams Street, and Army Navy Drive.

There are existing bicycle facilities that connect the site to areas within Arlington, Virginia, most notably the W&OD Trail and the Four Mile Run Trail. There are bike lanes on Shirlington Road adjacent to the project site. A detailed review of existing and

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proposed bicycle facilities and connectivity is provided in a later chapter of this report.

In the vicinity of the site, most sidewalks meet Americans with Disabilities Act (ADA) standards and standards recommended by the Arlington Master Transportation Plan. Anticipated pedestrian routes, such as those to public transportation stops, retail zones, nearby residential areas, and community amenities, provide well-connected pedestrian facilities. A detailed review of existing and proposed pedestrian access and infrastructure is provided in a later chapter of this report.

Overall, the site is surrounded by a local transportation network that allows for efficient transportation options via transit, bicycle, walking, or vehicular modes.

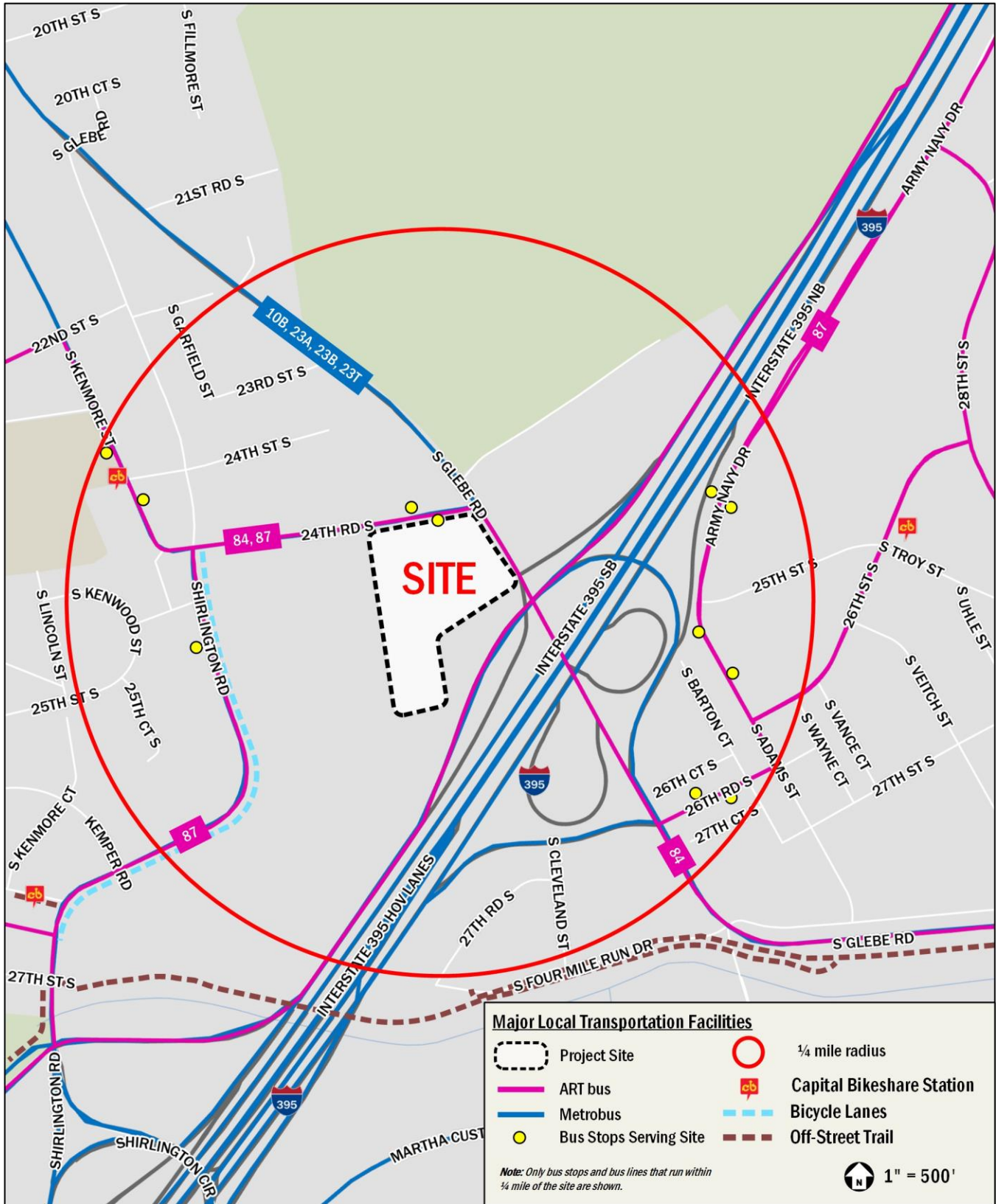


Figure 9: Major Local Transportation Facilities

## Car-sharing

Car-sharing service in Arlington is provided by Zipcar, a private company that provides registered users access to a variety of automobiles. Zipcar has designated spaces for their vehicles. There are no Zipcar locations located within a quarter mile of the site. However, there is one Zipcar location in Shirlington Village approximately 0.8 miles from the site.

## E-Scooters and Dockless E-Bicycles

As of June 2024, three (3) electric-assist scooter (e-scooter) and electric-assist bicycle (e-bike) companies provide Shared Mobility Device (SMD) service in Arlington County: Bird, Lime, and Spin. These SMDs are provided by private companies that give registered users access to a variety of e-scooter and e-bike options. These devices are used through each company-specific mobile phone application. Many SMDs do not have designated stations where pick-up/drop-off activities occur like with Capital Bikeshare; instead, many SMDs are parked in public space, most commonly in the “furniture zone” (the portion of sidewalk between where people walk and the curb, often where other street signs, street furniture, trees, parking meters, etc. are found)

## Walk Score and Bike Score

Walkscore.com is a website that provides scores and rankings for walking, biking, and transit conditions for an area. This project site is located in an area that has a walk score of 68 (or “Somewhat Walkable”), transit score of 54 (or “Good Transit”), and a bike score of 64 (or “Bikeable”). Figure 10 shows the neighborhood borders in relation to the site location and displays a heat map for walkability and bikeability.

- The site is situated in an area with a “somewhat walkable” walk score because of the few neighborhoods serving retail locations, where some daily errands can be completed by walking.
- The proposed development is located in an area with a “good transit” transit score because of its proximity to various bus lines.
- The site is situated in an area with a “bikeable” bike score due to its proximity to low volume roadways, a number of bike lanes and trails, including the W&OD trail and Four Mile Run trail.

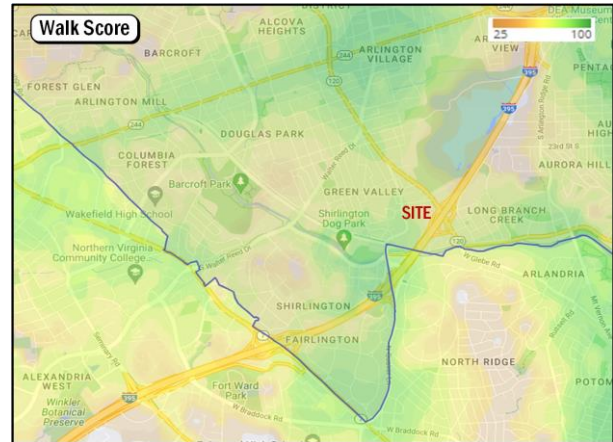


Figure 10: Walkscore of Project Site



## Future Projects

There are several County-wide initiatives, local initiatives, and planned improvements located in the vicinity of the site. These planned projects are summarized below.

## County-wide Initiatives

### Arlington Master Transportation Plan (2011)

The Arlington County Master Transportation Plan (MTP), adopted in 2011 and updated in 2019, outlines goals to improve various modes of transportation throughout the County. The MTP identifies goals and objectives for each mode to improve safety and access for all users, particularly for pedestrians, bicyclists, and transit users. The Arlington Master Transportation Plan's recommended policies for transportation in the County that apply to the proposed development are outlined as follows:

- **Streets (2016)** – The County will address the street system and enhance the transportation network by: (1) Utilizing the plan's street typology to guide street planning and ensure each street type supports the general policies of complete streets and adjacent land uses; (2) Including appropriate facilities to meet and balance the needs of all modes; (3) Constructing/converting some local streets to a pedestrian priority or a shared street; (4) Accommodating travel growth through shifts to non-auto modes; (5) Designing streets to favor lower vehicular speeds; and (6) Maintaining a grid-style network to enhance connectivity. The planned improvements included in the MTP in the vicinity of the site are shown in Figure 11.
- **Transit (2016)** – The County will address the transit system by: (1) Developing a Premium Transit Network of high-frequency service connecting major destinations; (2) Operating a Secondary Transit Network of fixed route services that improves access to destinations across Arlington; (3) Making transit more accessible and convenient to all through enhanced facilities and transit-oriented land use policies; (4) Improving Metrorail services and stations; and (5) Expanding pedestrian access to transit facilities.
- **Pedestrian (2011)** – The County will address the pedestrian system by: (1) Completing the walkway network with appropriate facilities on both sides of arterial streets and at least one side of neighborhood streets; (2) Upgrading existing pedestrian facilities to comply with current standards; (3) Implementing measures aimed at changing motorist behavior to manage vehicular speed

and minimize vehicle/pedestrian conflicts; and (4) Developing strategies to encourage more people to walk.

- **Bicycle (2019)** – The County will address the bicycle system by: (1) Making existing streets safer and more comfortable for bicycling by all users; (2) Expanding travel safety education programs; (3) Providing a network of low-traffic-stress bicycle routes that connect all land uses; (4) Accommodating bicycle infrastructure as part of all street improvement projects; (5) Establishing bicycles as a mainstream travel mode; and (6) Encouraging bicycle facilities, including parking, showers, and lockers. The improvements planned for the bicycle facilities surrounding the site as part of the Plan are shown in Figure 12.
- **Parking and Curb Space (2009)** – The County will address the parking system by: (1) Prioritizing the use of curb space, matching the various types of uses to the most appropriate locations; (2) Promoting on-street parking within residential neighborhoods and on commercial streets to calm traffic; (3) Ensuring the minimum parking needs are met and limit excessive parking; (4) Discouraging off-street surface parking; and (5) Allowing reduced parking space requirements for new developments in close proximity to frequent transit service and requiring enhanced TDM measures.
- **Transportation Demand Management (2008)** – The County will address transportation demand management by: (1) Incorporating comprehensive TDM plans for all site plans to minimize vehicular trips and maximize the use of other modes; (2) Exploring strategies and incentives to achieve TDM measures in existing private buildings; and (3) Applying TDM programs to non-work travel, as well as commuting, through marketing strategies.

A number of elements in the proposed development are consistent with these policies:

- **Pedestrian**
  - Improvements to the adjacent sidewalks.
- **Bicycle**
  - Short-term bicycle parking will be provided along the perimeter of the site.
  - Secure, long-term bike parking will be provided in a bike room on level 2 of the proposed multi-family residential building.
- **Parking and Curb Space**

- On-site parking will be located in an off-street, above-grade parking garage.
- Transportation Demand Management
  - A TMP will be implemented for the development to discourage auto travel and encourage the travel by other modes.

The MTP also identifies the following recommendations in the vicinity of the proposed development:

- Bicycle
  - Improve the safety of the existing at-grade crossing of Shirlington Road and examine alternatives including construction of a grade-separated crossing for the trail.
  - Develop an enhanced bicycle facility on S Glebe Road between Arlington Boulevard (US-50) Trail and Four Mile Run Trail at West Glebe Road.

In direct relation to the proposed development, these recommendations would create additional multi-modal capacity and connectivity to/from the site.

## Local Initiatives

### Four Mile Run Valley Area Plan (2018)

The Four Mile Run Valley Area Plan, adopted in 2018, outlines the vision to preserve and enhance the natural resources, open spaces, and future developments in a way that is compatible with the surrounding area and consistent with the County's overall policies. Area plan themes include:

- Improve Four Mile Run by enhancing the natural areas, create paseo/walkway on the run, and provide additional pedestrian crossings.
- Access/Safety for Pedestrians and Cyclists by improving intersections.
- Space for County needs such as storage, bus parking, civic facilities, and open space.

The proposed development is consistent with the outlined goals. The development includes residential units and provides bicycle accommodation on-site.

## Planned Improvements

### South and West Glebe Road Intersection Improvements (2022)

The intersection of South Glebe Road and West Glebe Road was identified as a high collision intersection as part of the County's High Injury Network. In response to this and the high-volume traffic through the intersection, Arlington County has planned to construct enhancements to the intersection for all users. The intersection of South Glebe Road and West Glebe Road provides a critical connection between Arlington County and the City of Alexandria. The County is collecting community feedback to inform conceptual designs for the intersection.

In direct relation to the proposed development, the enhancements will improve safety and access for residents and visitors to and from the proposed development.

### Shirlington Road Bridge Improvements and Addition (2020)

As part of the Shirlington Road Bridge Improvements and Addition project, Arlington County upgrades and maintains the existing bridge over Four Mile Run. Improvements to the existing bridge include:

- The widening of the sidewalk from 5-feet to 7-feet on the west side of the bridge
- Improved refuge median at the midblock crosswalk near 27<sup>th</sup> Street S
- Upgrading the guardrail system to meet current standards and repairing the deck surface.
- Construction of a new 15-foot-wide pedestrian and bicycle bridge that will connect to Jennie Dean Park.
- Construction of the new Shirlington Road Pedestrian Bridge at the intersection of S Arlington Mill Drive that is currently underway and expected to be completed in 2024.

In direct relation to the proposed development, these infrastructure improvements provide enhanced multimodal connectivity to the surrounding amenities of the proposed development.

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### **South Four Mile Run Drive Complete Streets Project (2021)**

The section of S Four Mile Run Drive between S Walter Reed Drive and S Shirlington Road was identified for a pilot roadway reconfiguration as part of the Four Mile Run Valley Area Plan. S Four Mile Run Drive was highlighted as part of the County's High-Injury Network, with high collision intersections at either end of the corridor. The project aims to reduce vehicle speeds, enhance ramps, shorten pedestrian crossing distances, and improve safety and accessibility to nearby bus stops. This project will improve safety for pedestrians and quality of nearby transit facilities. The long-term vision for the corridor will include a new sidewalk along the south side, with other improvements to be identified as part of the pilot process.

In direct relation to the proposed development, the project will improve safety and accessibility for residents by reducing vehicle speeds and enhancing pedestrian crossings, marking the area safer for those traveling to and from the proposed development. Additionally, the improved bus stops and future sidewalk enhancements will provide residents with better transit options and a more pedestrian-friendly environment.

### **Shirlington Road – Resurfacing for Complete Streets (2023)**

Arlington County's Complete Streets program aims to create safe and accessible streets for all users, including pedestrians, bicyclists, transit riders, and drivers. The Shirlington Road project, spanning from 24<sup>th</sup> Road S to S Four Mile Run Drive, seeks to approve safety and access as part of the 2023 street maintenance schedule. Key goals of the project include reducing accidents, especially high-risk intersections, enhancing multimodal connectivity, and supporting community amenities and transit routes.

In direct relation to the proposed development, the project will enhance safety and accessibility for all residents, offering improved pedestrian and bicycle infrastructure, enhanced transit facilities, and safer driving conditions. The improvements along Shirlington Road will facilitate safer commutes for residents of the proposed development.

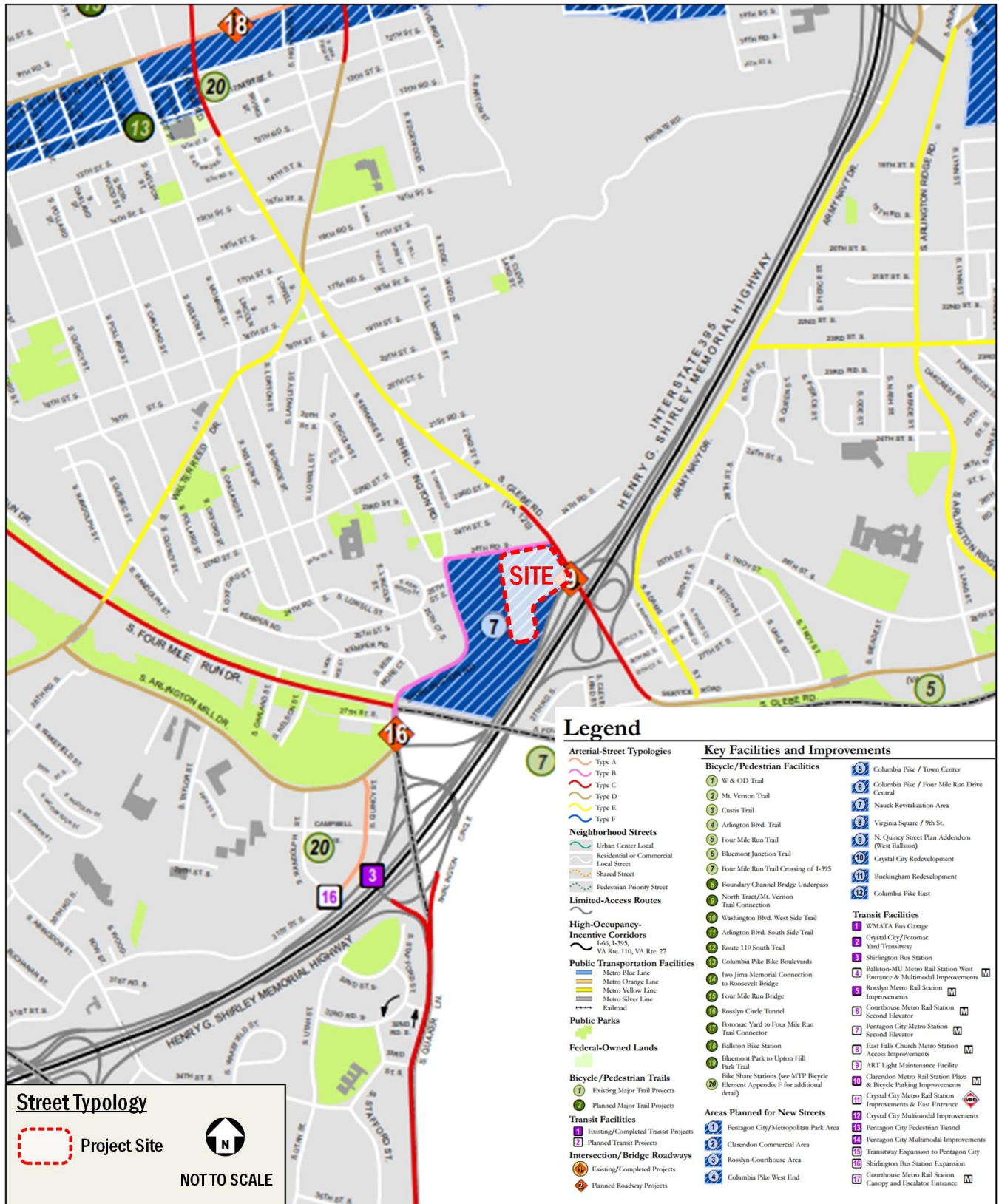


Figure 11: Street Typology (Source: Arlington Master Transportation Plan, 2022)

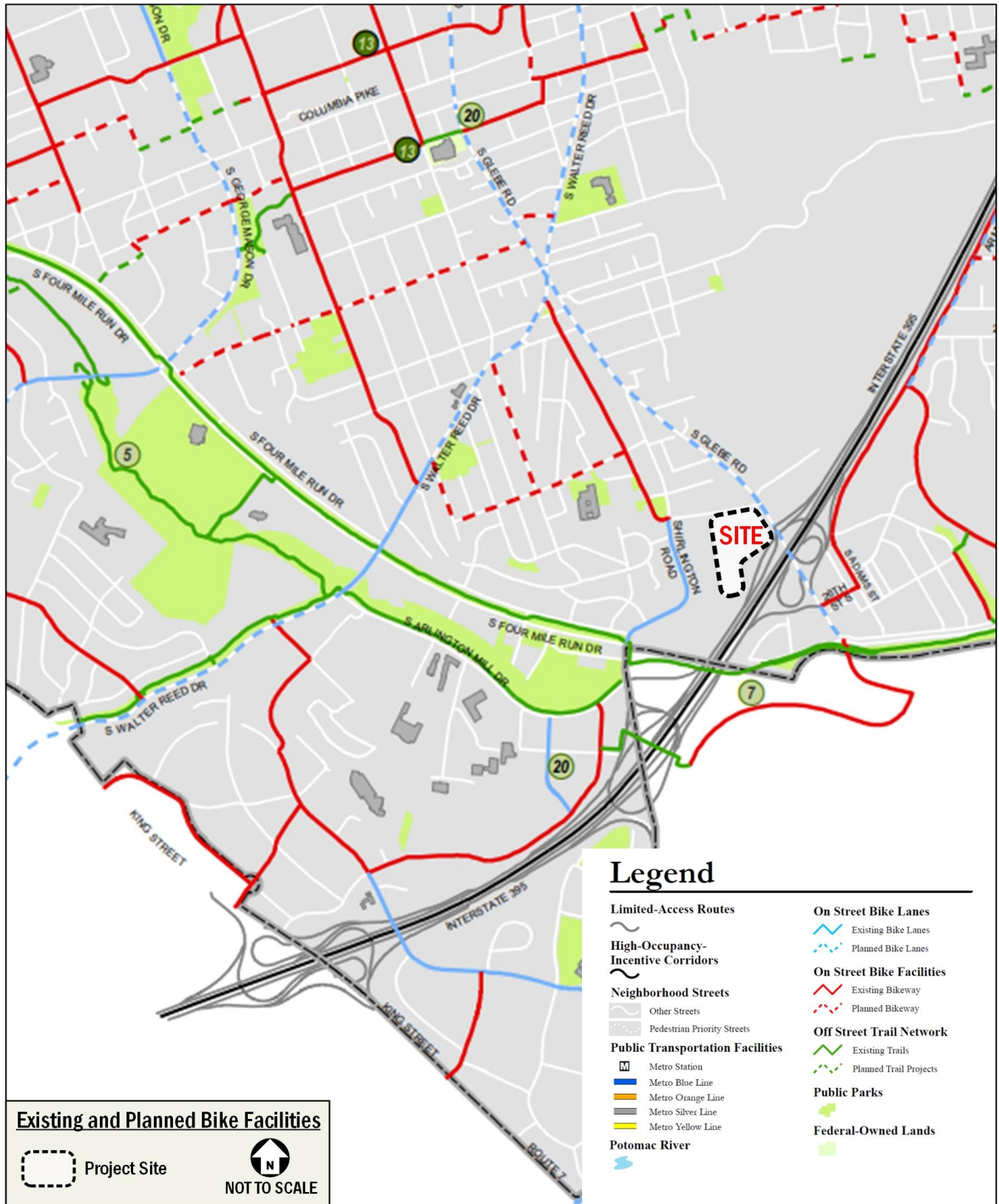


Figure 12: Existing and Planned Bike Facilities (Source: Arlington Master Transportation Plan, 2019)

## Project Design

This chapter reviews the transportation components of the proposed development at 2480 S Glebe Road, including the proposed site plan and access points. It includes descriptions of the site's vehicular access, loading, parking, bicycle, and pedestrian facilities.

### Site Overview

The proposed development will raze the existing hotels and redevelop with a residential development consisting of the following:

- A new multi-family residential building with 495 residential dwelling units
- 37 single-family attached townhomes
- Approximately 582 parking spaces, with 508 new parking spaces in an above-grade parking garage for the multi-family residential building and 74 parking spaces for the single-family attached townhomes
- Loading facilities that will be sufficient to accommodate the practical demands of the site
- Short- and long-term bicycle parking spaces that meet the zoning requirements.

The proposed project build-out year is 2027. The proposed site plan for the redevelopment is shown in Figure 1 and Figure 2.

### Site Access and Circulation

#### Pedestrian Access

The pedestrian access points to the multi-family residential building are located on the extended driveway from S Glebe Road and along the site frontage on 24<sup>th</sup> Road S. These access points are shown on

Figure 13 and Figure 14. A circulation plan showing expected pedestrian routes is shown in Figure 15.

#### Bicycle Access

Secure, long-term bike parking will be located in the northeast corner of the proposed multifamily residential building and accessible via S Glebe Road. Residents will be able to enter/exit the building directly from the bike room door on S Glebe Road or through a ramp from the residential lobby entrance on 24<sup>th</sup> Road S. A circulation plan showing expected bicycle routes is shown in Figure 15.

### Vehicular Access

Vehicular access to the above-grade garage includes one (1) proposed entrance on 24<sup>th</sup> Road S leading to Level 2 of the garage and another via 24<sup>th</sup> Road S that connects to the private internal driveway leading to Level 1. Loading access and access to the townhomes will be provided via the same private internal driveway through 24<sup>th</sup> Road S. Access to the garage and loading facilities is shown on

Figure 13 and Figure 14. A circulation plan showing expected vehicular routes is shown in Figure 15.

### Loading

Per the Arlington County Zoning Ordinance, the following outlines the loading facility requirements for land uses of the development:

- **Residential**  
Multi-family uses with more than 50 dwelling units are required to provide one (1) loading space for each 200 units.

No loading is required for the townhome component of the site. The proposed development will provide two (2) loading spaces that will be sufficient to accommodate the practical demands of the site and meet the zoning requirement. Figure 1 shows the locations of the proposed loading berths.

### Vehicular Parking

The parking provided by the proposed development has been designed to meet the site's parking needs, as shown in Table 1, under RA4.8, Multiple-Family Dwelling and Townhouses requirements.

**Table 1: Proposed Supply Calculations**

Land Use	Size	Vehicle Parking Spaces		
		Required ACZO Ratio <sup>1</sup>	Supply <sup>2</sup>	Proposed
Multifamily Residential (du)	495	1.125/first 200 du + 1/each additional du	520	508
Townhomes (du)	37	0.2/each du for visitors	81	74
<b>Total</b>			<b>601</b>	<b>582</b>

<sup>1</sup> The ACZO minimum vehicle parking supply is calculated based on the requirements of §14.3.7.

<sup>2</sup> Supply is measured in spaces.

### Curbside Management

A review of the existing curbside management was conducted and is shown on Figure 16. Currently, on-street parking is

provided along a portion of the northern side of 24<sup>th</sup> Road S along the site frontage. As part of this project, on-street parking between the western site driveway and S Glebe Road will be removed to accommodate the westbound dedicated left turn lanes into the site. The proposed curbside management is shown in Figure 17.

## ***Project-Related Bicycle and Pedestrian Facilities***

### **Bicycle Facilities**

#### **Bicycle Parking**

Per the Standard Site Plan Conditions, the following outlines the bicycle parking requirements for land uses of the development:

- Residential  
Provide one (1) long-term space for every 2.5 residential dwelling units; and one (1) short-term space for every 50 residential dwelling units.

The proposed development will provide short- and long-term bicycle parking spaces.

### **Pedestrian Facilities**

The existing pedestrian facilities around the site provide a quality walking environment with minimal sidewalk width deficiencies. Pedestrian facilities directly surrounding the site will be improved along the site perimeter. These facilities will provide a more inviting pedestrian environment and comply with the improvements laid out in the Arlington Master Transportation Plan.



Figure 13: Site Access - Ground Floor Plan



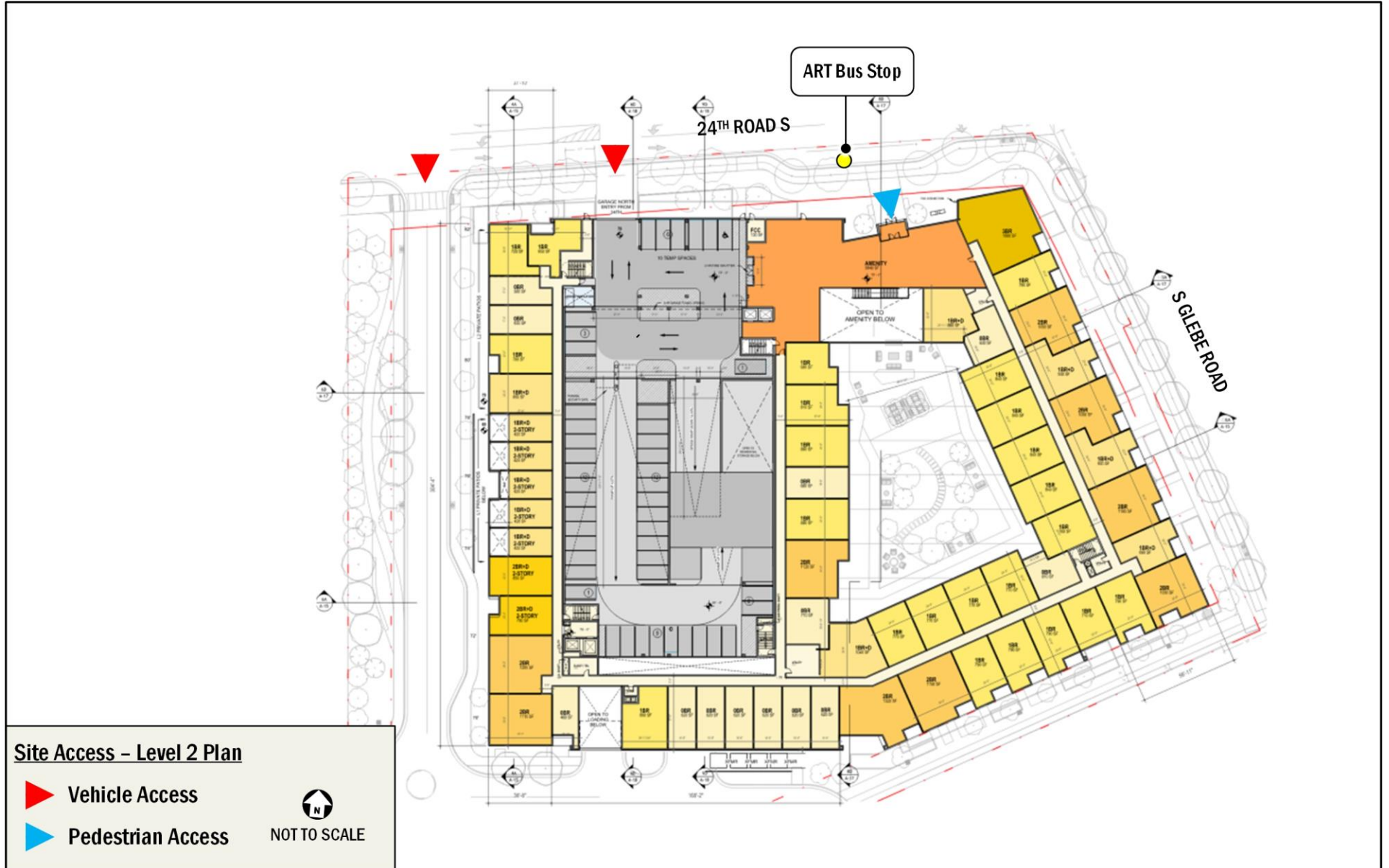


Figure 14: Site Access – Level 2 Plan



Figure 15: Site Circulation

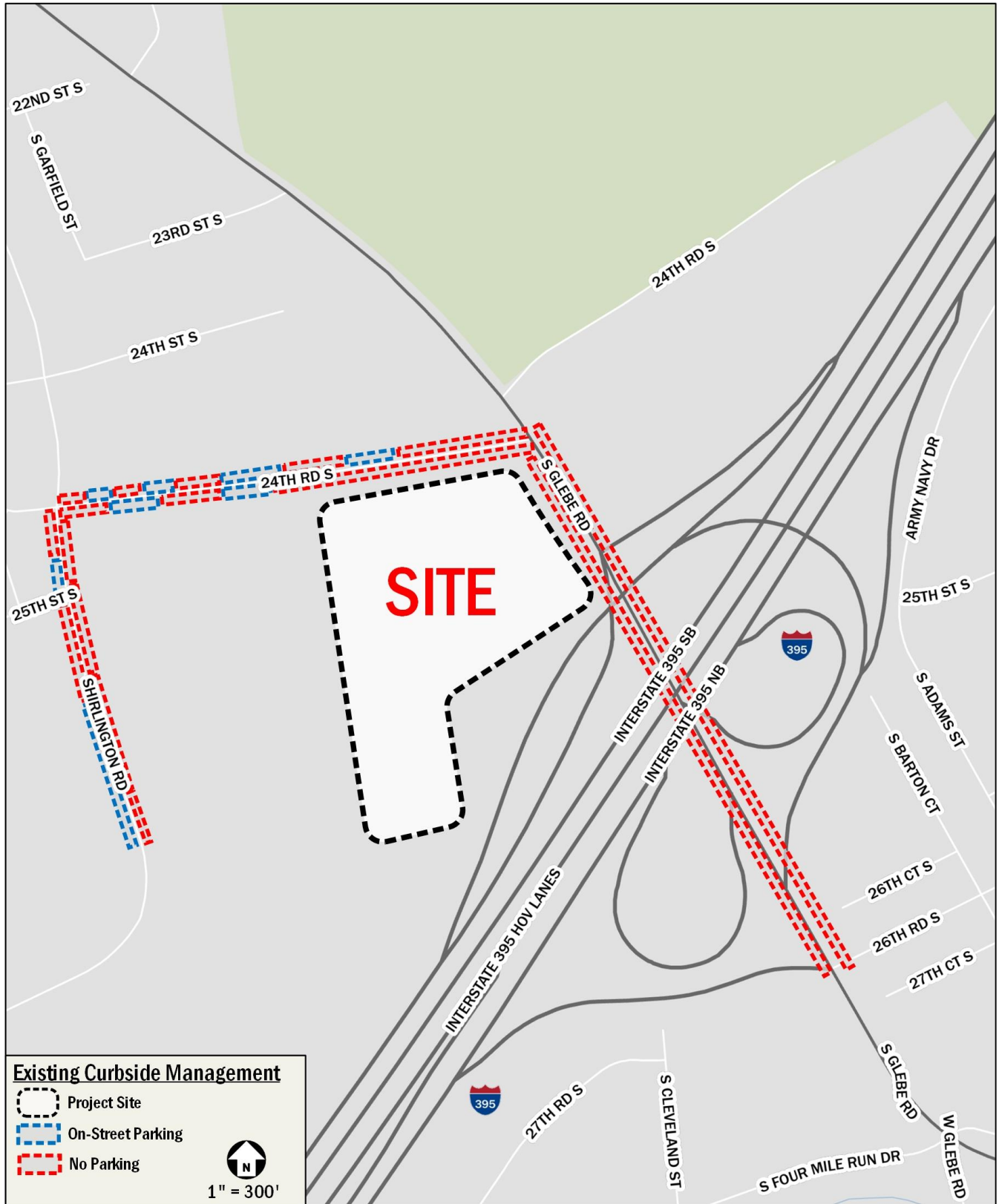


Figure 16: Existing Curbside Management

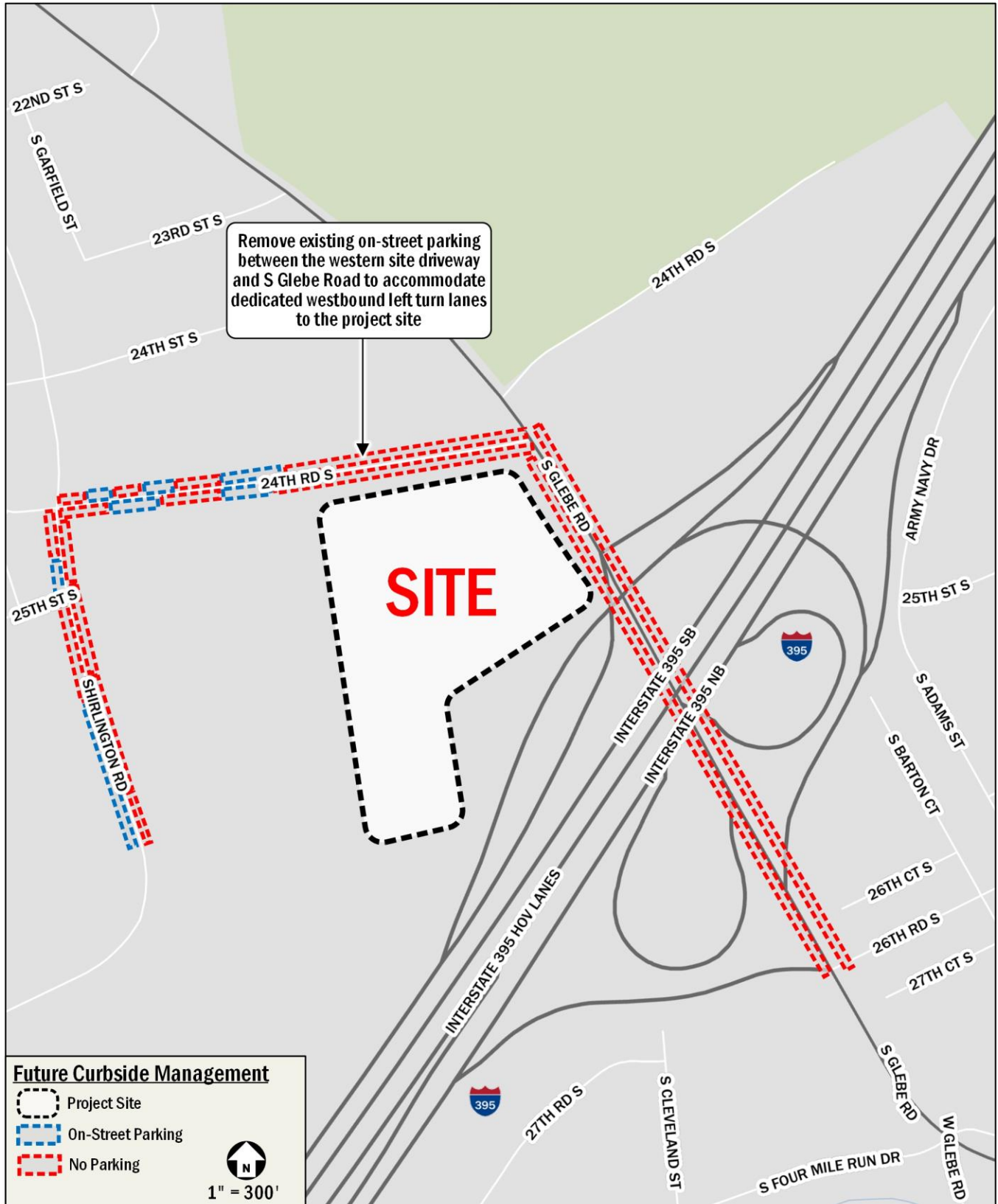


Figure 17: Future Curbside Management

## Transit Facilities

This chapter discusses the existing and proposed transit facilities in the vicinity of the site, accessibility to transit, and evaluates the overall transit impacts of the project.

The following conclusions are reached within this chapter:

- The development has excellent access to transit.
- There are 11 bus stops within a quarter mile of the site. These stops are directly served by WMATA (Metrobus) and Arlington Transit (ART) routes.

The site is well-served by several transit options under existing conditions. Combined, these transit services provide local, citywide, and regional transit connections and link the site with major cultural, residential, employment, and commercial destinations throughout the region. Figure 18 identifies the major transit routes, stations, and stops in the study area.

### **Metrorail Service**

While the site has no nearby Metro stations, several of the bus services that operate in the area stop at Metro stations. Both Metrobus and ART Transit routes that pass through the site stop at Pentagon, Pentagon City and Crystal City Metro stations.

The Pentagon, Pentagon City, and Crystal City Metro Stations serve the Blue and Yellow Lines. The Blue Line travels north from Springfield, VA to Rosslyn then continues east to Largo, MD. Trains run approximately every 10 minutes during the morning and afternoon peak periods. They run about every 12 minutes during weekday non-peak periods and every 15 minutes on weekends. The Yellow Line travels north from Huntington, VA to Mount Vernon Square in Washington DC. Trains run approximately every 6 minutes during the morning and afternoon peak periods. They run about every 8 minutes during weekday non-peak periods and every 8 minutes on weekends.

Figure 19 shows the 10-minute, 20-minute, and 30-minute transit travel shed to and from the proposed development. As shown in the transit travel shed, most of the Northern Virginia area is accessible via transit within 30 minutes from the proposed development.

### **Bus Service**

A review of the existing bus transit stops within a quarter-mile radius of the site, detailing individual bus stop amenities and conditions, is shown in Table 2. There are 11 bus stops within

one-quarter mile of the site: two (2) on 24<sup>th</sup> Road S, two (2) on S Kenmore Street, two (2) on 26<sup>th</sup> Road S, one (1) on Shirlington Road, two (2) on S Adams Street, and two (2) on Army Navy Drive. These bus routes expand and provide connectivity to the greater Washington Metropolitan Area. Located approximately 0.8 miles away from the site, the Shirlington Transit Center is a public bus station and transfer point for various Metrobus and ART bus services in South Arlington. There are 12 different routes that run through the Shirlington Transit Center.

The site is served by several bus lines and routes along multiple primary corridors. These bus lines connect the site to many areas of Virginia and the District, including several Metrorail stations serving all six (6) Metrorail lines. Table 3 shows a summary of the bus route information for the routes that serve the site, including service hours, headway, and distance to the nearest bus stop.

### **Planned Transit Facilities**

There are no transit improvements that are planned or approved within a quarter-mile radius of the project site. Planned improvements to the corridors bordering the site will improve the connectivity and reliability of transit-related trips to and from the site.

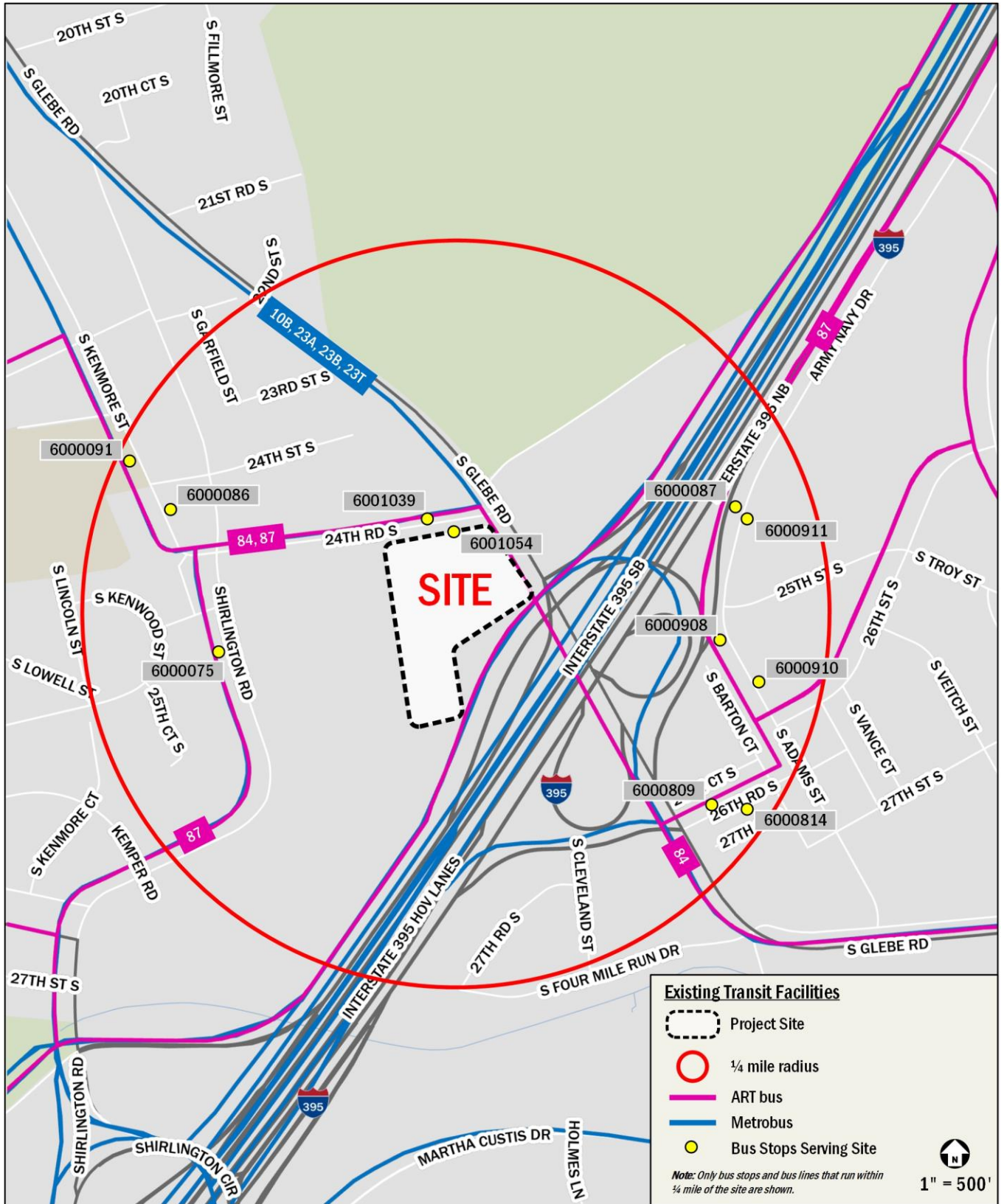


Figure 18: Existing Transit Facilities

**Table 2: Bus Stop Inventory**

Location	Stop ID	Routes Served	Features							
			Sign	ADA Landing Pad	Sidewalk	Street Lighting	Info Case	Seating	Shelter	Trash
24th Road S & S Glebe Road FS (WB)	6001039	84, 87	●	●	●	●	●			
24th Road S & S Glebe Road NS (EB)	6001054	84, 87	●	●	●		●			
Kenmore Street & 24th Street	6000091	10A, 23A, 23B, 23T, 84	●	●	●	●	●			
Kenmore Street & 24th Street	6000086	10A, 23A, 23B, 23T, 84	●	●	●	●		●	●	●
Shirlington Road & 25th Street S	6000075	10A, 23A, 23B, 23T, 84	●	●	●			●	●	●
26th Road S & S Glebe Road (WB)	6000809	84	●	●	●	●	●	●	●	●
26th Road S & S Glebe Road (EB)	6000814	84	●	●	●	●	●	●	●	●
S Adams Street & 26th Street S (NB)	6000910	87	●	●	●		●			
S Adams Street & 26th Street S (SB)	6000908	87	●	●	●	●	●	●		
Army Navy Drive AT 2455 (NB)	6000911	87	●	●	●	●	●	●	●	●
Army Navy Drive From 2455 (SB)	6000087	87	●	●	●	●	●	●	●	●

\*Bus stops shown within a ¼ mile radius of the site.

**Table 3: Bus Route Information**

Route Number	Route Name	Service Hours	Headway	Walking Distance to Nearest Bus Stop
84	Douglas Park – Nauck – Pentagon City	Weekdays: 5:50AM-7:46PM	5-15 min	<0.1 miles, 2 minutes
87, 87A, 87P	Pentagon Metro – Army Navy Drive – Shirlington	Weekdays: 5:50AM-11:32PM Weekend: 7:00AM-11:53PM	7-12 min	<0.1 miles, 2 minutes
10B	Hunting Point – Ballston	Weekdays: 5:30AM-12:32AM Weekend: 6:00AM-1:34AM / 6:00AM-11:38PM	10-15 min	0.2 miles, 5 minutes
23A, 23B, 23T	McLean-Crystal City Line	Weekdays: 6:22AM-2:30AM Weekend: 6:06AM-2:37AM	15-30 min	0.2 miles, 5 minutes

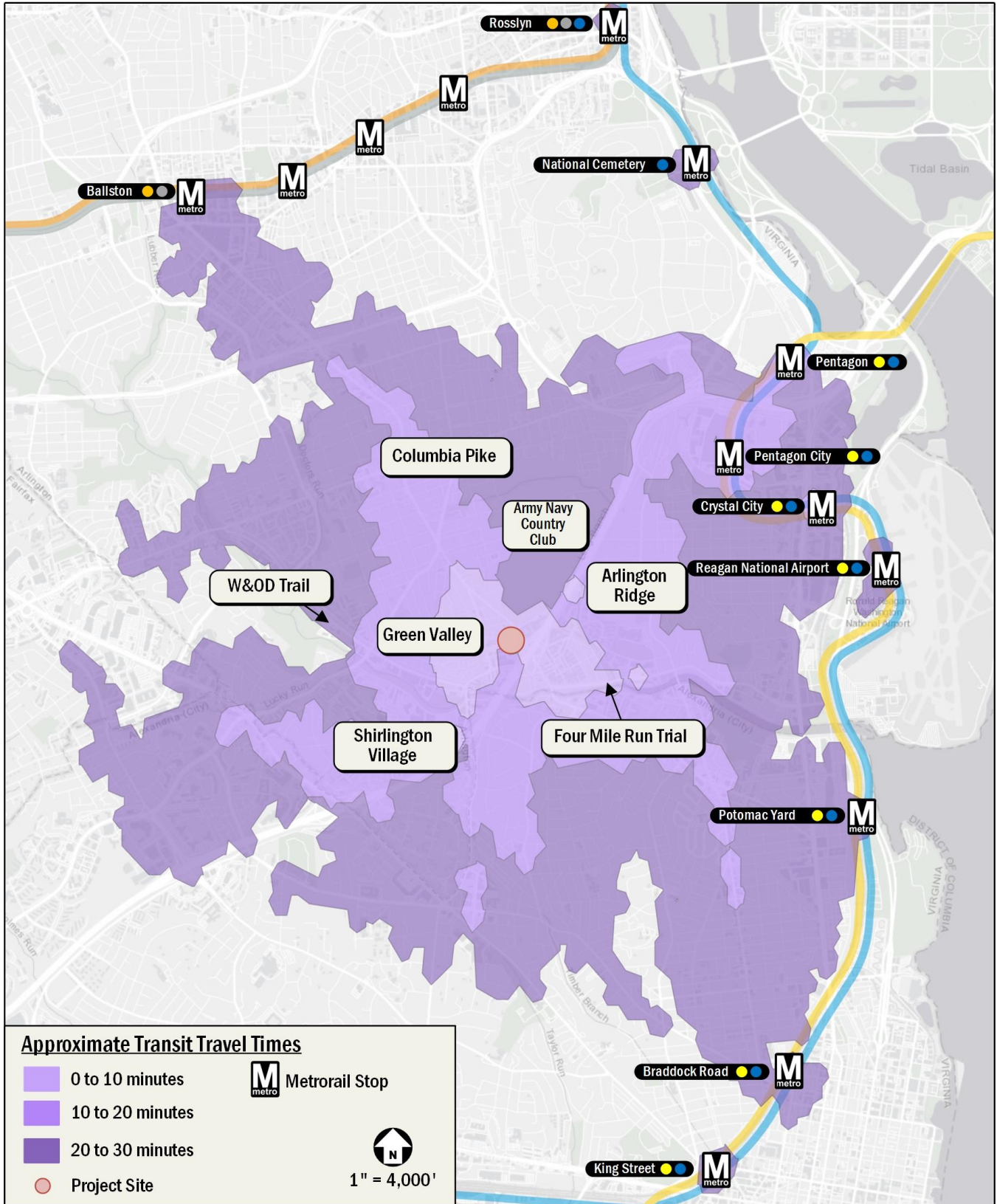


Figure 19: Approximate Transit Travel Times



## Bicycle Facilities

This chapter summarizes existing and future bicycle access and reviews the quality of cycling routes to and from the site.

The following conclusions are reached within this chapter:

- The site has access to several on- and off-street bicycle facilities, including bicycle lanes on Shirlington Road, and off-street trails on the Four Mile Run and W&OD trail.
- Future planned projects in the vicinity of the site include bike lanes on S Glebe Road. This will further improve bicycle access and connectivity by upgrading the bicycle facilities existing along these routes.
- As part of the proposed development, short-term bicycle parking spaces will be provided along the site's frontage. Long-term bicycle parking spaces will be provided for the use of residential tenants.

### **Existing Bicycle Facilities**

The site has access to existing on- and off-street bicycle facilities, including bicycle lanes on Shirlington Road, and off-street trails on Four Mile Run and the W&OD trail. Figure 20 shows the existing facilities within the study area.

Arlington County publishes an annual Bicycle Comfort Level Map highlighting the most comfortable bicycle routes throughout Arlington County. The map uses a rating system of "perception of comfort" to show which routes are most comfortable. Routes are rated as 'Easy', 'Medium', 'Challenging', 'Expert Level', or 'Prohibited'. The most recent publication of the map (2022) shows a mix of bicycle routes in the vicinity of the site rated as 'Medium' and 'Challenging'. Shirlington Road is rated 'Medium' adjacent to the site.

Figure 21 shows the 10-minute, 20-minute, and 30-minute bicycle travel shed for the proposed development. Within a 10-minute bicycle ride, the proposed development has access to several off-street trails including the W&OD trail and the Four Mile Run trail. Within a 20-minute bicycle ride, the proposed development has access to public transportation stops, Metro stations served by the Blue and Yellow Lines, the Crystal City VRE Station, retail zones, residential neighborhoods, and community amenities. Within a 30-minute bicycle ride, the proposed development is accessible to most of Arlington and Alexandria, and several destinations in the District including Downtown, and the Southwest Waterfront.

### **Capital Bikeshare**

In addition to personal bicycles, the Capital Bikeshare program provides additional cycling options for residents and patrons of the proposed development. The Capital Bikeshare program has placed over 700 Bikeshare stations across Washington, DC, Arlington County, VA, City of Alexandria, VA, Montgomery County, MD, Fairfax County, VA, Prince George's County MD, and most recently the City of Falls Church, VA, with over 6,000 bicycles provided.

There are three (3) existing Capital Bikeshare stations with 36 available bicycle docks within a half-mile of the site, with the closest docking station being located Shirlington Road.

### **E-Scooters and Dockless E-Bicycles**

Three (3) electric-assist scooter (e-scooter) and electric-assist bicycle (e-bike) companies provide Shared Mobility Device (SMD) service in Arlington County as of June 2024: Bird, Lime, and Spin. These SMDs are provided by private companies that give registered users access to a variety of e-scooter and e-bike options. These devices are used through each company-specific mobile phone application. Many SMDs do not have designated stations where pick-up/drop-off activities occur like with Capital Bikeshare; instead, many SMDs are parked in public space, most commonly in the "furniture zone" (the portion of sidewalk between where people walk and the curb, often where other street signs, street furniture, trees, parking meters, etc. are found)

### **Planned Bicycle Facilities**

Existing bike facilities have been recommended by the Arlington Master Transportation Plan to be upgraded in the future, as shown on Figure 12, including creating bicycle lanes along S Glebe Road between Columbia Pike and W Glebe Road.

The proposed development will provide short- and long-term bicycle parking spaces. Bicycle access to the secure long-term bicycle parking room located in the northeast corner of the proposed multifamily residential building will be provided via S Glebe Road.



Figure 20: Existing Bicycle Facilities

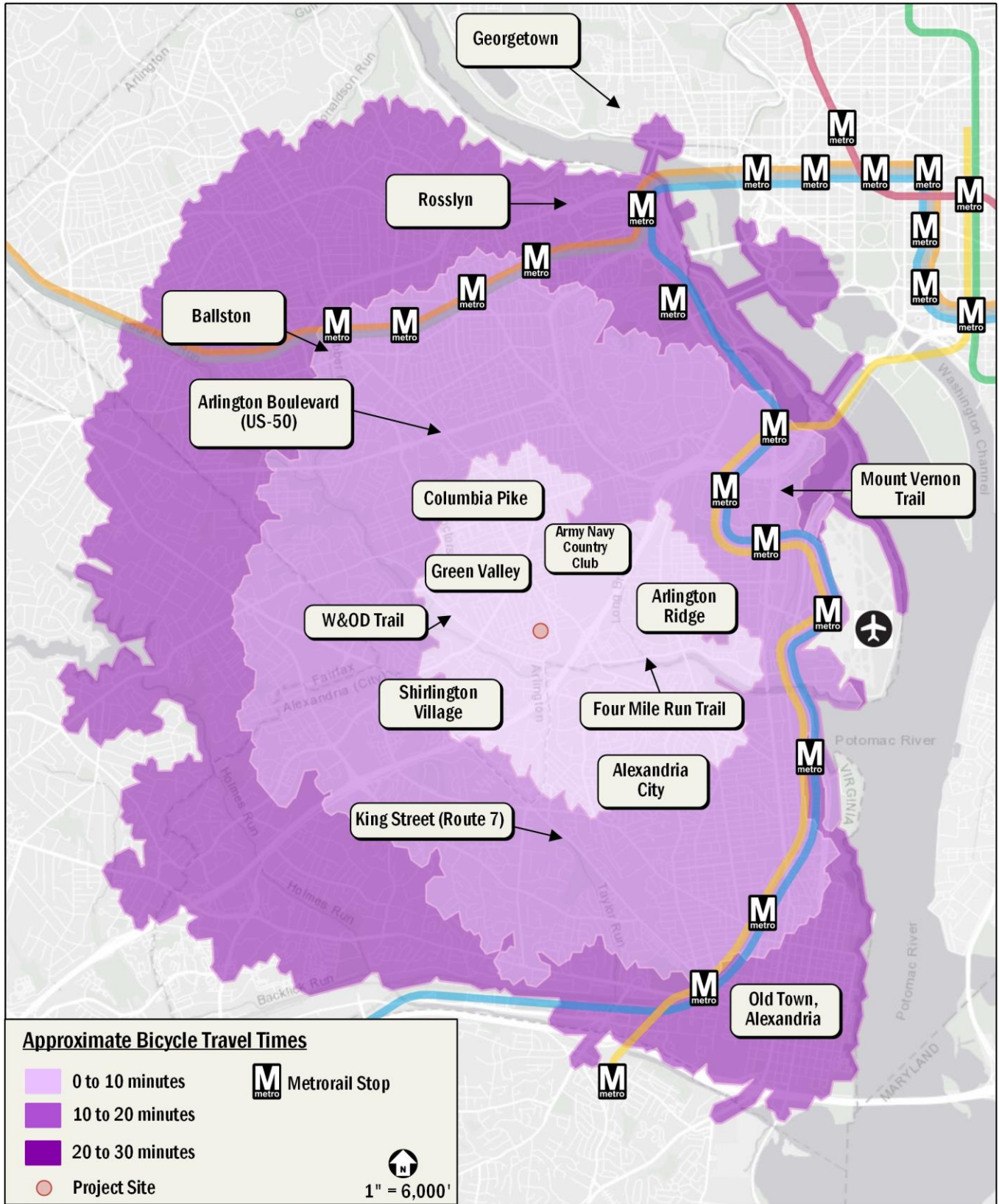


Figure 21: Approximate Bicycle Travel Times



Figure 22: Existing and Future Bicycle Facilities

## Pedestrian Facilities

This chapter summarizes the existing and future pedestrian access to the site and reviews walking routes to and from the site.

The following conclusions are reached within this chapter:

- The existing pedestrian infrastructure surrounding the site provides a quality walking environment. There are sidewalks along the majority of primary routes to pedestrian destinations with few gaps in the system.
- Planned and proposed improvements to the pedestrian infrastructure surrounding the site will improve pedestrian comfort and connectivity.

### Pedestrian Study Area

Pedestrian facilities within a quarter mile of the site were evaluated as well as routes to nearby transit facilities, including bus stops. The site is accessible to transit options such as the two (2) bus stops nearest to the site, along 24<sup>th</sup> Road S to the north, two (2) bus stops along S Kenmore Street, and one (1) bus stop on Shirlington Road to the west. In general, existing pedestrian facilities surrounding the site provide comfortable walking routes to and from nearby transit options. However, there are some areas of concern within the study area that negatively impact the quality and attractiveness of the walking environment. This includes physical barriers that limit pedestrian connectivity.

Figure 23 shows expected pedestrian pathways, walking time and distances, and barriers or areas of concern. I-395 is a barrier between the project site and neighborhoods to the east and to the south. Although I-395 is not a full pedestrian barrier, it presents challenges for pedestrians by limiting pedestrian connection to sidewalks along S Glebe Road.

Figure 24 shows the 10-minute, 20-minute, and 30-minute walk travel shed for the proposed development. Within a 10-minute walk, the proposed development has access to several destinations including transit bus stops, Capital Bikeshare docking stations, convenient stores and small retail, nearby residential neighborhoods, and community amenities. Within a 10-minute walk, the proposed development has access to destinations such as residential neighborhoods to the north, west, southwest, and southeast. These neighborhoods include Green Valley, Shirlington, North Ridge, and Long Branch Creek. Within a 20-minute walk, the proposed development has access

to destinations including WMATA Metrorail stations such as Ronald Reagan Washington Airport station, Crystal City station and the Pentagon City station, all serving the Blue and Yellow Lines. These lines provide connections to Metro transfer stations which provide connections to the greater Washington Metropolitan region.

### Existing Pedestrian Facilities

A review of pedestrian facilities surrounding the proposed development shows that many facilities provide a quality walking environment. Sidewalks, crosswalks, and curb ramps are evaluated based on the guidelines set forth by the Arlington County, and ADA standards.

### Sidewalks

Figure 25 shows a detailed inventory of the existing pedestrian infrastructure surrounding the site. It should be noted that the sidewalk widths are shown in Figure 25. A summary of sidewalk and buffer width requirements, per the Master Transportation Plan, is shown in Table 4.

**Table 4: Sidewalk and Buffer Requirements**

Street Typology	Minimum Requirement
<b>Arterials</b>	
Type A	10-16 ft sidewalk 6 ft buffer
Type B	6-12 ft sidewalk 6 ft buffer
Type C	6-8 ft sidewalk 6 ft buffer
Type D	6-8 ft sidewalk 5-6 ft buffer with breaks
Type E	5-6 ft sidewalk 4-6 ft buffer
Type F	6 ft sidewalk or 10 ft shared-use path 8+ ft buffer
<b>Non-Arterial</b>	
Urban Center Local	6-8 ft sidewalk 4-6 ft buffer
Neighborhood	4-6 ft sidewalk 2-4 ft buffer
Alley/Service	None/5 ft sidewalk with limited landscaping
Transitway	10-12 ft shared-use path on each side 6 ft buffer

### Curb Ramps

ADA standards require that curb ramps be provided wherever an accessible route crosses a curb and must have a detectable warning. Additionally, curb ramps shared between two crosswalks are not desired. As shown in Figure 25, under existing conditions the majority of curb ramps meet ADA standards.

Within the study area, the majority of roadways have existing sidewalks on both sides, with few deficiencies. The deficiencies identified were a portion of the sidewalk on the north side of 24<sup>th</sup> Road S that does not have a sidewalk located northeast of the site. Some residential sidewalks north of the site's frontage on 24<sup>th</sup> Road S have sidewalk widths less than five (5) feet. All primary pedestrian destinations are accessible via routes with sidewalks, most of which meet Arlington County and ADA standards.

Overall, the site is situated within a general urban/suburban transportation network, with quality pedestrian access.

### ***Planned Pedestrian Facilities***

As a result of the development, pedestrian facilities around the perimeter of the site will be improved to meet or exceed Arlington County and ADA standards. The pedestrian improvements will create a comfortable environment for residents that meet or exceed width requirements and provide a more inviting pedestrian environment.

Planned and proposed pedestrian improvements are shown in Figure 27.



Figure 23: Pedestrian Pathways

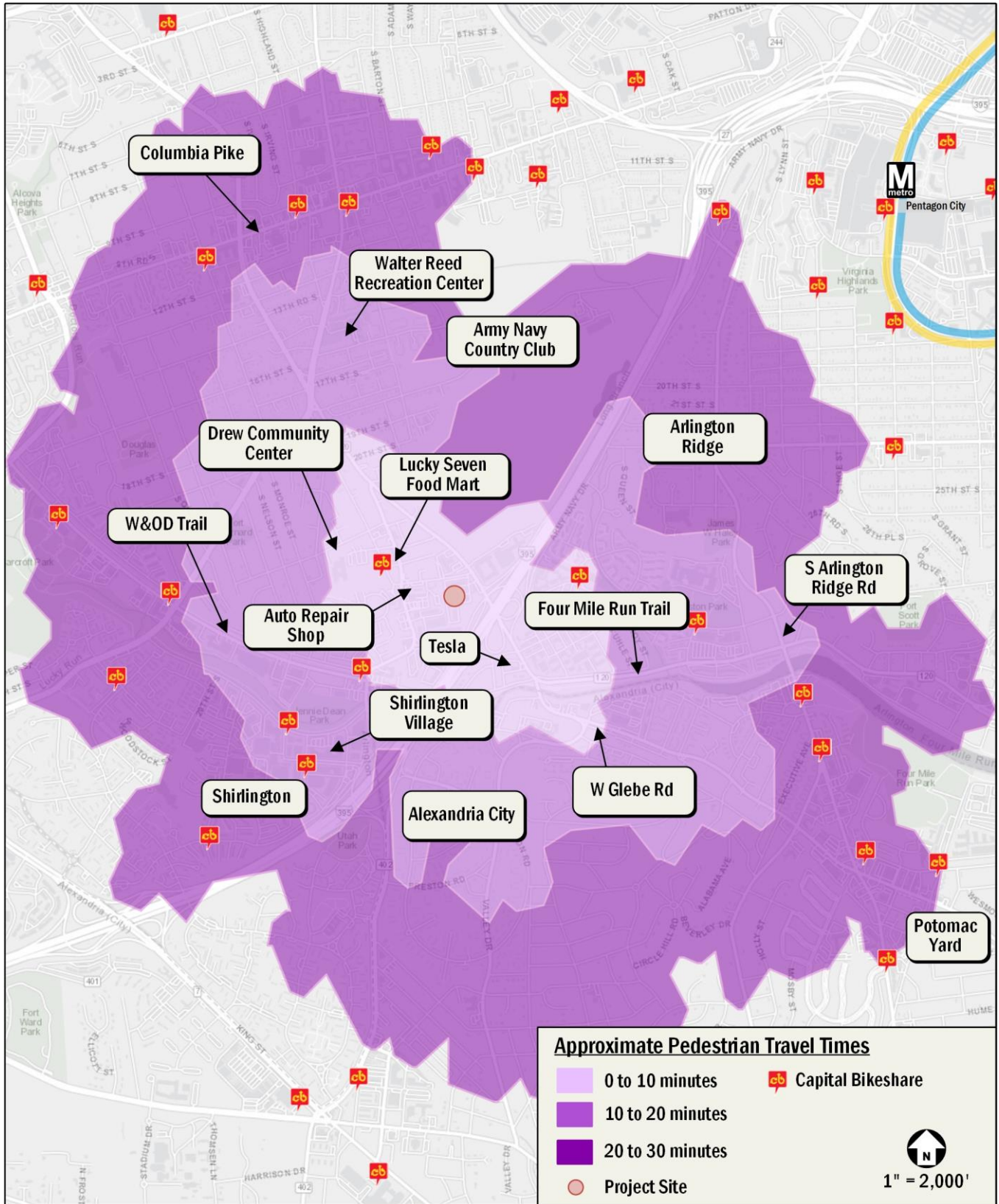


Figure 24: Approximate Pedestrian Travel Times



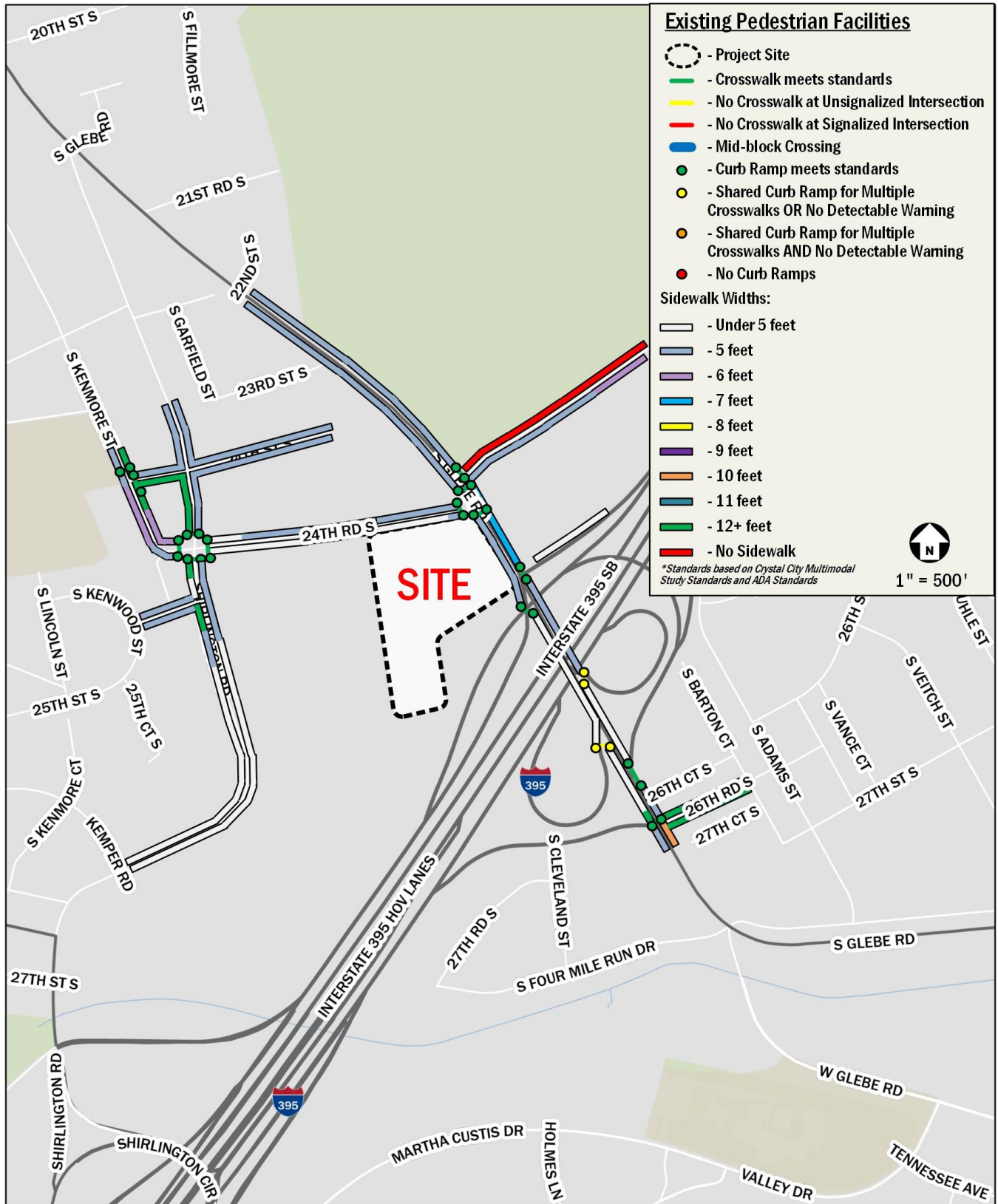


Figure 25: Existing Pedestrian Facilities

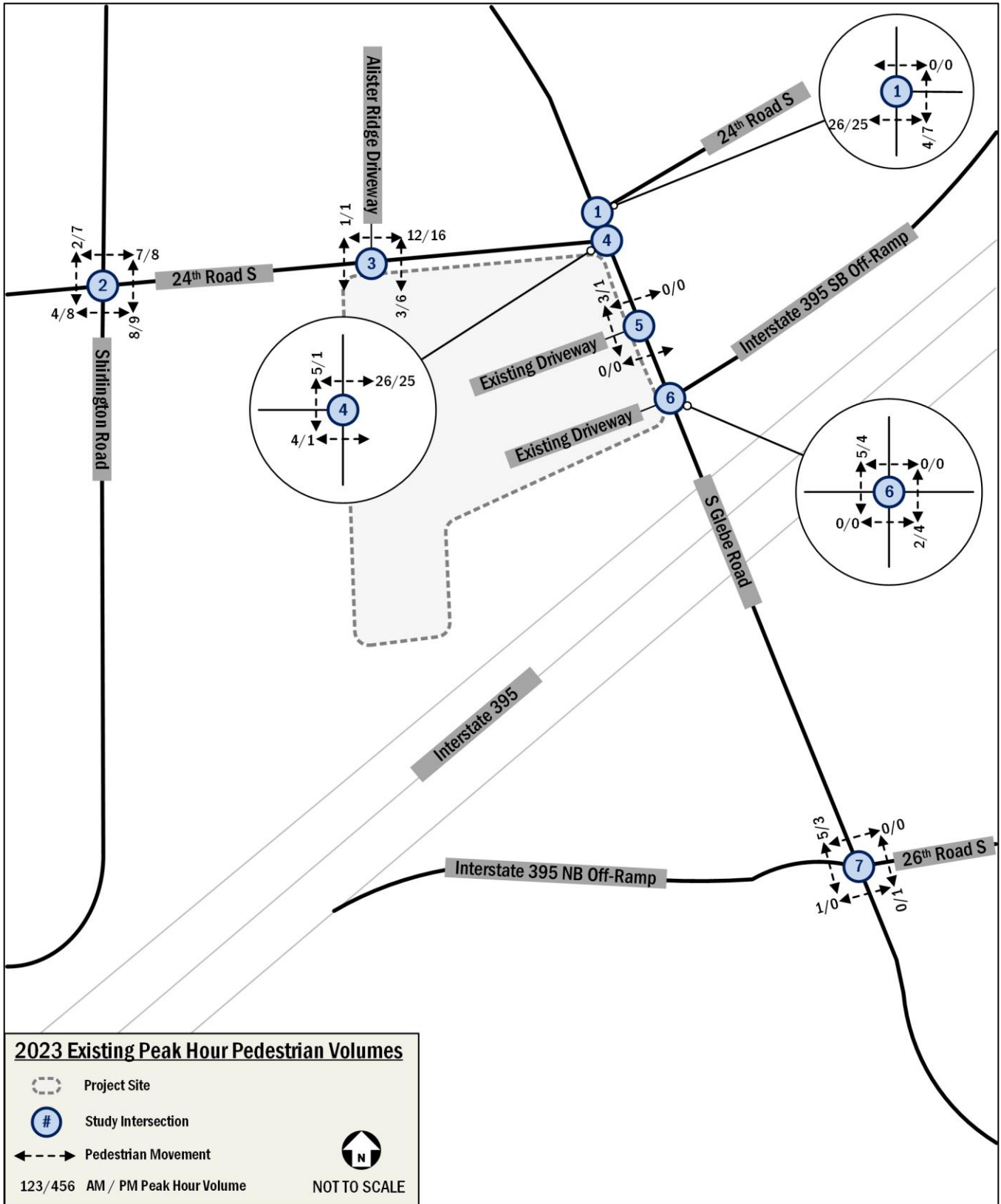


Figure 26: 2023 Existing Peak Hour Pedestrian Volumes



Figure 27: Planned and Proposed Pedestrian Improvements

## Travel Demand Assumptions

This chapter outlines the transportation demand of the proposed development at 2480 S Glebe Road. It reviews the expected mode splits, multimodal trip generation, and the trip distribution and routing assumptions, which form the basis for the chapters that follow.

### Mode Split Methodology

Mode split (also called mode share) is the percentage of travelers using a particular type (or mode) of transportation when traveling. The main source of mode split information for this report was based on Census data using Traffic Analysis Districts (TADs), Traffic Analysis Zones (TAZs), data contained in the WMATA Ridership Survey, the Arlington County Mode Share Assumptions for Shirlington/South Arlington, and transportation studies from previous developments near the project site.

### Residential Mode Splits

Residential mode splits were primarily based on Census data at the TAD level for commuters with origins in the TAD. Table 5 summarizes the data that was used to establish the residential mode split assumptions for this report.

**Table 5: Summary of Residential Mode Split Data**

Information Source	Mode					
	SOV	Carpool	Transit	Bike	Walk	Telecommute
Census Transportation Planning Products (TAZ 00021521)	56%	17%	17%	4%	5%	1%
Census Data (Tract 1031)	58%	6%	10%	5%	11%	10%
WMATA Ridership Survey (average for Suburban-Inside the Beltway)	39%		49%	12%		---
Arlington County Mode Share Assumptions for South Arlington/Shirlington (Productions)	52%		41%	3%	4%	---
Dolley Madison Towers Report	52%	45%	--	--	3%	
Twenty400 Report	87%	8%	--	3%	2%	
Twenty400 Report	41%	47%	--	7%	5%	
Twenty400 Report	46%	19%	1%	23%	11%	

The site has multiple bus stops in the vicinity of the site. It is expected that a portion of trips will be by bus, bicycle, or on foot during the morning and afternoon peak hours, rather than by personal vehicle. Based on this, the auto mode splits for the development were determined to be 65%. The proposed mode

splits were vetted by Arlington County during the scoping process. Table 6 shows the mode split for the development.

**Table 6: Summary of Mode Split Assumptions by Land Use**

Land Use	Mode			
	Auto	Transit	Bike	Walk
Residential	65%	25%	4%	6%

### Trip Generation Methodology

Weekday peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) Trip Generation, 11<sup>th</sup> Edition. This methodology was supplemented to account for the urban nature of the project and to generate trips for multiple modes, as vetted by Arlington County.

Trip generation was calculated based on the following:

- Existing Hotels
  - ITE Land Use 310, Hotel, setting/location of General Urban/Suburban
- Proposed Multifamily Residential
  - ITE Land Use 221, Mid-Rise Multifamily Housing, setting/location of General Urban/Suburban and Not Close to Rail Transit
- Proposed Townhomes
  - ITE Land Use 215, Single-Family Attached Townhomes, setting/location General Urban/Suburban and Not Close to Rail Transit

The trips were then split into different modes using assumptions outlined in the mode split section of this report. A summary of the net new multi-modal trip generation for the proposed development as compared to the existing uses on site is shown in Table 7 for the weekday morning and weekday afternoon peak hours.

Existing trip generation based on ITE is provided for comparison purposes only. Existing vehicular trips associated with the hotels will be removed from the network in the capacity analysis based on field-collected count data at the existing driveways.

Table 8 shows the in and out traffic movement counts at each of the existing driveways during the weekday morning and afternoon peak hours. As shown in Table 9, as compared to the existing uses of the site, the proposed development will result in

an increase in of 76 vehicular trips in the AM peak hour and an increase of 59 vehicular trips in the PM peak hour.

**Table 7: ITE Multi-Modal Trip Generation**

Mode	Land Use	Mode Split %	Quantity	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Auto	Residential (Mid Rise)	65%	495	31 veh/hr	103 veh/hr	134 veh/hr	76 veh/hr	49 veh/hr	125 veh/hr
	Residential (Townhomes)		37	3 veh/hr	9 veh/hr	12 veh/hr	8 veh/hr	6 veh/hr	14 veh/hr
	Existing Hotel (Removed)		120	-20 veh/hr	-14 veh/hr	-34 veh/hr	-20 veh/hr	-20 veh/hr	-40 veh/hr
	Existing Hotel (Removed)		199	-34 veh/hr	-26 veh/hr	-60 veh/hr	-40 veh/hr	-38 veh/hr	-78 veh/hr
	<b>Total Proposed</b>				<b>-20 veh/hr</b>	<b>72 veh/hr</b>	<b>52 veh/hr</b>	<b>24 veh/hr</b>	<b>-3 veh/hr</b>
Transit	Residential (Mid Rise)	25%	495	14 ppl/hr	47 ppl/hr	61 ppl/hr	35 ppl/hr	22 ppl/hr	57 ppl/hr
	Residential (Townhomes)		37	1 ppl/hr	4 ppl/hr	5 ppl/hr	3 ppl/hr	3 ppl/hr	6 ppl/hr
	Existing Hotel (Removed)		120	-16 ppl/hr	-12 ppl/hr	-28 ppl/hr	-16 ppl/hr	-16 ppl/hr	-32 ppl/hr
	Existing Hotel (Removed)		199	-27 ppl/hr	-21 ppl/hr	-48 ppl/hr	-32 ppl/hr	-31 ppl/hr	-63 ppl/hr
	<b>Total Proposed</b>				<b>-28 ppl/hr</b>	<b>18 ppl/hr</b>	<b>-10 ppl/hr</b>	<b>-10 ppl/hr</b>	<b>-22 ppl/hr</b>
Bike	Residential (Mid Rise)	4%	495	2 ppl/hr	8 ppl/hr	10 ppl/hr	6 ppl/hr	3 ppl/hr	9 ppl/hr
	Residential (Townhomes)		37	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	0 ppl/hr	1 ppl/hr
	Existing Hotel (Removed)		120	-3 ppl/hr	-1 ppl/hr	-4 ppl/hr	-3 ppl/hr	-2 ppl/hr	-5 ppl/hr
	Existing Hotel (Removed)		199	-4 ppl/hr	-4 ppl/hr	-8 ppl/hr	-5 ppl/hr	-5 ppl/hr	-10 ppl/hr
	<b>Total Proposed</b>				<b>-5 ppl/hr</b>	<b>4 ppl/hr</b>	<b>-1 ppl/hr</b>	<b>-1 ppl/hr</b>	<b>-4 ppl/hr</b>
Walk	Residential (Mid Rise)	6%	495	3 ppl/hr	12 ppl/hr	15 ppl/hr	8 ppl/hr	6 ppl/hr	14 ppl/hr
	Residential (Townhomes)		37	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	0 ppl/hr	1 ppl/hr
	Existing Hotel (Removed)		120	-4 ppl/hr	-3 ppl/hr	-7 ppl/hr	-4 ppl/hr	-4 ppl/hr	-8 ppl/hr
	Existing Hotel (Removed)		199	-7 ppl/hr	-5 ppl/hr	-12 ppl/hr	-8 ppl/hr	-7 ppl/hr	-15 ppl/hr
	<b>Total Proposed</b>				<b>-8 ppl/hr</b>	<b>5 ppl/hr</b>	<b>-3 ppl/hr</b>	<b>-3 ppl/hr</b>	<b>-5 ppl/hr</b>

**Table 8: Existing Driveway Counts**

Location	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
24 <sup>th</sup> Road S	6 veh/hr	6 veh/hr	12 veh/hr	10 veh/hr	13 veh/hr	23 veh/hr
S Glebe Rd – Northern Curb Cut	23 veh/hr	33 veh/hr	56 veh/hr	28 veh/hr	25 veh/hr	53 veh/hr
S Glebe Rd – Southern Curb Cut	0 veh/hr	2 veh/hr	2 veh/hr	1 veh/hr	3 veh/hr	4 veh/hr
<b>Total</b>	<b>29 veh/hr</b>	<b>41 veh/hr</b>	<b>70 veh/hr</b>	<b>39 veh/hr</b>	<b>41 veh/hr</b>	<b>80 veh/hr</b>

**Table 9: Comparison of Auto Trips**

Program	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Proposed Site Total (ITE)	34 veh/hr	112 veh/hr	146 veh/hr	84 veh/hr	55 veh/hr	139 veh/hr
Existing Driveway Counts	29 veh/hr	41 veh/hr	70 veh/hr	39 veh/hr	41 veh/hr	80 veh/hr
<b>Total (Proposed – Existing)</b>	<b>+5 veh/hr</b>	<b>+71 veh/hr</b>	<b>+76 veh/hr</b>	<b>+45 veh/hr</b>	<b>+14 veh/hr</b>	<b>+59 veh/hr</b>

## Traffic Operations

This chapter provides a summary of an analysis of the existing and future roadway capacity in the study area for the 2027 analysis year. Included is an analysis of potential vehicular impacts of the proposed development and a discussion of potential improvements.

The purpose of the capacity analysis is to:

- Determine the existing capacity of the study area roadways;
- Determine the overall impact of the proposed development on the study area roadways; and
- Discuss potential improvements and mitigation measures to accommodate the additional vehicular trips.

The capacity analysis focuses on the morning and afternoon commuter peak hours, as determined by the existing traffic volumes in the study area.

The following conclusions are reached within this chapter:

- There are no impacts to any study intersections as a result of the proposed development.
- Overall, this report concludes that the project will not have a detrimental impact on the surrounding transportation network.

### Study Area, Scope, & Methodology

This section outlines the assumptions used to develop the existing and future roadway capacity analyses, including volumes, roadway geometries, and traffic operations. The scope of the analysis contained within this report was discussed with and approved by Arlington County staff. The general methodology of the analysis follows national and Arlington County guidelines on the preparation of transportation impact evaluations of site development.

### Capacity Analysis Scenarios

The vehicular capacity analyses are performed to determine if the proposed development will lead to adverse impacts on traffic operations. This is accomplished by comparing future scenarios: (1) without the proposed development (referred to as the Background conditions) and (2) with the development approved and constructed (referred to as the Future conditions).

Specifically, the roadway capacity analysis examined the following scenarios:

1. 2023 Existing Conditions
2. 2027 Future Conditions without the development (2027 Background)
3. 2027 Future Conditions with the development (2027 Future)

### Study Area

The study area of the analysis is a set of intersections where detailed capacity analyses are performed for the scenarios listed above. The set of intersections included are those intersections most likely to have potential impacts or require changes to traffic operations to accommodate the proposed development.

Based on the projected future trip generation and the location of the site access points, as agreed to in this report's scoping process, the following intersections were chosen for analysis:

1. 24<sup>th</sup> Road S & S Glebe Road (North)
2. 24<sup>th</sup> Road S & Shirlington Road
3. 24<sup>th</sup> Road S & Alister Arlington Ridge Driveway / Future Site Driveway
4. 24<sup>th</sup> Road S & S Glebe Road (South)
5. S Glebe Road & Existing Site Driveway
6. S Glebe Road & I-395 Off-Ramp / Existing Site Driveway
7. S Glebe Road & 26<sup>th</sup> Road S / I-395 Off-Ramp
8. 24<sup>th</sup> Road S & Future Site Driveway

Figure 8 shows the vehicular study area intersections. Roadway characteristics, including classification, number of lanes, speed limit, the presence of on-street parking and average annual daily traffic volumes (AADT) are outlined in Table 10.

**Table 10: Existing Roadway Network**

Roadway	Classification*	Lanes	Speed	On-Street Parking	AADT**
S Glebe Road	Principal Arterial (VDOT) Type C (Arlington)	4-5	35 mph	No	21,000
Shirlington Road	Major Collector (VDOT) Type B (Arlington)	2-4	25 mph	Yes	6,600
24 <sup>th</sup> Road S	Major Collector (VDOT) Type B (Arlington)	2-3	25 mph	Yes	6,400

\* From VDOT and Arlington GIS

\*\* VDOT AADT Data from 2022

## **Traffic Volume Assumptions**

The following section reviews the traffic volume assumptions and methodologies used in the roadway capacity analyses.

### **Existing Traffic Volumes**

The existing traffic volumes are comprised of turning movement count data collected on Thursday, November 16, 2023. Existing volumes were balanced where appropriate. For all intersections, the system peak hours assumed were 7:30 AM to 8:30 AM for the morning peak hour and 4:30 PM to 5:30 PM for the afternoon peak hour. The existing turning movement counts, without volume balancing, are included in the Technical Appendix.

The existing peak hour traffic volumes for intersections within the vehicular study area are shown in Figure 28.

### **2027 Traffic Volumes**

#### **2027 Background Traffic Volumes (without the proposed development)**

Traffic projections for the 2027 Background Conditions consist of the existing volumes with the addition of growth along local roadways in the study area in 2027. This local growth is accounted for by inherent regional traffic growth, and by traffic generated by developments expected to be completed prior to 2027 (known as background developments), which is the expected buildout year for the proposed development.

#### **Inherent Regional Growth**

The growth rate used in this analysis were derived using VDOT's Annual Average Daily Traffic (AADT) data and guidance from Arlington County staff during the scoping process. Along regional roads (S Glebe Road and I-395), an annual background growth rate of 0.25% was applied to the network, compounded annually from 2023 to 2027.

#### **Background Developments**

Following industry methodologies, a background development must meet the following criteria to be incorporated into the analysis:

- Be located in the study area, defined as having an origin or destination point within the cluster of study area intersections;
- Have entitlements; and
- Have a construction completion date prior to or close to the proposed development.

Based on these criteria, one (1) development was included in the 2027 Background Conditions scenario. The location of the background developments included in the 2027 Background Conditions scenario in relation to the proposed development is shown on Figure 29. Details on the background development included in the 2027 Background Conditions are presented below:

- **2608 Shirlington Road:** Located in the Shirlington area, the approved 2608 Shirlington Road development will consist of 30 residential dwelling units. The 2608 Shirlington Road development is expected to generate seven (7) weekday AM peak hour vehicle trips (3 inbound and 4 outbound vehicular trips) and eight (8) weekday PM peak hour vehicle trips (4 inbound and 4 outbound vehicular trips) based on the calculation using ITE *Trip Generation*, 11<sup>th</sup> Edition.

Trips generated by the approved background developments are included in the Technical Appendix. The traffic volumes generated by background developments were added to the existing traffic volumes in order to establish the 2027 Background traffic volumes. Trip distribution assumptions for the background developments were based on the distributions included in their respective studies or based on those determined for the proposed development and altered where necessary based on anticipated travel patterns. The traffic volumes for the 2027 Background conditions are shown on Figure 30.

#### **2027 Future Traffic Volumes (with the proposed development)**

The 2027 Future Conditions traffic volumes consist of the 2027 Background volumes with the addition of the traffic volumes generated by the proposed development (site-generated trips). Thus, the 2027 Future Conditions traffic volumes include traffic generated by: the existing volumes, the inherent growth on the study area roadways, background developments, removed existing site trips, and the proposed development.

Trip distribution and assignments for site-generated traffic were primarily determined using existing volumes, anticipated traffic patterns, and other recent studies conducted in the area. The origins of outbound and destinations of inbound vehicular trips were the proposed driveways on 24<sup>th</sup> Road S. A summary of the inbound and outbound trip distribution assumptions is shown on Figure 31 for the proposed development. Figure 32 and Figure



34 show the distribution of multifamily residential and townhouses to the two (2) proposed driveways, respectively. Trip distribution and assignment assumptions were vetted by Arlington County.

Based on the trip distribution and assignment assumptions, site-generated trips were distributed through the study area

intersections. The site-generated traffic volumes for the 2027 build-out year are shown on Figure 34. The 2027 Future Conditions traffic volumes, which are comprised of existing volumes, background developments, and the proposed development are shown on Figure 35.

**Table 11: Traffic Generated by 2027 Background Developments**

Development	AM Peak Hour			PM Peak Hour		
	<i>In</i>	<i>Out</i>	<i>Total</i>	<i>In</i>	<i>Out</i>	<i>Total</i>
2608 Shirlington Road <sup>(1)</sup>	3	8	11	7	5	12
<b>Total Background Trips</b>	<b>3</b>	<b>8</b>	<b>11</b>	<b>7</b>	<b>5</b>	<b>12</b>

(1): Calculated based on ITE *Trip Generation*, 11<sup>th</sup> Edition.

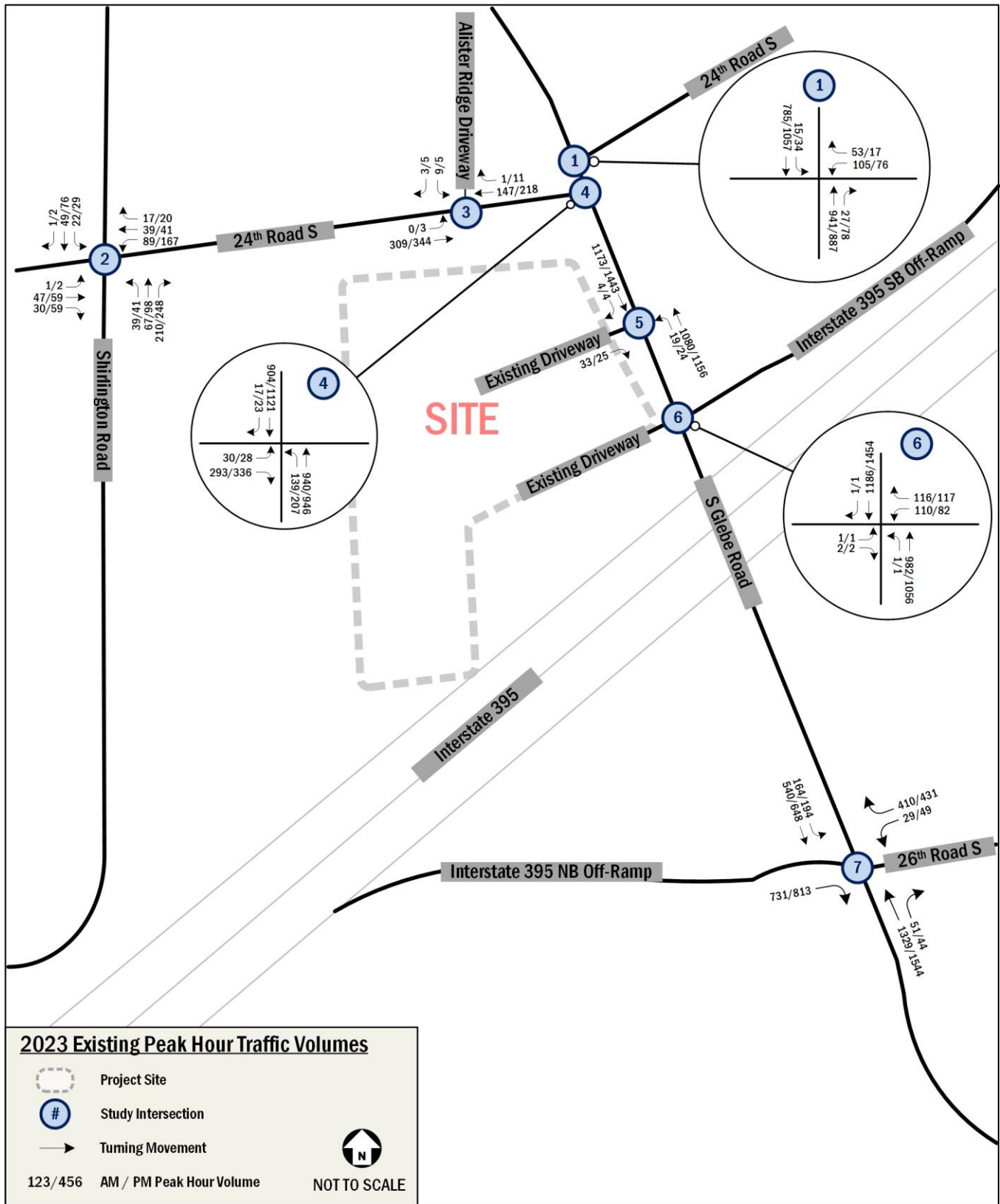


Figure 28: 2023 Existing Peak Hour Traffic Volumes



Figure 29: Future Background Developments

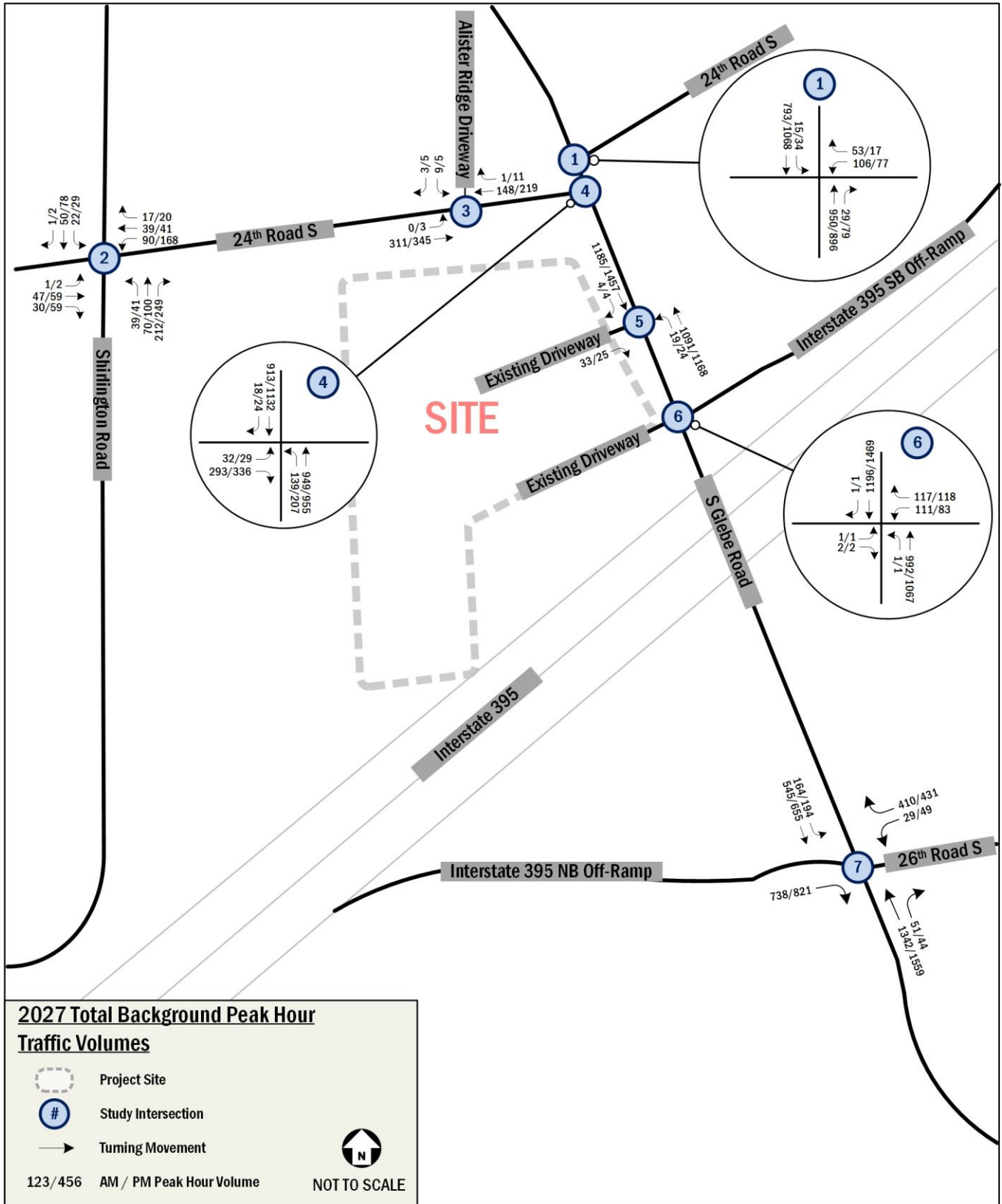


Figure 30: 2027 Total Background Peak Hour Traffic Volumes

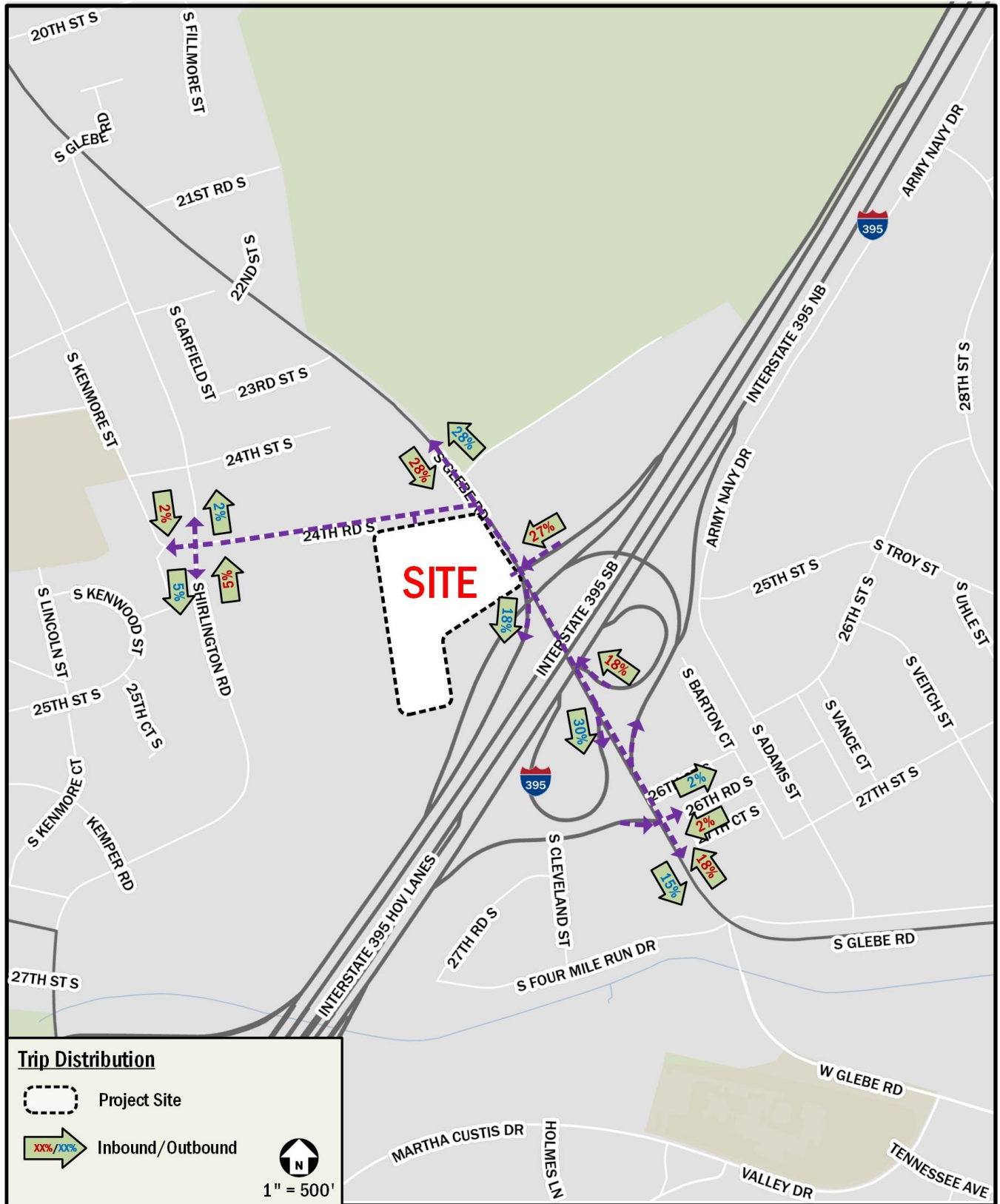


Figure 31: Inbound and Outbound Trip Distribution

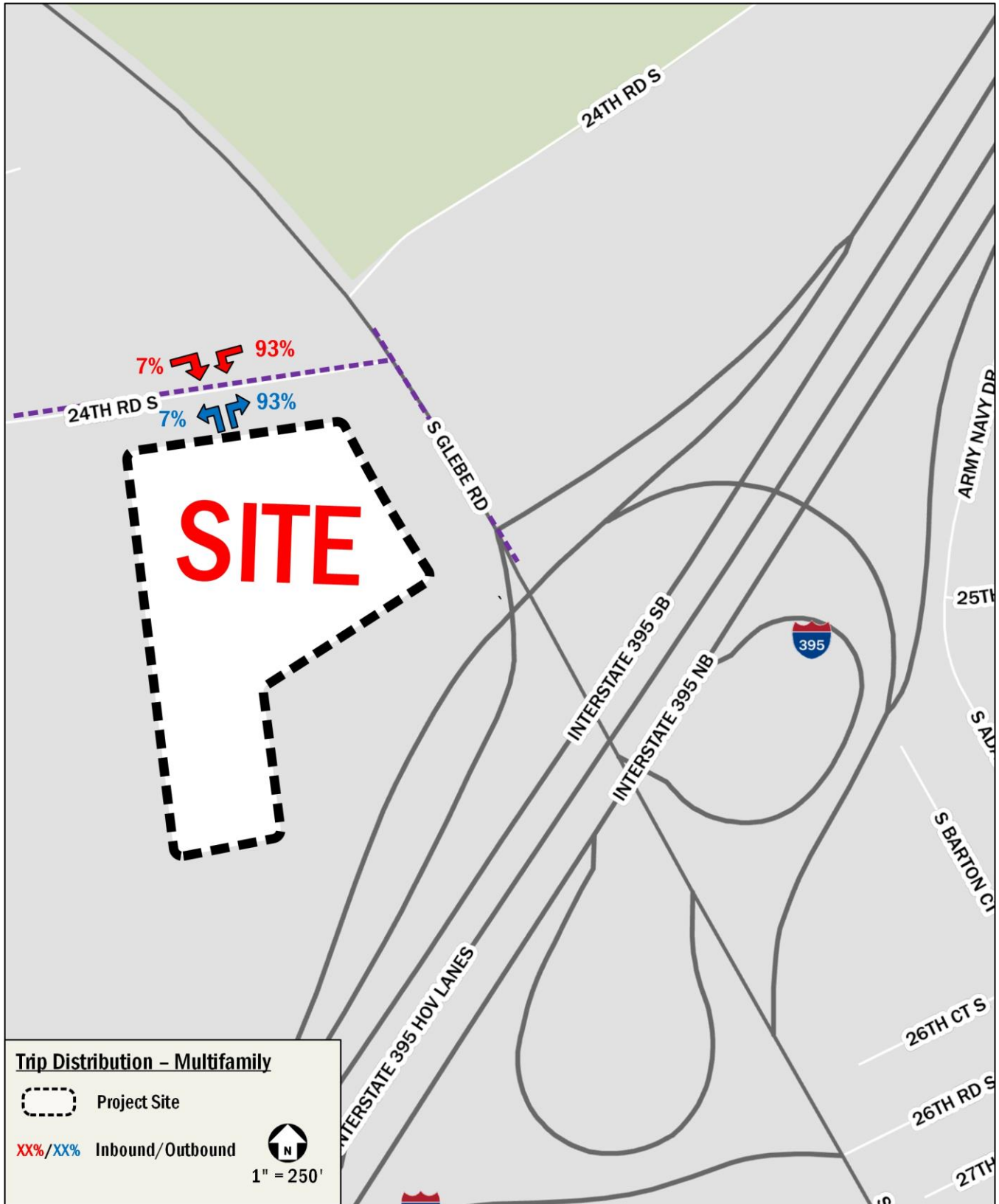


Figure 32: Trip Distribution of Site Driveways – Multifamily

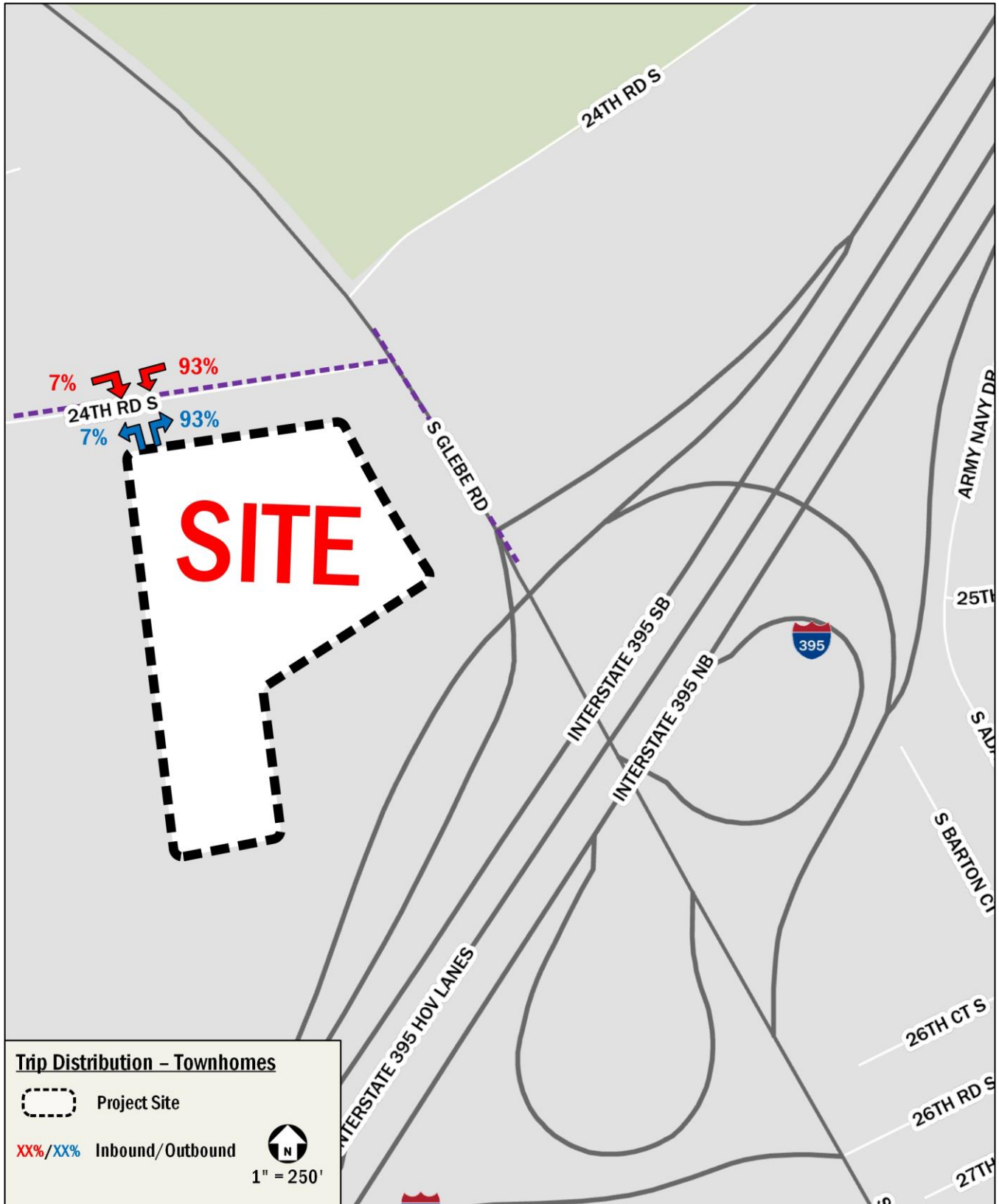


Figure 33: Trip Distribution of Site Driveways – Townhomes

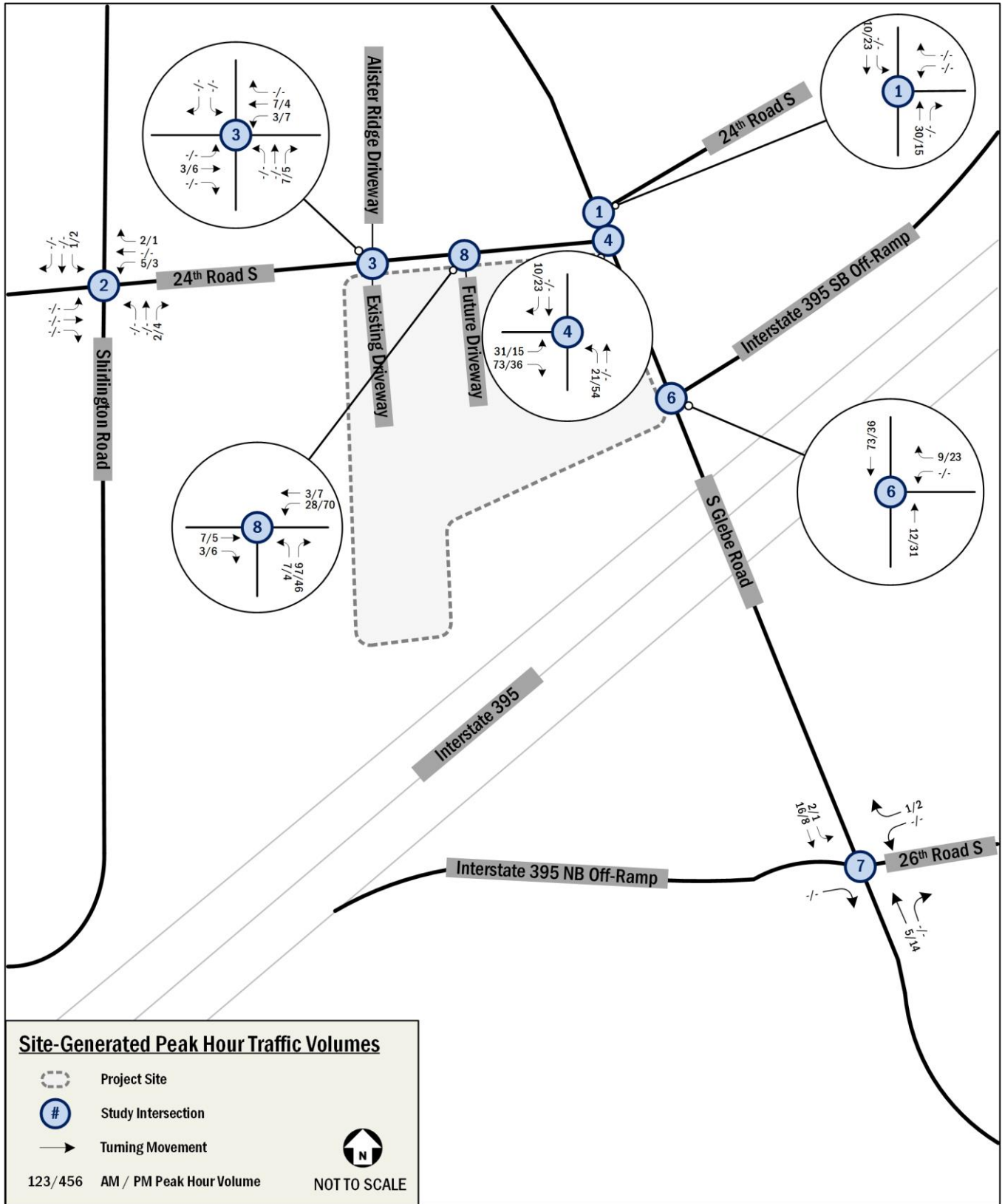


Figure 34: Site-Generated Peak Hour Traffic Volumes



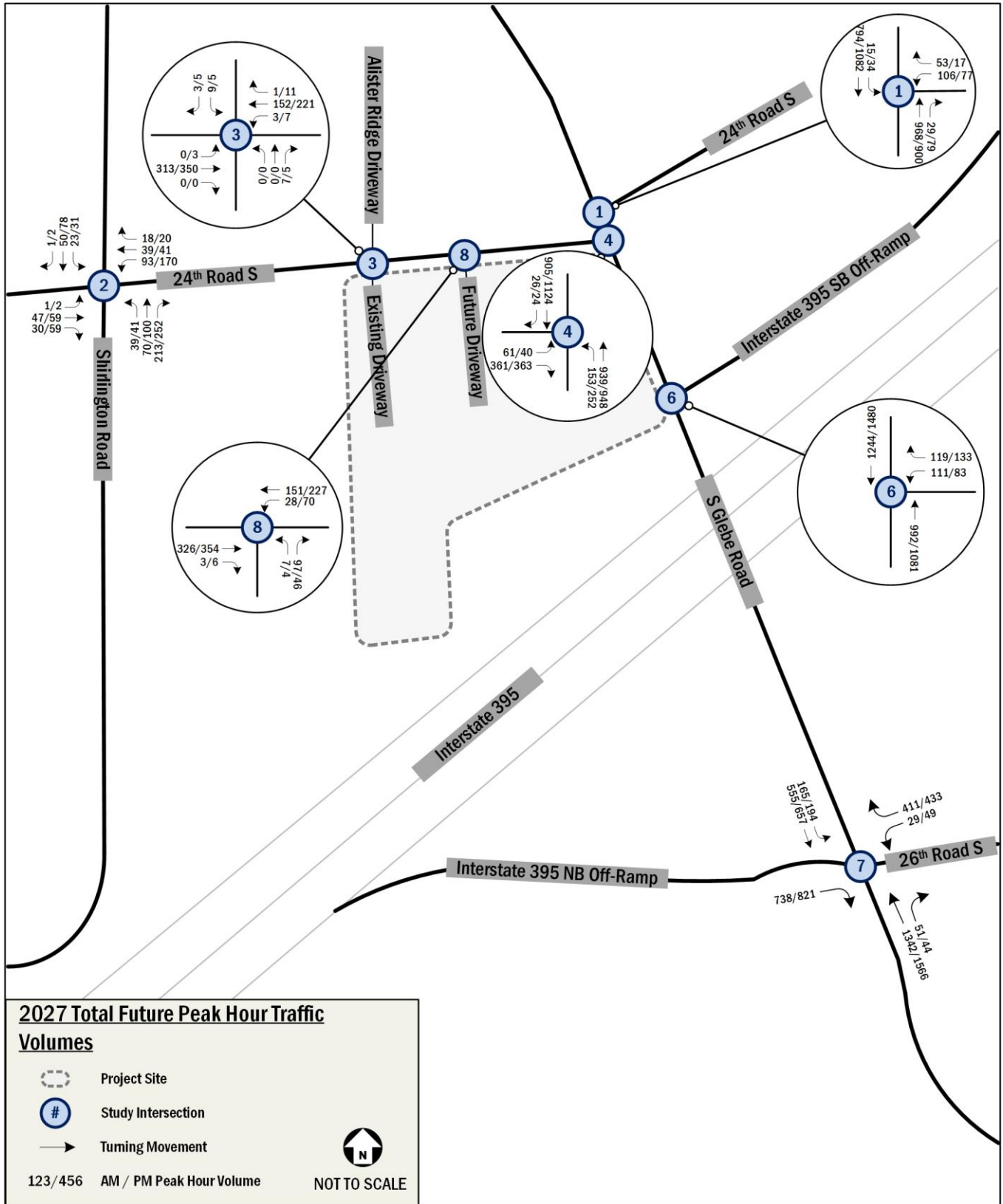


Figure 35: 2027 Total Future Peak Hour Traffic Volumes

## **Geometry and Operations Assumptions**

The following section reviews the roadway geometry and operations assumptions made and the methodologies used in the roadway capacity analyses.

### **Existing Geometry and Operations Assumptions**

The geometry and operations assumed in the existing conditions scenario are those present when the main data collection occurred. Gorove Slade made observations and confirmed the existing lane configurations and traffic controls at the intersections within the study area. Existing signal timings and offsets were obtained from Arlington County and confirmed during field reconnaissance.

A description of the roadways within the study area is presented in Table 10. The existing local roadway network including lane configurations and intersection control is detailed in and illustrated in Figure 36.

### **2027 Background Geometry and Operations Assumptions (without the proposed development)**

Following industry standard methodologies, a background improvement must meet the following criteria to be incorporated into the analysis:

- Be funded; and
- Have a construction completion date prior to or close to the proposed development.

Based on these criteria, there were no improvements identified for this analysis. Lane configurations and traffic controls for the 2027 Background Conditions, which are the same as those of the Existing Conditions, are shown in Figure 36.

### **2027 Future Geometry and Operations Assumptions (with the proposed development)**

The configurations and traffic controls assumed in the 2027 Future Conditions are based on the 2027 Background Conditions with the following changes:

- Addition of a new driveway on 24<sup>th</sup> Road S as the fourth leg of the intersection of 24<sup>th</sup> Road S and Alister Ridge Driveway;
- Relocation of the existing driveway on 24<sup>th</sup> Road S; and
- Closure of both existing driveways on S Glebe Road.

Lane configurations and traffic controls for the 2027 Future Conditions are shown in Figure 37.

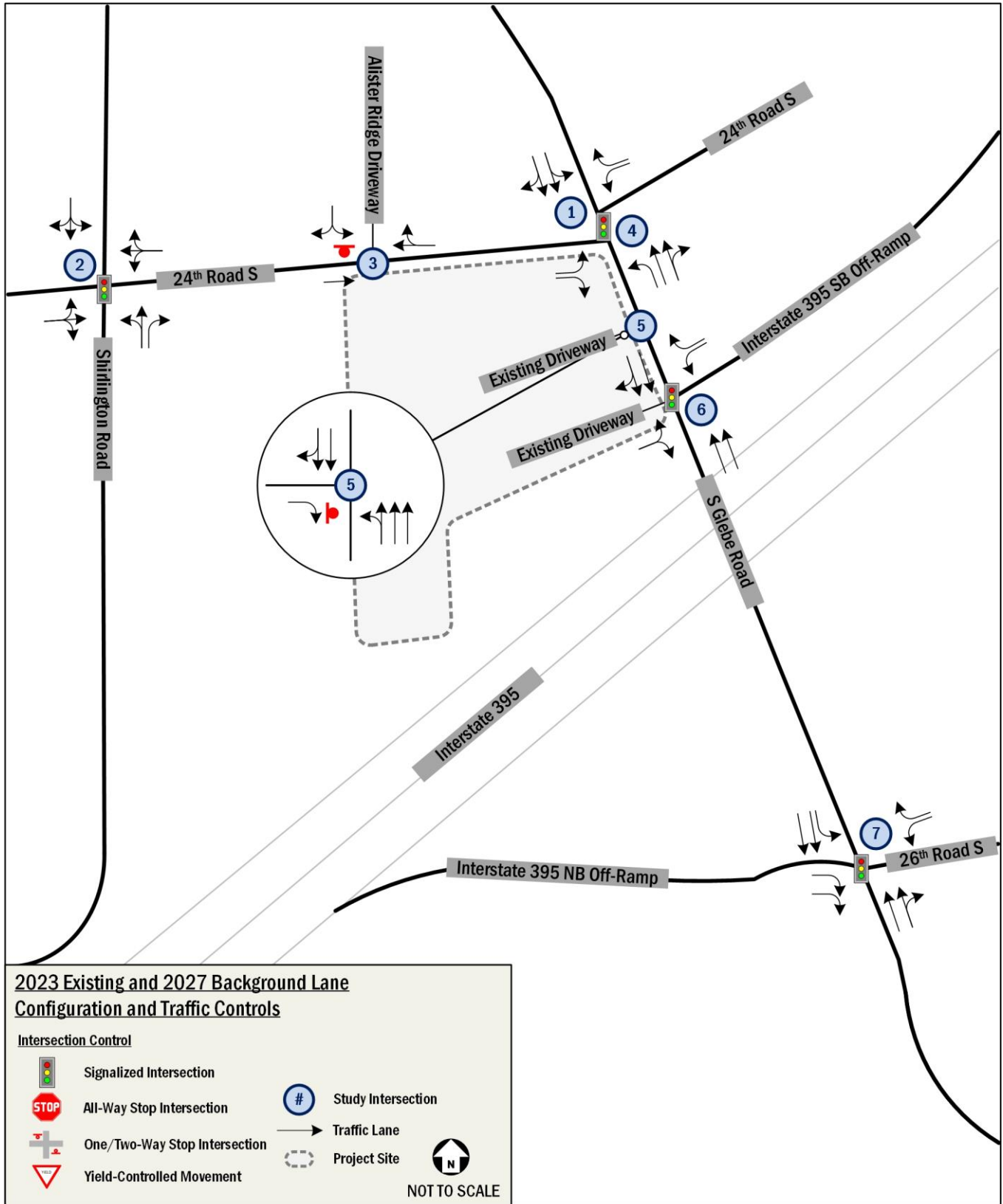


Figure 36: 2023 Existing and 2027 Background Lane Configurations and Traffic Controls

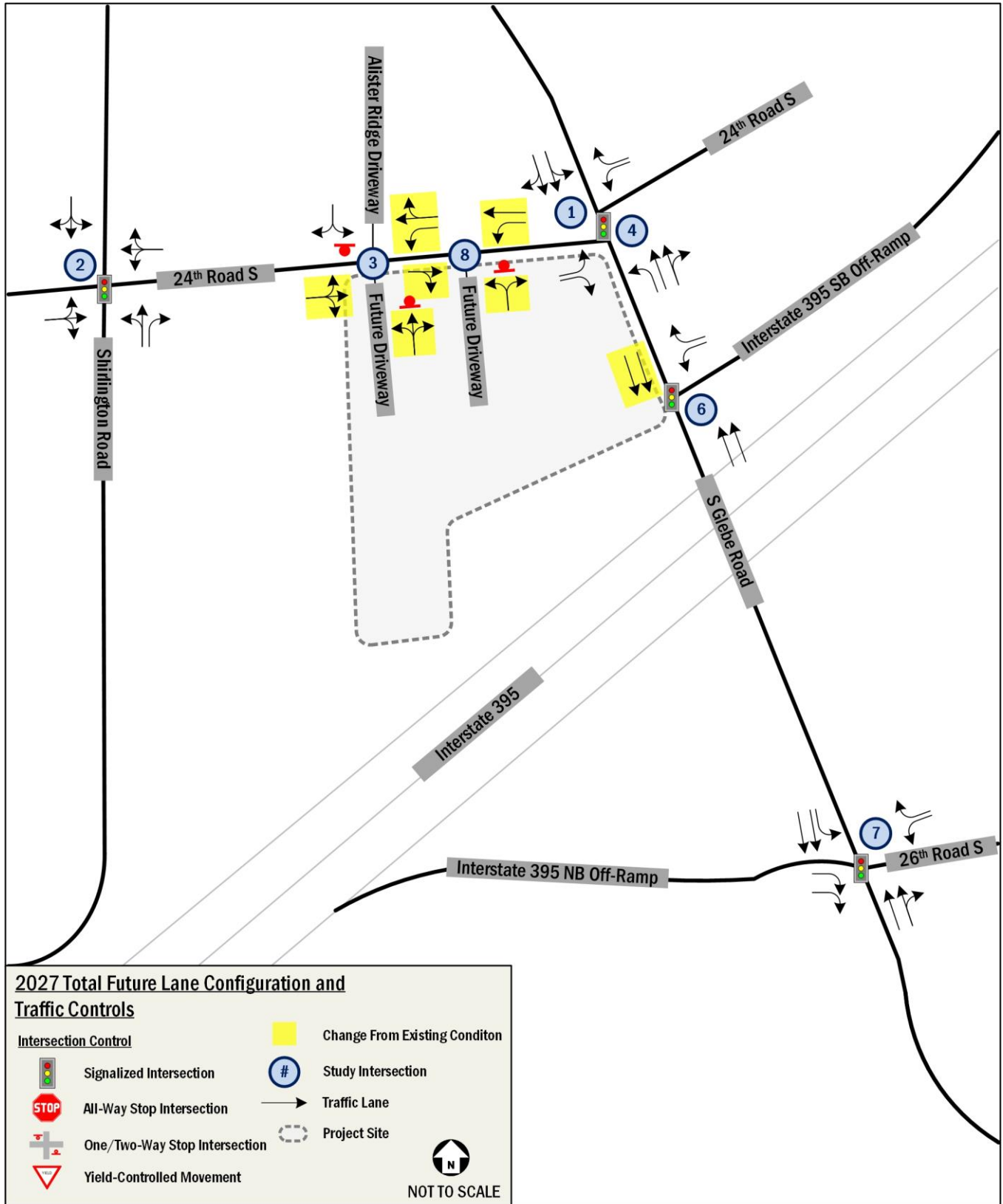


Figure 37: 2027 Total Future Lane Configuration and Traffic Controls

## **Vehicular Analysis Results**

### **Intersection Capacity Analysis**

Intersection capacity analyses were performed for the three scenarios outlined previously at the intersections contained within the study area during the morning and afternoon peak hours. *Synchro*, version 11 was used to analyze the study intersections based on the [Highway Capacity Manual 2000](#) (HCM) methodology and includes level of service, delay, and queue length comparisons for the turning movements analyzed. Both signalized and unsignalized intersections were evaluated using HCM 2000.

### **Peak Hour Factors**

Peak hour factors were applied in accordance with *Traffic Operations and Safety Analysis Manual 2.0* prepared by VDOT dated February 2020. As such, peak hour factors by approach between 0.85 and 1.00 were used for the existing year's analysis. Where the calculated peak hour factor based on the existing turning movement counts was greater than 0.85, the calculated factor was applied. Where the calculated factor was 0.85 or less, a factor of 0.85 was applied.

Peak hour factors by approach between 0.92 and 1.00 were used for all future scenarios. Where the calculated peak hour factor based on the existing turning movement counts was greater than 0.92, the calculated factor was applied. Where the calculated factor was 0.92 or less, a factor of 0.92 was applied.

### **Heavy Vehicle Percentages**

A heavy vehicle percentage of 2% was used for existing movements unless determined to be higher from the turning movement counts, in which case the higher percentage was used. A default minimum heavy vehicle percentage of 2% and maximum percentage of 10% was used for any new movements.

### **Geometry and Operations**

Existing signal timings were obtained from Arlington County for signalized intersections in the vehicular study area. These timings were verified in the field by Gorove Slade and adjusted where necessary.

### **Level of Service and Delay**

The results of the capacity analyses are expressed in level of service (LOS) and delay (seconds per vehicle) for each movement. A LOS grade is a letter grade based on the average delay (in seconds) experienced by motorists traveling through an intersection. LOS results range from "A" being the best to "F" being the worst. LOS E is typically used as the acceptable LOS threshold in Arlington County; although LOS F is sometimes accepted in urbanized areas if vehicular improvements would be a detriment to safety or non-auto modes of transportation. For the purpose of this analysis, it is desirable to achieve a level of service (LOS) of E or better for each movement at the intersections.

The LOS capacity analyses were based on: (1) the peak hour traffic volumes; (2) the lane use and traffic controls; and (3) the Highway Capacity Manual (HCM) methodologies (using the *Synchro* software). The average delay of each movement and LOS is shown for the signalized intersections in addition to the overall average delay and intersection LOS grade. The HCM does not give guidelines for calculating the average delay for a two-way stop-controlled intersection, as the approaches without stop signs would technically have no delay. Detailed LOS descriptions and the analysis worksheets are contained in the Technical Appendix.

### **Queuing Analysis**

In addition to the capacity analyses, a queuing analysis was performed at the study intersections. The queuing analysis was performed using *Synchro* software. The 50<sup>th</sup> percentile and 95<sup>th</sup> percentile queue lengths are shown for each lane group at the study area signalized intersections. The 50<sup>th</sup> percentile queue is the maximum back of queue on a median cycle. The 95<sup>th</sup> percentile queue is the maximum back of queue that is exceeded 5% of the time. For unsignalized intersections, only the 95<sup>th</sup> percentile queue is reported for

each lane group (including free-flowing left turns and stop-controlled movements) based on the HCM 2000 calculations. Queuing analysis worksheets are contained in the Technical Appendix.

### Analysis Results

The capacity analysis results indicate that all intersections operate at acceptable LOS under the Existing (2023), Background (2027), and Future (2027) Conditions, no mitigations are required as a result of the analysis. The Existing (2023) results of the intersection capacity analyses for the AM and PM peak hours are expressed in level of service (LOS) and delay (seconds per vehicle) per movement and presented in Table 12. One (1) intersection has one or more movements that operate at levels beyond acceptable thresholds in one or more peak hour:

- S Glebe Road & 26<sup>th</sup> Road S / I-395 NB Off-Ramp
  - Westbound Right (AM and PM Peak Hours)
  - Southbound Left (AM and PM Peak Hours)

The Existing (2023) queuing results for the AM and PM peak hours are expressed by movement are presented in . Three (3) intersections do have at least one movement with 95<sup>th</sup> percentile queues that exceed the available storage length in the morning and/or afternoon peak hour:

- 24<sup>th</sup> Road S & S Glebe Road (North)
  - Westbound Left (PM Peak Hour)
- S Glebe Road & I-395 Off-Ramp / Existing Site Driveway
  - Southbound Thru/Right (AM and PM Peak Hours)
- S Glebe Road & 26<sup>th</sup> Road S / I-395 NB Off-Ramp
  - Westbound R (AM and PM Peak Hours)
  - Northbound Thru (AM and PM Peak Hours)
  - Southbound Left (AM and PM Peak Hours)

### 2027 Background Analysis Results (without the proposed development)

The Background (2027) results of the intersection capacity analyses for the AM and PM peak hours are expressed in level of service (LOS) and delay (seconds per vehicle) per movement and presented in Table 12. The capacity analysis results indicate that all intersections operate at acceptable LOS under the Background (2028) Conditions; however, one (1) intersection has one or more movements that operate at levels beyond acceptable thresholds in one or more peak hour:

- S Glebe Road & 26<sup>th</sup> Road S / I-395 NB Off-Ramp
  - Westbound Right (AM and PM Peak Hours)
  - Southbound Left (PM Peak Hour)

**The Background (2027) queuing results for the AM and PM peak hours are expressed by movement are presented in**

Table 13. Three (3) intersections do have at least one movement with 95<sup>th</sup> percentile queues that exceed the available storage length in the morning and/or afternoon peak hour:

- 24<sup>th</sup> Road S & S Glebe Road (North)
  - Westbound Left (PM Peak Hour)
- 24<sup>th</sup> Road S & S Glebe Road (South)
  - Northbound Left (PM Peak Hour)
- S Glebe Road & I-395 Off-Ramp / Existing Site Driveway
  - Southbound Thru/Right (AM and PM Peak Hours)
- S Glebe Road & 26<sup>th</sup> Road S / I-395 NB Off-Ramp
  - Westbound R (AM and PM Peak Hours)
  - Northbound Thru (AM and PM Peak Hours)
  - Southbound Left (AM and PM Peak Hours)

### **2027 Future Analysis Results (with the proposed development)**

The Future (2027) results of the intersection capacity analyses for the AM and PM peak hours are expressed in level of service (LOS) and delay (seconds per vehicle) per movement and presented in Table 12. The capacity analysis results indicate that all intersections operate at acceptable LOS under the Future (2027) Conditions; however, one (1) intersection has one or more movements that operate at levels beyond acceptable thresholds in one or more peak hour:

- S Glebe Road & 26<sup>th</sup> Road S / I-395 NB Off-Ramp
  - Westbound Right (AM and PM Peak Hours)
  - Southbound Left (PM Peak Hour)

**The Future (2027) queuing results for the AM and PM peak hours are expressed by movement are presented in**

Table 13. Three (3) intersections do have at least one movement with 95<sup>th</sup> percentile queues that exceed the available storage length in the morning and/or afternoon peak hour:

- 24<sup>th</sup> Road S & S Glebe Road (North)
  - Westbound Left (PM Peak Hour)
- 24<sup>th</sup> Road S & S Glebe Road (South)
  - Northbound Left (PM Peak Hour)
- S Glebe Road & I-395 Off-Ramp / Existing Site Driveway
  - Southbound Thru/Right (AM and PM Peak Hours)
- S Glebe Road & 26<sup>th</sup> Road S / I-395 NB Off-Ramp
  - Westbound R (PM Peak Hours)
  - Northbound Thru (AM and PM Peak Hours)
  - Southbound Left (AM and PM Peak Hours)

### **2027 Future Mitigations**

Mitigation measures were identified based on Arlington County standards. Following these guidelines, there are no impacts to any study intersections under Future (2027) Conditions, and therefore, no mitigation measures are proposed.



**Table 12: Capacity Analysis Results**

Intersection and Movement	Existing (2023)				Background (2027)				Future (2027)			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
<b>1. 24th Road S &amp; S Glebe Road (North)</b>	<b>12.2</b>	<b>B</b>	<b>14.0</b>	<b>B</b>	<b>10.4</b>	<b>B</b>	<b>13.0</b>	<b>B</b>	<b>15.8</b>	<b>B</b>	<b>14.9</b>	<b>B</b>
Westbound L	64.8	E	73.1	E	63.1	E	77.7	E	63.1	E	71.0	E
Westbound R	53.3	D	55.9	E	52.8	D	56.7	E	52.8	D	56.0	E
Northbound TR	3.1	A	0.9	A	1.6	A	1.4	A	3.1	A	1.8	A
Southbound LT	14.2	B	19.9	B	11.2	B	17.7	B	23.0	C	21.5	C
<b>2. 24th Road S &amp; Shirlington Road</b>	<b>8.4</b>	<b>A</b>	<b>10.9</b>	<b>B</b>	<b>8.3</b>	<b>A</b>	<b>11.1</b>	<b>B</b>	<b>8.4</b>	<b>A</b>	<b>11.3</b>	<b>B</b>
Eastbound LTR	7.4	A	7.5	A	7.4	A	8.4	A	7.4	A	8.4	A
Westbound LTR	8.7	A	12.8	B	8.5	A	17.5	B	8.6	A	18.2	B
Northbound LT	8.8	A	11.3	B	8.7	A	9.2	A	8.8	A	9.2	A
Northbound R	8.4	A	10.5	B	8.3	A	8.7	A	8.4	A	8.7	A
Southbound LTR	8.4	A	10.7	B	8.3	A	8.8	A	8.4	A	8.8	A
<b>3. 24th Road S &amp; Alister Ridge Driveway</b>												
Eastbound LTR	0.0	A	0.1	A	0.0	A	0.1	A	0.0	A	0.1	A
Westbound L	--	--	--	--	--	--	--	--	8.0	A	8.1	A
Westbound TR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
Northbound LTR	--	--	--	--	--	--	--	--	10.2	B	10.5	B
Southbound LTR	11.5	B	11.7	B	11.5	B	11.7	B	12.4	B	12.6	B
<b>4. 24th Road S &amp; S Glebe Road (South)</b>	<b>14.8</b>	<b>B</b>	<b>15.4</b>	<b>B</b>	<b>13.8</b>	<b>B</b>	<b>15.4</b>	<b>B</b>	<b>19.6</b>	<b>B</b>	<b>16.4</b>	<b>B</b>
Eastbound L	67.3	E	66.4	E	68.8	E	66.3	E	68.9	E	62.8	E
Eastbound R	49.5	D	56.4	E	47.9	D	57.4	E	55.5	E	53.1	D
Northbound L	11.2	B	25.1	C	9.3	A	17.9	B	15.7	B	38.6	D
Northbound T	10.3	B	5.4	A	9.3	A	8.7	A	11.5	B	5.0	A
Southbound TR	6.7	A	7.6	A	6.1	A	6.8	A	10.9	B	7.9	A
<b>5. S Glebe Road &amp; Existing Site Driveway</b>												
Eastbound R	10.1	B	9.9	A	10.6	B	9.8	A	--	--	--	--
Northbound LT	1.3	A	2.0	A	1.4	A	2.0	A	--	--	--	--
Northbound T	0.0	A	0.0	A	0.0	A	0.0	A	--	--	--	--
Southbound TR	0.0	A	0.0	A	0.0	A	0.0	A	--	--	--	--
<b>6. S Glebe Road &amp; I-395 Off-Ramp / Site Driveway</b>	<b>9.2</b>	<b>A</b>	<b>9.3</b>	<b>A</b>	<b>10.6</b>	<b>B</b>	<b>9.5</b>	<b>A</b>	<b>9.0</b>	<b>A</b>	<b>10.1</b>	<b>B</b>
Eastbound L	51.5	D	54.5	D	52.0	D	54.8	D	--	--	--	--
Eastbound T	65.0	E	65.0	E	65.0	E	65.0	E	--	--	--	--
Westbound L	60.8	E	78.8	E	60.8	E	77.6	E	60.8	E	77.6	E
Westbound R	49.6	D	55.1	E	50.0	D	55.3	E	50.0	D	56.3	E
Northbound T	2.7	A	2.1	A	2.8	A	3.8	A	2.5	A	2.0	A
Southbound TR	5.3	A	6.5	A	8.3	A	6.1	A	5.5	A	8.1	A
<b>7. S Glebe Road &amp; 26th Road S / I-395 Off-Ramp</b>	<b>56.6</b>	<b>E</b>	<b>68.6</b>	<b>E</b>	<b>55.7</b>	<b>E</b>	<b>68.2</b>	<b>E</b>	<b>57.0</b>	<b>E</b>	<b>68.9</b>	<b>E</b>
Eastbound R	31.3	C	64.0	E	31.2	C	63.8	E	31.1	C	64.1	E
Westbound L	45.1	D	47.6	D	45.1	D	47.6	D	45.1	D	47.6	D
Westbound R	223.2	F	140.0	F	226.5	F	140.0	F	228.5	F	142.0	F
Northbound T	23.6	C	39.3	D	24.0	C	41.1	D	24.0	C	41.8	D
Southbound L	84.3	F	317.9	F	73.3	E	302.0	F	78.6	E	296.9	F
Southbound T	42.7	D	22.3	C	38.3	D	23.5	C	42.8	D	25.3	C
<b>8. 24th Road S &amp; Future Site Driveway</b>												
Eastbound TR	--	--	--	--	--	--	--	--	0.0	A	0.0	A
Westbound L	--	--	--	--	--	--	--	--	8.1	A	8.3	A
Westbound T	--	--	--	--	--	--	--	--	0.0	A	0.0	A
Northbound LR	--	--	--	--	--	--	--	--	11.5	B	11.4	B

**Table 13: Queuing Results**

Intersection and Lane Group	Storage Length (ft)	Existing (2023)				Background (2027)				Future (2027)			
		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
		50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
<b>1. 24th Road S &amp; S Glebe Road (North)</b>													
Westbound L	150	94	154	74	#135	94	155	70	#150	94	155	70	#138
Westbound R	290	2	44	0	24	2	44	0	26	2	44	0	26
Northbound TR	220	53	53	23	16	37	38	46	16	65	68	38	43
Southbound LT	580	198	314	357	501	177	285	333	475	247	306	392	511
<b>2. 24th Road S &amp; Shirlington Road</b>													
Eastbound LTR	330	6	30	8	38	5	31	7	38	5	31	7	38
Westbound LTR	540	18	68	37	120	16	68	33	121	17	70	33	122
Northbound LT	115	14	56	26	75	13	57	23	75	13	57	23	75
Northbound R	120	0	33	0	36	0	36	0	41	0	37	0	41
Southbound LTR	215	9	40	19	57	8	40	17	58	8	40	17	59
<b>3. 24th Road S &amp; Alister Ridge Driveway / Future Site Driveway</b>													
Eastbound LTR	540	--	0	--	0	--	0	--	0	--	0	--	0
Westbound L	60	--	--	--	--	--	--	--	--	--	0	--	0
Westbound TR	330	--	0	--	0	--	0	--	0	--	0	--	0
Northbound LTR	50	--	--	--	--	--	--	--	--	--	1	--	1
Southbound LTR	50	--	2	--	2	--	2	--	1	--	2	--	2
<b>4. 24th Road S &amp; S Glebe Road (South)</b>													
Eastbound L	150	27	62	27	58	29	63	26	60	54	101	35	74
Eastbound R	300	16	107	175	258	11	95	162	267	0	112	170	289
Northbound L	145	56	96	57	140	51	91	79	147	65	117	91	#224
Northbound T	230	222	272	117	198	290	334	202	326	291	340	72	232
Southbound TR	580	56	65	56	63	56	65	55	62	56	65	55	61
<b>5. S Glebe Road &amp; Existing Site Driveway</b>													
Eastbound R	85	--	4	--	3	--	4	--	3	--	--	--	--
Northbound LT	120	--	3	--	4	--	3	--	4	--	--	--	--
Northbound T	120	--	0	--	0	--	0	--	0	--	--	--	--
Southbound TR	60	--	0	--	0	--	0	--	0	--	--	--	--
<b>6. S Glebe Road &amp; I-395 Off-Ramp / Existing Site Driveway</b>													
Eastbound L	40	1	7	1	7	1	7	1	7	--	--	--	--
Eastbound T	40	0	0	0	0	0	0	0	0	--	--	--	--
Westbound L	580	79	129	79	129	75	129	75	129	98	157	75	129
Westbound R	580	2	56	2	56	0	59	0	59	0	55	16	82
Northbound T	900	51	m106	51	m106	114	188	114	188	70	m98	51	m105
Southbound T	230	196	375	196	375	160	369	160	369	398	492	326	443
<b>7. S Glebe Road &amp; 26th Road S / I-395 Off-Ramp</b>													
Eastbound R	800	184	#333	184	#333	182	#332	182	#332	43	111	184	#334

Westbound L	370	39	79	39	79	39	79	39	79	22	52	39	79
Westbound R	370	~406	#621	~406	#621	~406	#621	~406	#621	~289	#502	~409	#624
Northbound T	445	593	722	593	722	606	737	606	737	478	582	612	743
Southbound L	115	~256	#410	~256	#410	~243	#404	~243	#404	149	#243	~241	#405
Southbound T	950	198	283	198	283	205	258	205	258	267	310	239	308
<b>8. 24th Road S &amp; Future Site Driveway</b>													
Eastbound TR	540	--	--	--	--	--	--	--	--	--	0	--	0
Westbound L	100	--	--	--	--	--	--	--	--	--	2	--	5
Westbound T	330	--	--	--	--	--	--	--	--	--	0	--	0
Northbound LR	120	--	--	--	--	--	--	--	--	--	0	--	0

# 95th percentile volume exceeds capacity, queue may be longer.  
 m Volume for 95th percentile queue is metered by upstream signal.  
 ~ Volume exceeds capacity, queue is theoretically infinite.

## Crash Data Review

This chapter reviews available crash data within the study area, reviews potential impacts of the proposed development on crash rates and informs future transportation improvements that work toward the County’s goals outlined in the Vision Zero Action Plan.

### VDOT Crash Data

Based on guidelines contained in the Safety Analysis Guidance (May 2021) provided by Arlington County DES, crash data from 2018 to 2022 was obtained from the VDOT Crash Analysis Tool for crashes occurring in the vicinity of the site. This data was used to conduct a review of safety at study intersections.

Based on the historical crash data, a total of 79 crashes occurred at study area intersections between 2018 and 2022. The year with the highest number of crashes was 2021 with 24 crashes, and the year with the lowest number of crashes was 2020 with nine (9) crashes. Figure 38 shows the number of crashes per year in the study area over the last five years. The data obtained from VDOT shows that the number of reported crashes generally varies from year to year.

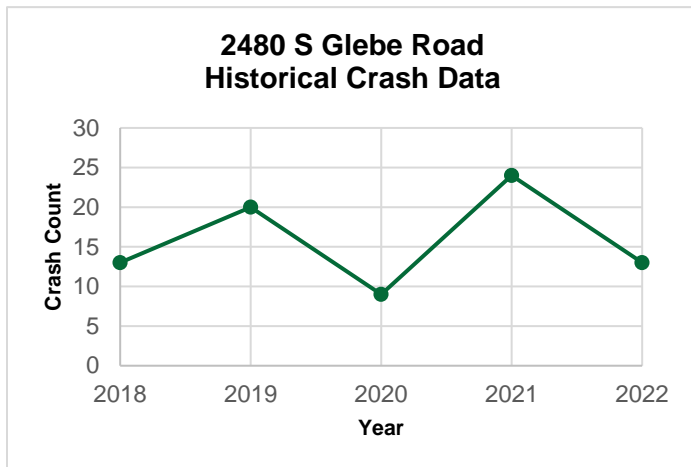


Figure 38: Historical Crash Data

### Crash Characteristics

#### Crash Severity

According to the 2017 VDOT Crash Data Manual, crash severity is measured using the KABCO scale as per the Model Minimum Uniform Crash Criteria (MMUCC) based on the most severe injury to any person involved in the crash. The KABCO scale definitions are as follows:

- K: Fatal Injury
- A: Suspected Serious Injury
- B: Suspected Minor Injury
- C: Possible Injury
- O: Property Damage Only (No Apparent Injury)

From 2018 to 2022, 76% were classified as O (Property Damage Only) and 23% were classified as B (Suspected Minor Injury). No reported crashes involved a fatal injury or suspected serious injuries. Table 14 shows the number of crashes according to its severity.

Table 14: Crash Count by Severity (2018-2022)

Crash Severity	Count	%
K	0	0%
A	0	0%
B	18	23%
C	1	1%
O	60	76%
<b>Total</b>	<b>79</b>	<b>100%</b>

#### Collision Type

The most common type of collision found in the study area was angle collisions, with 62% of crashes occurring in this manner, followed by rear end collisions with 19% of crashes. Table 15 summarizes the collision type for all analyzed crashes.

Table 15: Crash Count by Collision Type

Collision Type	Count	%
Angle	49	62%
Rear End	15	19%
Fixed Object - Off Road	4	5%
Sideswipe - Same Direction	4	5%
Other	3	4%
Head On	3	4%
Fixed Object - In Road	1	1%
Pedestrian	0	0%
<b>Total</b>	<b>79</b>	<b>100%</b>

#### Crash Factors

Several factors that contribute to crashes were reviewed as part of this safety analysis. These factors include environmental factors, driver behavior, and vehicle characteristics.

## Environmental Factors

Light conditions at the moment of the crash can contribute to the quantity and severity of crashes. For the data analyzed, 52% of the crashes occurred during daylight and 38% during darkness on a lighted road. This information suggests that, in the majority of crashes, light conditions might not have been the primary cause for the crash. Table 16 summarizes the light conditions for crashes in the vicinity of the proposed project site.

**Table 16: Crash Count by Light Condition**

Light Condition	Count	%
Daylight	41	52%
Darkness - road lighted	30	38%
Dusk	3	4%
Darkness - road not lighted	4	5%
Dawn	1	1%
<b>Total</b>	<b>79</b>	<b>100%</b>

## Driver Behavior

The intentional or unintentional characteristics and actions that a driver performs while operating a vehicle also contribute to crashes. As shown in Table 17, a distracted driver was reported in 14% of the analyzed crashes, while alcohol and speeding were involved in 5% and 14% of the crashes, respectively. This information suggests that, in the majority of cases, driver behavior might not have been the primary cause of the crash but could be a contributing cause.

**Table 17: Crash Count by Driver Behavior Factors**

Driver Behavior Factors	Count	%
<i>Distracted Driver?</i>		
Yes	11	14%
No	68	86%
<i>Speeding?</i>		
Yes	11	14%
No	68	86%
<i>Alcohol Involved?</i>		
Yes	4	5%
No	75	95%
<b>Total</b>	<b>79</b>	<b>100%</b>

## Vehicle Characteristics

Vehicle characteristics including type of vehicle and vehicle size were analyzed to determine their contribution to crashes in the vicinity of the proposed project site. As shown in Table 18, no crashes involving motorcyclists have been reported in the past five (5) years while one (1) crash has been reported to involve a bicyclist. In addition, six (6) crashes (8%) reported a large truck being involved in the crash. In terms of transportation modes

other than automobiles, no crashes were reported to involve a pedestrian.

**Table 18: Crash Count by Vehicle Characteristics**

Vehicle Characteristics Factors	Count	%
<i>Large Truck Involved</i>		
Yes	6	8%
No	73	92%
<i>Motorcycle Involved</i>		
Yes	0	0%
No	79	100%
<i>Bike Involved</i>		
Yes	1	1%
No	78	99%
<i>Pedestrian Involved</i>		
Yes	0	0%
No	79	100%
<b>Total</b>	<b>79</b>	<b>100%</b>

## Findings

According to the VDOT historical crash data for the study area, the locations with the greatest number of reported crashes were the intersections of S Glebe Road/I-395 SB Off-Ramp & Existing Site Driveway which account for 35 of the 79 (or 44%) reported crashes occurring at or near this intersection. Crash locations are shown in Figure 39.

As part of the proposed development, new pedestrian facilities that meet or exceed Arlington County requirements will be provided along the street frontage of the site. These improvements are consistent with several County-wide and national guidelines which prioritize shifting trips to non-auto modes, complete streets principles, and safety for all users, including the Arlington Master Transportation Plan, Vision Zero Action Plan, and NACTO Urban Streets Design Guide.

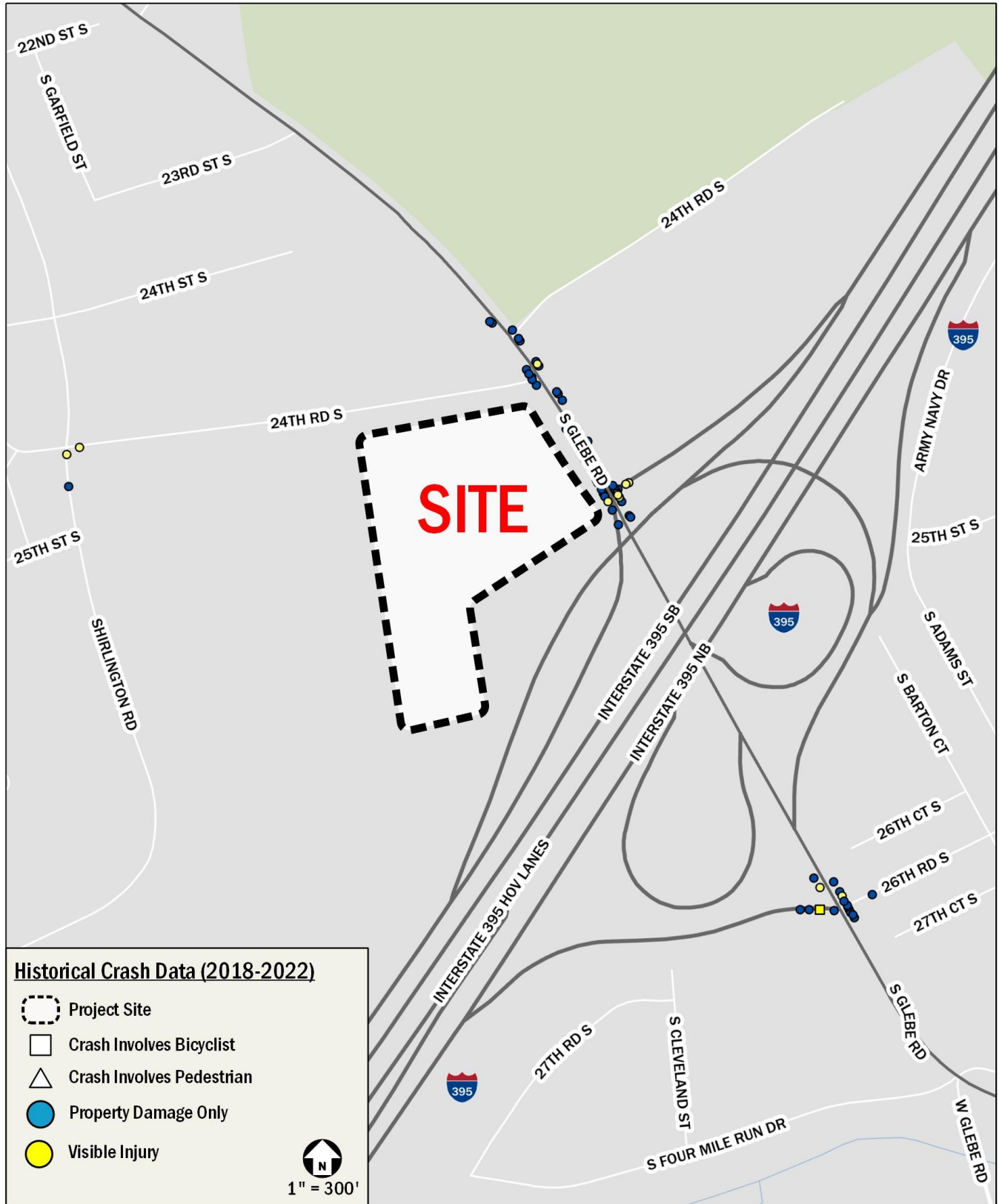


Figure 39: Historical Crash Data (2018-2022)

## Transportation Management Plan

A Transportation Management Plan (TMP) has many components that are tailored to accommodate a given facility with the goal being the reduction of automobile trips by encouraging alternative forms of transportation. A few of the typical TMP components include the establishment of a TMP coordinator, the distribution of transit literature, the establishment of ride-sharing programs, and the on-site sale of discounted fare media. Management measures taken by the proposed development can be monitored and adjusted as needed to continually create opportunities to reduce the amount of vehicular traffic generated by the site.

The TMP will include a schedule and details of implementation and continued operation of the elements in the plan. The location of the site near WMATA Metrobus and ART Transit routes which allows for a TMP that may include, but not be limited to, the following:

### **Participation and Funding**

- (1) Establish and maintain an active, ongoing relationship with Arlington Transportation Partners (ATP), or successor entity, at no cost to the developer, on behalf of the property owner.
- (2) Designate and keep current a member of building management as Property Transportation Coordinator (PTC) to be primary point of contact with the County and undertake the responsibility for coordinating and completing all Transportation Management Plan (TMP) obligations. The PTC shall be trained, to the satisfaction of Arlington County Commuter Services (ACCS), to provide, transit, bike, walk, rideshare and other information provided by Arlington County intended to assist with transportation to and from the site.
- (3) Contribute annually to ACCS, or successor, to sustain direct and indirect on-site and off-site services in support of TMP activities. Payment on this commitment shall begin as a condition of issuance of the First Partial Certificate of Occupancy for Tenant Occupancy for each respective building or phase of construction. Subsequent payments shall be made annually.

### **Facilities and Improvements**

- (1) Provide in the lobby or lobbies, a transportation information display(s), the number/content/design/location of which will

be approved by ACCS. The developer agrees that the required transportation information displays shall meet the Arlington County Neighborhood Transportation Information Display Standards in effect on the date of the site plan approval, or equivalent as approved by the County Manager.

- (2) Comply with requirements of the Site Plan conditions to provide bicycle parking/storage facilities, a Parking Management Plan (PMP), and a Bicycle Facilities Management Plan.

### **Promotions, Services, Policies**

- (1) Prepare, reproduce and distribute, in digital or hard copy, materials provided by Arlington County, which includes site-specific transit, bike, walk, and rideshare related information, to each new residential lessee and retail, property management, or maintenance employee, from initial occupancy through the life of the site plan. These materials shall be distributed as a part of prospective tenant marketing materials, as well as communications associated with lease signing, on-boarding, or similar activities.
- (2) Provide one time, per person, to each new residential lessee and each property management, or maintenance employee, whether employed part-time or full-time, directly employed or contracted, who begins employment in the building throughout initial occupancy, the choice of one of the following:
  - a. Metro fare on a SmarTrip card or successor fare medium (amount to be determined)
  - b. A one-year bikeshare membership
  - c. A one-year carshare membership

The County Manager may approve additions to, or substitution of one or more of these choices with a comparable transportation program incentive, as technology and service options change, if he/she finds that an incentive shall be designed to provide the individual with an option other than driving alone in a personal vehicle, either by removing a barrier to program entry, such as a membership cost, or by providing a similar level of subsidized access to a public or shared transportation system, program or service.

- (3) Provide, administer, or cause the provision of a sustainable commute benefit program for each on-site property

management and maintenance employee, whether employed part-time or full-time, directly employed or contracted. This commute benefit program shall offer, at a minimum, a monthly pre-tax transit benefit or a monthly subsidized/direct transit benefit.

- (4) Provide, under a “transportation information” heading on the Developer and property manager’s websites regarding this development:
  - a. Links to the most appropriate Arlington County Commuter Services and/or external transportation-related web page(s). Confirmation of the most appropriate link will be obtained from ACCS.
  - b. A description of key transportation benefits and services provided at the building, pursuant to the TMP.

### ***Performance and Monitoring***

- (1) During the first year of start-up of the TMP and on an annual basis thereafter, the Developer shall submit an annual report, which may be of an online, or e-mail variety, to the County Manager, describing completely and correctly, the TDM related activities of the site and changes in commercial tenants during each year.
- (2) The Developer agrees to conduct and/or participate in, a transportation and parking performance monitoring study at two years, five years, and each subsequent five years (at the County’s option), after issuance of the First Certificate of Occupancy for Tenant Occupancy. The County may conduct the study or ask the owner to conduct the study (in the latter case, no reimbursement payment shall be required). As part of the study, a report shall be produced as specified below by the County. The study may include building occupancy rates, average vehicle occupancy, average garage occupancy for various day of the week and times of day, parking availability by time of day, average duration of stay for short term parkers on various days of the week and times of day, pedestrian traffic, a seven-day count of site-generated vehicle traffic, a voluntary mode-split survey, and hourly, monthly, and special event parking rates.

The building owner and/or operator shall notify, assist, and encourage building occupants and visitors on site to participate in mode-split surveys which may be of an on-line or email variety.



## Summary and Conclusions

This report concludes that the proposed development at 2480 S Glebe Road will not have a detrimental impact to the surrounding transportation and roadway network assuming that all planned site design elements and recommended mitigation measures are implemented.

The proposed development is well served by transit and is surrounded by a well-connected pedestrian and bicycle network. The site is located along S Glebe Road, a principal arterial, which creates connections to I-395, VA-244 (Columbia Pike), and ultimately the Capital Beltway (I-495) and I-95.

The proposed development will construct 37 single-family attached townhomes and a multi-family residential building with approximately 495 dwelling units. The proposed development will construct approximately 582 parking spaces, with 74 parking spaces for the single-family attached townhomes and 508 new parking spaces in an above-grade parking garage for the multi-family residential building. The proposed project build-out year is 2027.

A number of planned transportation improvements in the vicinity of the proposed development are expected to be complete by 2027. The full list of improvements is detailed in the report, but projects include:

- South and West Glebe Road Intersection Improvements
- Shirlington Road Bridge Improvements and Addition
- South Four Mile Run Drive Complete Streets Project
- Shirlington Road – Resurfacing for Complete Streets

A capacity analysis was developed to compare the future roadway network with and without the proposed development. Traffic projections for 2027 are based on existing volumes plus inherent growth on the roadway (representing regional traffic growth), traffic generated by approved nearby background developments (representing local traffic growth), and traffic generated by the proposed development.

Mitigation measures were identified based on Arlington County standards. The proposed development is considered to have an impact at an intersection if any of the outlined conditions are met. Following these guidelines, mitigation measures were not recommended as the project does not have an impact on any study area intersections.

The development has many positive elements contained within its design that minimize potential transportation impacts, including:

- The proposed development's close proximity to multiple bus lines including WMATA (Metrobus) and Arlington Transit (ART) routes.
- Improvements to the pedestrian facilities adjacent to the site that meet or exceed Arlington County and ADA requirements.
- The inclusion of secure-long-term bicycle parking that meets zoning requirements.
- The installation of short-term bicycle parking spaces around the perimeter of the site that meets zoning requirements.
- The provided on-site parking will be right-sized to meet the practical demand of the site.
- A Transportation Management Plan (TMP) that aims to reduce the demand of single-occupancy, private vehicles to/from the proposed development during peak period travel times or shifts single-occupancy vehicular demand to off-peak periods.

As noted above, this report concludes that the proposed development will not have a detrimental impact to the surrounding transportation and roadway network assuming that all planned site design elements and recommended mitigation measures are implemented.