3130 LANGSTON BOULEVARD

Multimodal Transportation Assessment

Arlington, VA

October 29, 2024

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3130 LANGSTON BOULEVARD

SECTION 1
INTRODUCTION

This report presents the results of a Multimodal Transportation Assessment (MMTA) for the proposed redevelopment of 3130 Langston Boulevard in Arlington County, Virginia. This MMTA was completed in support of the proposed rezoning and 4.1 Site Plan application. As shown in Figure 1-1, the site is bounded by Langston Boulevard to the north, N. Kirkwood Road to the south, and the 3100 Langston Boulevard development to the east in Arlington County, Virginia.

The site comprises one parcel, identified as Arlington County RPC #15-012-041, and is approximately 1.68 acres. The site is improved with a single-story brick building, currently occupied by a Walgreens pharmacy with a drive-through and associated surface parking.

The site is zoned to the C-2 Service Commercial-Community Business zoning district pursuant to §§ 7.17 et seq., respectively, of the Arlington County Zoning Ordinance (the "Zoning Ordinance").

As proposed, the site would be rezoned with a General Land Use Plan (GLUP) amendment and redeveloped in accordance with the Langston Boulevard Plan. The existing building and surface parking would be razed and redeveloped with a mixed-use multifamily residential building with approximately 276 units and space for ground floor retail and/or equivalent. The site would be served by approximately 331 parking spaces and two loading spaces.

Access to the site is currently provided by one (1) driveway along Langston Boulevard, and two (2) driveways along N. Kirkwood Road. As proposed, access would be consolidated to one (1) driveway. The driveway on Langston Boulevard would be closed and the two (2) driveways on N. Kirkwood Road would be consolidated to a single access point. For reference the site plan is shown on Figure 1-2.

Study Scope

A scoping meeting was held with Arlington County staff on May 24, 2024, and identified four (4) study intersections for inclusion in the MMTA. The approved scoping document identified the parameters of the MMTA and is included in Appendix A for reference. For purposes of this study, the buildout year is assumed to be 2028.

Tasks undertaken in this study include the following:

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

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

3. Conducted a comprehensive multimodal analysis of the site and the study area including transit, walkability, and bicycle facilities. The study identifies what options, other than vehicular, are available to all users of the site. The study includes bus ridership information, metro ridership information, bike-sharing facilities, and pedestrian infrastructure inventory.

4. Established a study scope and specific analysis parameters for the MMTA with Arlington County Department of Environmental Services (DES) staff (see Appendix A).

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

6. Requested boarding and alighting information for adjacent bus stops serving the study area from WMATA and Arlington County.

7. Reviewed and summarized VDOT's crash data for the study area.

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

9. Forecasted future peak hour traffic volumes for the year 2028 without the proposed development based on existing traffic volumes with the addition of regional traffic growth. No pipeline developments were identified during the scoping meeting.

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

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

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

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

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

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Figure 1-1
Site Location

3130 Langston Boulevard
Arlington, Virginia

VIKA

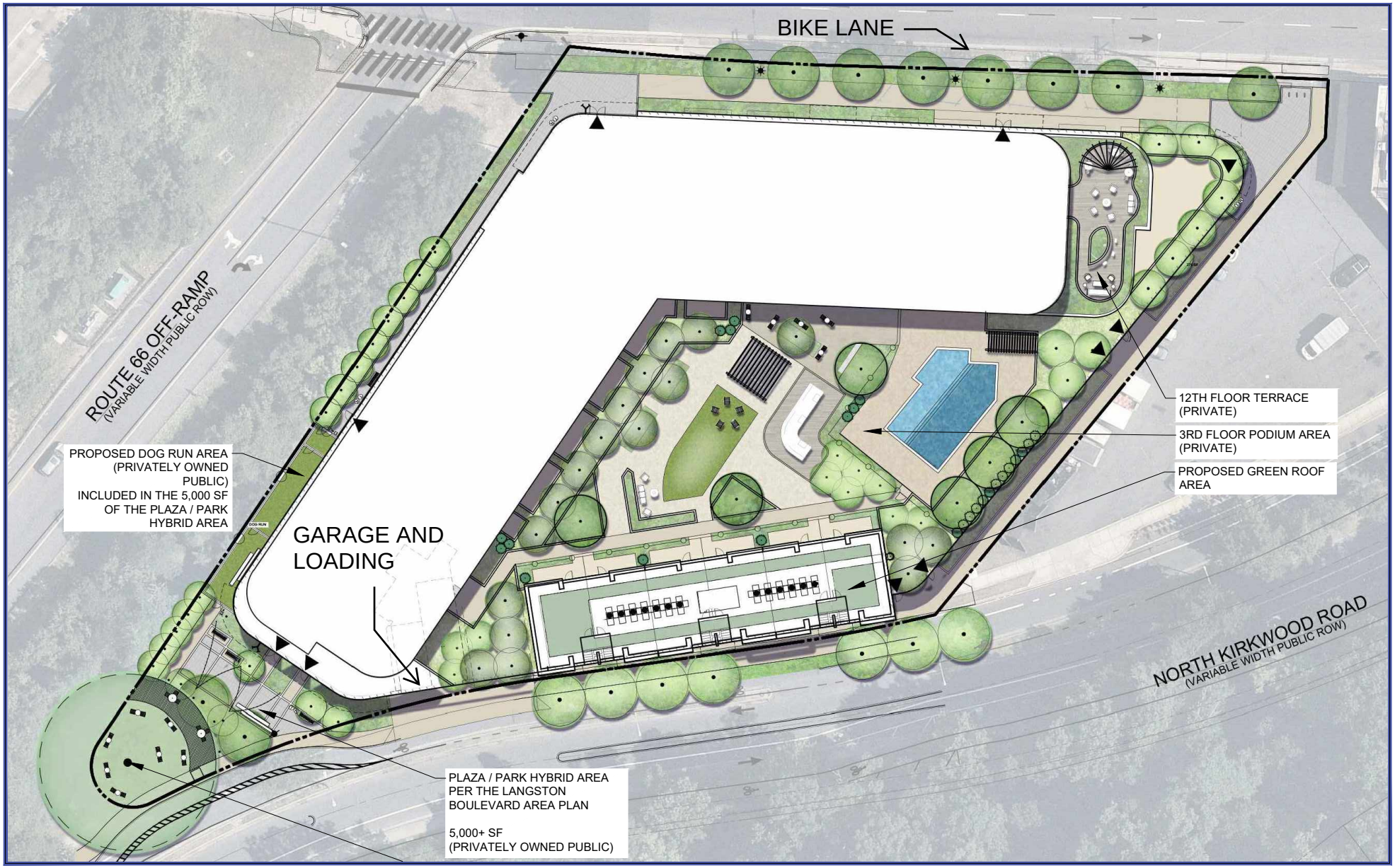

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Figure 1-2
Rendered 4.1 Site Plan

3130 Langston Boulevard
Arlington, Virginia

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SECTION 2
BACKGROUND INFORMATION

Existing Transportation Facilities

Roadway Network. Vehicular access to/from the existing site is provided via one (1) driveway along Langston Boulevard, and two (2) driveways along N. Kirkwood Road. Regional access to/from the site is provided via Interstate 66 to the east, Spout Run Parkway to the northwest, and Langston Boulevard to the north.

Existing lane use and traffic controls at the study intersections are shown on Figure 2-1. A description of each roadway in the vicinity of the site is provided below:

Langston Boulevard (US-29) is classified as a Principal Arterial with a posted speed limit of 35 mph. Langston Boulevard serves as a major east-west connection through Arlington County between Leesburg Pike (Route 7) in Falls Church and the Key Bridge in Washington D.C. Langston Boulevard in the vicinity of the site carries approximately 26,000 vehicles per day (VPD).

Kirkwood Road is classified as a Minor Arterial with a posted speed limit of 25 mph. Kirkwood Road serves as a minor north-south connection through Arlington County from Washington Boulevard near Virginia Square, past Lyon Village, and ending at Langston Boulevard (US-29). Kirkwood Road in the vicinity of the site carries approximately 7,000 VPD.

Spout Run Parkway is classified as a Minor Arterial with a posted speed limit of 40 mph. Spout run serves as a major east-west connection through Arlington County between the George Washington Memorial Parkway, past Interstate 66, and ending at Langston Boulevard (US-29) and Kirkwood Road. Spout Run Parkway in the vicinity of the site carries approximately 15,000 VPD.

Interstate 66 is classified as an Interstate with a posted speed limit of 55 mph. I-66 serves as a major east-west connection through Arlington County, ending on the Theodore Roosevelt Bridge. The off-ramp of Interstate 66 in the vicinity of the site carries approximately 7,000 VPD.

For reference, the existing and proposed cross section for the Langston Boulevard and N. Kirkwood Road are shown on Figures 2-2 and 2-3, respectively.

General Land Use Plan (GLUP)

The entire Property is planned for Service Commercial and Public uses on the General Land Use Plan ("GLUP"). The "Service Commercial" designation recommends personal and business services from one to four stories as well as a series of zoning districts, including the C-2 and C-O-1.0 zoning districts. The "Public" designation includes land used for parks (local, regional, and federal), public schools, libraries, and cultural facilities. This use includes the S-3A and S-D zoning districts.

The Property is located within the boundary of Area 5 (West) of Arlington County's Langston Boulevard Area Plan. As proposed, the site would be rezoned with a GLUP amendment and be redeveloped in accordance with the Langston Boulevard Plan.

Figure 2-2 shows the GLUP map within the vicinity of the site.

Langston Boulevard Area Plan

The site is located within Area 5 (West) of Arlington County's Langston Boulevard Area Plan, a Comprehensive Plan with the goal of improving the safety, comfort, and convenience of the Langston Boulevard Corridor. The Plan's transportation goals focus on providing access to a wider variety of multimodal transportation options with the intent of transforming Langston Boulevard into a more sustainable transportation zone and minimizing the use of cars. Through this Plan, some Arlington County General Land Use Plan policies were amended to allow for further residential development along the Langston Boulevard Corridor, including this site. The Langston Boulevard Corridor, with direct and multimodal access to Washington, D.C., presents a prime opportunity to provide residents and commuters with a safe and convenient approach to sustainable development. Transportation elements of the Plan include the simplification of intersections, the facilitation of a multimodal corridor for commuters, the reallocation of roadway space for pedestrians and bicyclists, as well as providing access to improved pedestrian facilities and greenspaces.

Due to the travel speeds of Langston Boulevard in the vicinity of the site, as well as the limited facilities for pedestrians and bicyclists on the sidewalks and the nearby Custis Trail, the Langston Boulevard Area Plan calls for a number of multimodal improvements to be added to the area. In the area of the Langston Boulevard / Spout Run / North Kirkwood intersection, a Greenway will be established to benefit pedestrians and users of the Custis Trail. According to the Plan, there is sufficient space along Langston Boulevard to provide enhanced bike lanes without the need for redevelopment with the possible conversion vehicular travel lanes, which will require coordination with VDOT. Additionally, developments in this area should include improvements such as bicycle and improved lighting facilities, as well as public art. Along the western edge of Spout Run and Kirkwood Road to the north and south of Langston Boulevard, a Greenway / overland relief area should be made available.

VDOT Crash Data

Crash data was downloaded from VDOT's Crash Data Map webpage for the past three (3) years for the study area along Langston Boulevard. This data is summarized below. Based on the available data, a total of 32 crashes occurred within the study area from January 2022 through April 2024. The detailed information is included in Appendix C for reference.

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

- Rear End: 5 Crashes (16%)
- Angle: 24 Crashes (75%)
- Pedestrians: 0 Crashes (0%)
- Fixed Object : 0 Crashes (0%)
- Sideswipe: 1 Crashes (3%)
- Head-On: 2 Crashes (6%)

The year with the highest number of crashes is 2023 with 16 crashes in the vicinity of the site. As shown above, the most common type of crash found in the study are angled crashes, accounting for 75% of the reported incidents. The least common type of crash are sideswipe collisions, accounting for only 3%. From all these crashes, no fatalities were reported; with 18 reported injuries. Most of these crashes occurred at the signalized intersections. Of the 32 crashes, six (6) occurred in the vicinity of the site driveway on Langston Boulevard, four (4) of which were angled collisions, and one (1) was a sideswipe collision. Some of these crashes were accessing the retail site to the north.

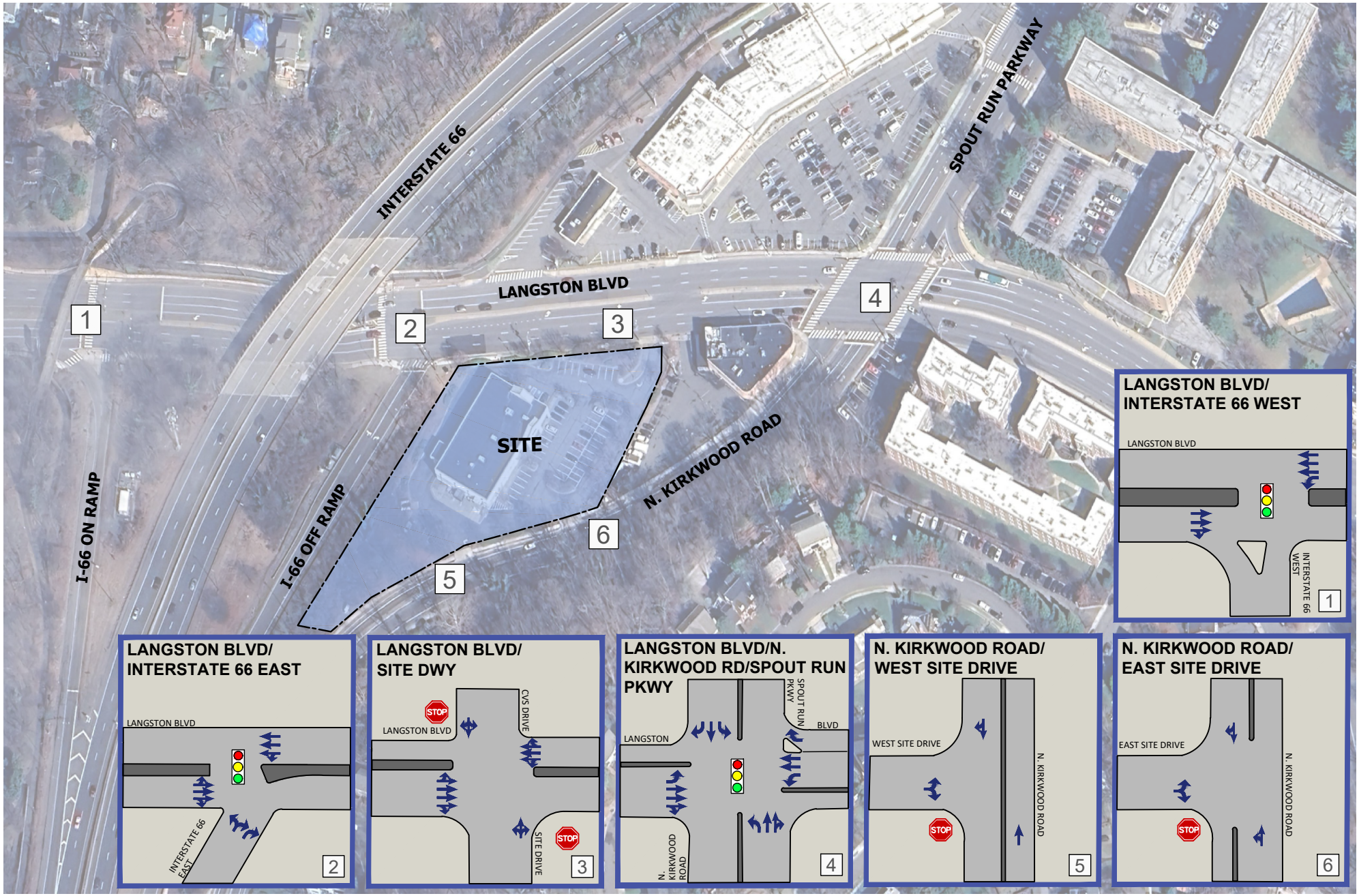
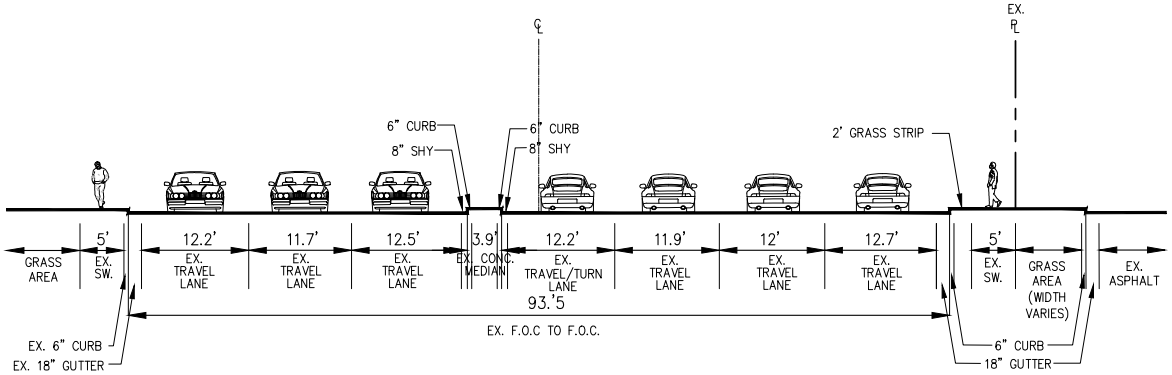
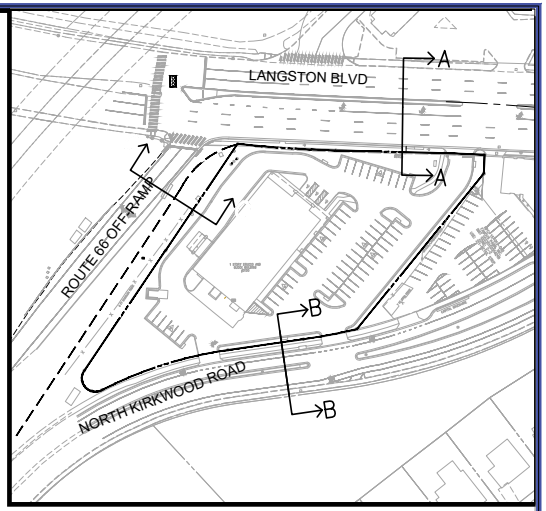


Figure 2-1
Existing Lane Use and Traffic Controls

3130 Langston Boulevard
Arlington, Virginia

EXISTING



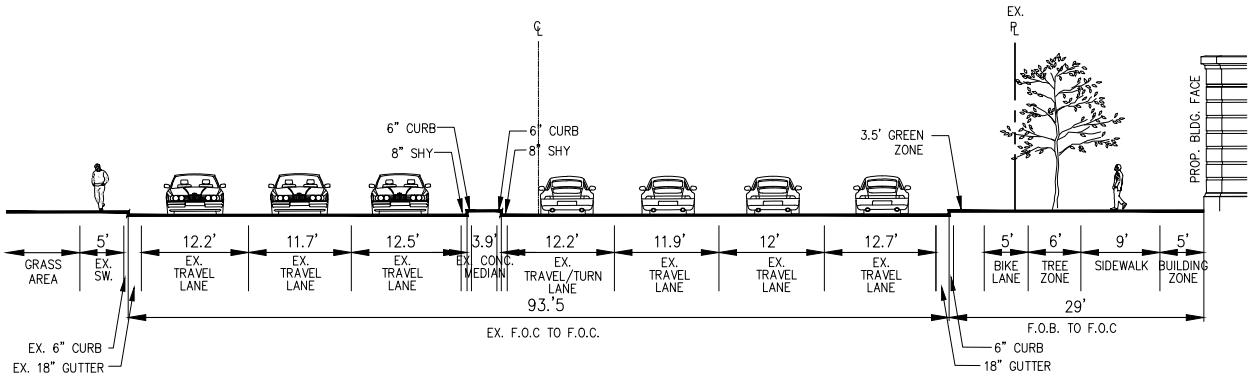


SCALE: 1" = 60'

SECTION A-A (LOOKING EAST)

LANGSTON BLVD

PROPOSED



SECTION A-A (LOOKING EAST)

LANGSTON BLVD

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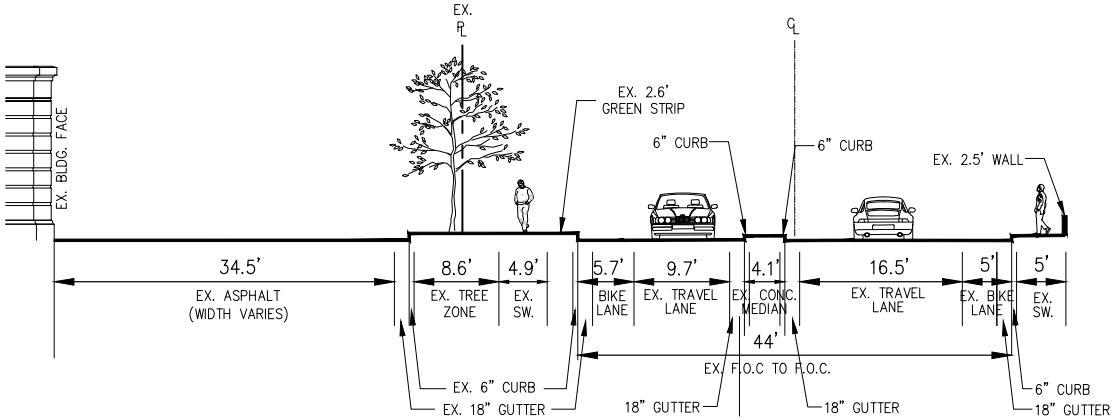
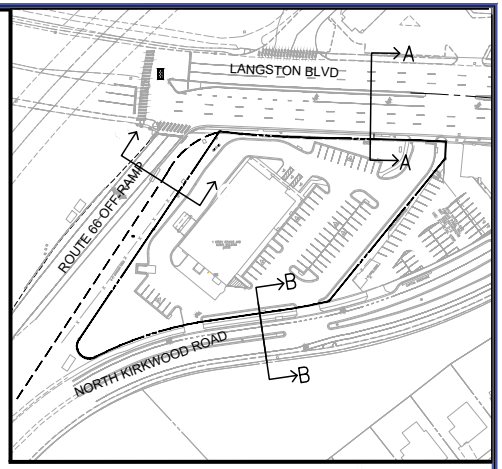
Figure 2-2
Langston Boulevard Street Section

3130 Langston Boulevard
Arlington, Virginia

EXISTING

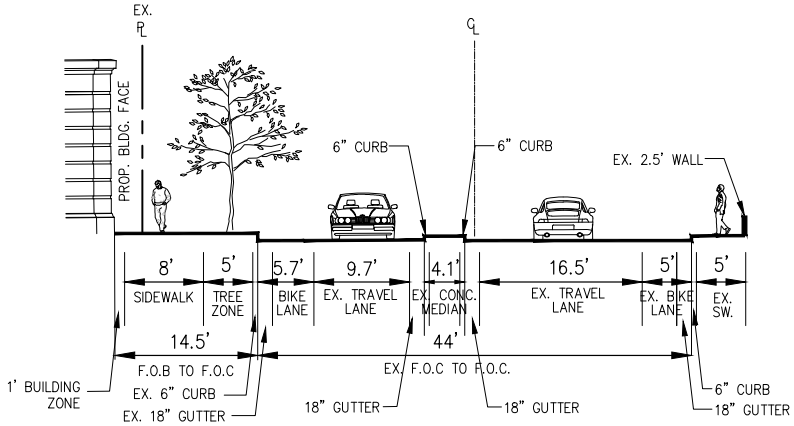




SECTION B-B (LOOKING EAST)

NORTH KIRKWOOD ROAD

PROPOSED



SECTION B-B (LOOKING EAST)

NORTH KIRKWOOD ROAD

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Figure 2-3
N. Kirkwood Road Street Section

3130 Langston Boulevard
Arlington, Virginia

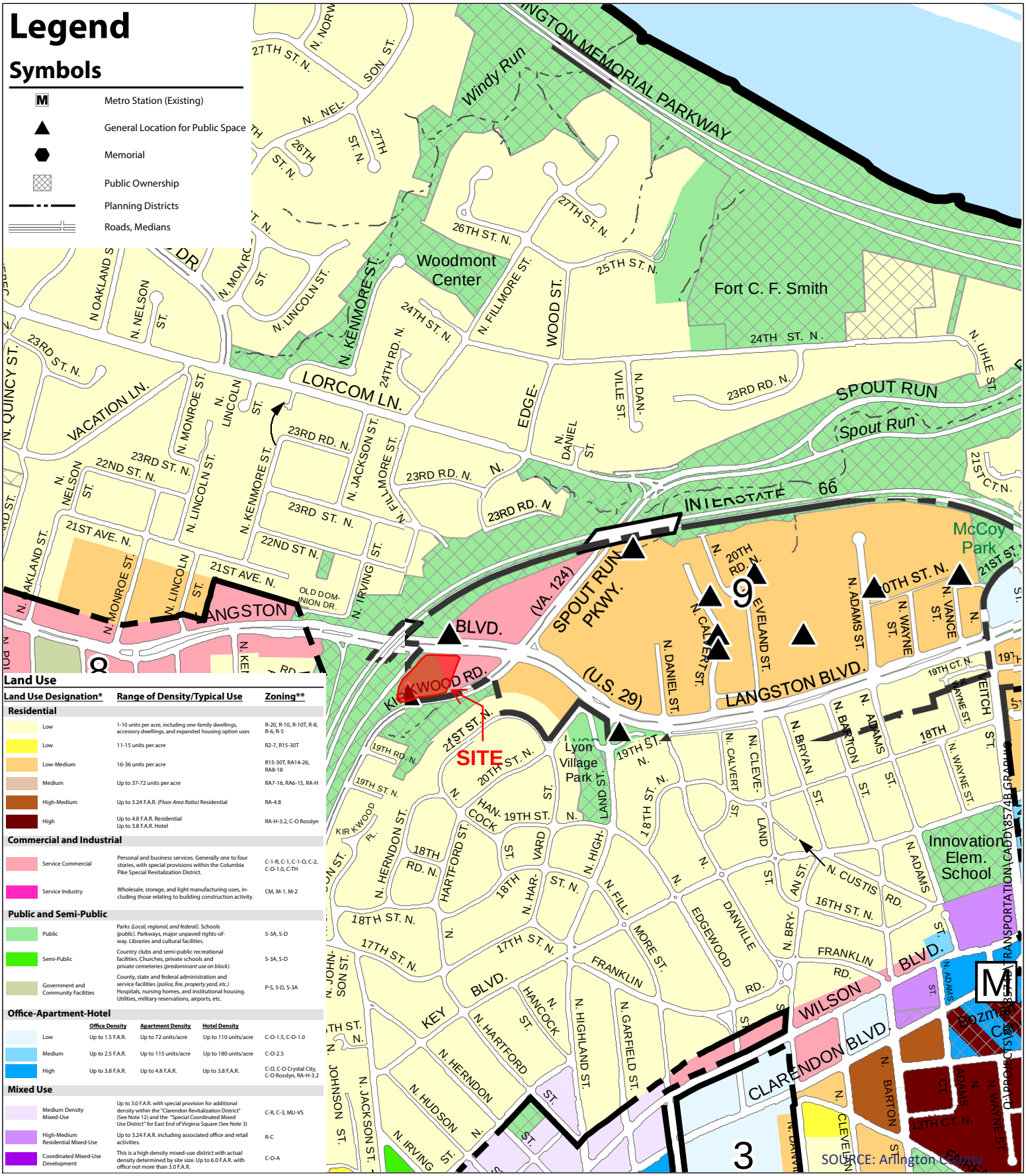

Figure 2-2
Arlington General land Use Plan

3130 Langston Boulevard
ARLINGTON, Virginia

SECTION 3
MULTIMODAL TRANSPORTATION FACILITIES

Overview

The subject site is served by multiple public transportation options including regional bus service; the Washington Metropolitan Area Transit Authority (WMATA) Metrorail system; a connected network of sidewalks and pedestrian crosswalks; bike-sharing systems; and on-street and trail bicycle facilities. The site is located within the Lyon Village neighborhood, with the Cherrydale neighborhood located just to the west and the Maywood Village to the north. The neighborhoods are primarily developed with retail/service uses along the Langston Boulevard frontage and residential neighborhoods behind.

Census Data Mode-Share Information

U.S Census data for "Means of Transportation to Work by Vehicles Available" based on the 2021 and 2021 American Community Survey 5-year estimates for Census Tracts surrounding the site were analyzed to understand travel patterns exhibited by local residents. A total of six (6) census tracts were selected due to their proximity to the site. They include Census Tracts 1005, 1006, 1014.02, 1014.06, 1015, 1015.02, and 1015.03. The survey results of the selected census tracts indicate that approximately 38% of commuters travel by vehicle, 3% carpooled, 25% by public transportation, 6% walk, 4% bike/other, 24% work from home. Refer to Appendix B for a map with the identified census tracts as well as detailed census mode-share information.

Existing Transit Services

Metrorail Service. The closest Metrorail Stations, Court House and Clarendon to the south, are located approximately one (1) mile from the subject site. The Court House and Clarendon Metrorail Stations provide access to the Orange and Silver lines. The Orange Line runs between New Carrolton and Vienna. The Silver Line runs between Largo Town Center and Ashburn Metrorail Station. Riders can take any of these lines to Metro Center and L'Enfant Plaza for access to other metro lines.

Figure 3-1 analyzes the 15-minute and 30-minute transit shed centered around the vicinity of the Langston Boulevard site. As shown on the graphic, most of Arlington County, parts of Falls Church, as well as much of Downtown D.C. are accessible via transit options within 30 minutes of the site. Some areas of interest within the highlighted zones include a variety of retail and residential areas, and Metro stations served by all Metro lines.

The WMATA Metrorail system operates seven (7) days a week from 5:00 AM to 11:30 PM Monday through Thursday, 5:00 AM to 1:00 AM on Fridays, 7:00 AM to 1:00 AM on Saturdays and 8 AM to 11:00 PM on Sundays. The train headways at the Ballston-MU and Pentagon City Metrorail Station range from eight (8) minutes during peak periods to 12-20 minutes during off-peak periods and weekends.

Bus Service. The site and nearby area is served by two (2) bus routes operated by Arlington Rapid Transit (ART) and WMATA. Below are summaries of the routes that operate near the site.

WMATA Metro Bus 3Y (Langston Boulevard – McPherson Square Line). This route runs across Arlington, starting from the East Falls Church Metro Station on S. Sycamore Street, and down Langston Boulevard (US-29), ending across the Theodore Roosevelt Bridge in D.C. near the Metro Center Metro Station. The bus line operates on weekdays with approximately 8-minute headways during peak periods.

ART Bus 55 (East Falls Church – Langston Blvd – Rosslyn). This route runs across Arlington, starting from the East Falls Church Metro Station on S. Sycamore Street, and down Langston Boulevard (US-29), ending near the Rosslyn Metro Station on N. Moore Street. The bus line operates on weekdays, Saturdays, and Sundays with 7-minute headways during peak periods.

Refer to Figure 3-2 for the locations of bus stops near the site and Figure 3-3 for bus routes. Specific information for the above-listed routes is in Appendix B. Average weekday boarding and alighting data was requested from Arlington County and WMATA for the nearby bus stops. However, no data was provided.

Pedestrian Facilities. A majority of the streets in the vicinity area provide sidewalks on both sides of the street and marked crosswalks at signalized intersections. Two (2) of the site frontages include sidewalks, the frontage facing Langston Boulevard (US-29) to the north, and the frontage facing N. Kirkwood Drive to the east and southeast. Below provides a summary of the pedestrian infrastructure in place at each of the study signalized intersections.

1. Langston Boulevard / I-66 WB On-Ramp: The signalized intersection of Langston Boulevard and the I-66 WB On-Ramp has marked crosswalks, pedestrian countdown heads, and ramps serving two (2) legs of the intersection.

2. Langston Boulevard / I-66 EB Off-Ramp: The signalized intersection of Langston Boulevard and the I-66 EB Off-Ramp has marked crosswalks, pedestrian countdown heads, and ramps serving two (2) legs of the intersection.

3. Langston Boulevard / N. Site Drive / CVS Drive: The un-signalized intersection of Langston Boulevard / N. Site Drive / CVS Drive has no marked crosswalks, pedestrian countdown heads, or ramps serving any legs of the intersection.

4. Langston Boulevard / N. Kirkwood Road: The signalized intersection of Langston Boulevard and N. Kirkwood Road has marked crosswalks, pedestrian countdown heads, and ramps serving four (4) legs of the intersection.

5. N. Kirkwood Road / E. Site Drive: The unsignalized intersection of N. Kirkwood Road and the E. Site Drive has no marked crosswalks, pedestrian countdown heads, or ramps serving any leg of the intersection.

6. N. Kirkwood Road / S. East Site Drive: The unsignalized intersection of N. Kirkwood Road and the S. East Site Drive has no marked crosswalks, pedestrian countdown heads, or ramps serving any leg of the intersection.

Figure 3-4 shows the pedestrian facilities within the vicinity of the site.

In order to provide an assessment of the site's access to pedestrian facilities and nearby amenities, the Walk Score was calculated for the site is included in Appendix B. The Walk Score is an analysis provided by the website and provides scores from 0 (worst) to 100 (best) for walkability. Based on its location, the subject site received a score of 82 which is classified as "Very Walkable – Most errands can be accomplished on foot." Further, walk score provides a transit score of 56 which is classified as "Good Transit – Many nearby public transportation options" and a bike score of 65 implying that the site is "bikeable". It is to be noted that Langston Boulevard has no dedicated bike lanes in the vicinity of the site, and the latest 2022 Arlington County Bike Map categorizes Langston Boulevard as a "Challenging" bike route. However, other bike trails and bike routes exist in the vicinity of the site.

The combination of sidewalks marked crosswalks at the intersections around the site, installation of ramps to serve the crosswalks, and planting buffers enhance the pedestrian experience around the site and encourage alternative modes of transportation. The site's proximity to the Clarendon and Court House Metrorail station provides multiple transit options for future residents.

Figure 3-5 shows the 10-minute, 20-minute, and 30-minute pedestrian travel shed for the proposed development. Within a 10-minute walk, a commuter could access neighboring roads, multiple Capital Bikeshare locations, pay-as-you-go electric scooters and bicycles, and Thrifton Hills Park. Within a 20-minute walk, commuters could access a wide range of retail and residential areas, and three Metro stations served by the Silver and Orange lines. Within a 30-minute walk, commuters will have access to more retail, residential, and recreational amenities, an additional Metro station served by the Orange and Silver lines, and more Capital Bikeshare locations.

Bicycle Facilities. Marked bike lanes exist on both the northbound and southbound lanes of Kirkwood Road. According to the 2022 Arlington County Bike Map, this bike route is classified with a medium "perception of comfort". To the west and the east on Langston Boulevard are dedicated bike lanes, categorized as "Challenging" by the Arlington County Bike Map. Across Langston Boulevard, north of the site, runs the Martha Custis Trail. The Custis Trail is a 4.5-mile-long shared use path in Arlington County. This path is a part of the Arlington Loop Trail. Figure 3-6 shows the bike routes from the Arlington County Bicycle Facilities Map. As shown, the combination of on-street routes, nearby Bikeshare, and proximity to the Arlington Loop trail create a bicycle friendly environment and encourage use as a non-auto mode. Additionally, Figure 3-7 highlights the bicycle facilities existing and planned as part of the Master Transportation Plan (MTP). With the proposed developed a new 5-foot bike lane will be provided along the site's frontage as recommended in the MTP.

Figure 3-8 demonstrates the 10-minute, 20-minute, and 30-minute bicycle travel shed for the proposed development. Within a 10-minute bike ride, commuters will have access to much of Arlington, several bicycle paths, retail and residential options, and multiple Metro stations served by the Silver and Orange lines. Within a 20-minute bike ride, commuters would have access to all of Arlington, parts of Falls Church, McLean, and much of Washington D.C., and access to Metro stations served by all Metro lines. Within a 30-minute bike ride, commuters will have access to the areas of McLean and Annandale. Alexandria, access to parts of Bethesda, and most of Washington D.C.

Capital Bikeshare is an automated bicycle rental or bicycle sharing program that provides over 5,000 bicycles at 700+ stations across Washington, DC, Maryland, and Virginia. Membership, which is required to use Capital Bikeshare, includes different options for joining; from single trip ($1), 24 hours ($8), 30 days ($20), one year ($95), or one year with monthly installments ($95, $7.92/month for 12 months). The first 45 minutes of use are free; users then are charged a usage fee ($0.05) for each additional minute. Bicycles can be returned to any station with an available dock.

Within a ½ mile radius of the site there are four (4) Capital Bikeshare stations, as shown on Figure 3-4, with the closet is located just east of the site at the intersection of Langston Boulevard and N. Kirkwood Road. A total of 15 docks are available at this location.

In addition to bikeshare, electric-assist scooter sharing, and dock-less bicycles have become readily available throughout Langston Boulevard. Users must have an account with the scooter service provider and can then board a scooter wherever available. Fees per ride vary with each service provider, but typically charge a small startup fee and rate per minute. When the user is done with their trip, the scooter is left for the next rider.

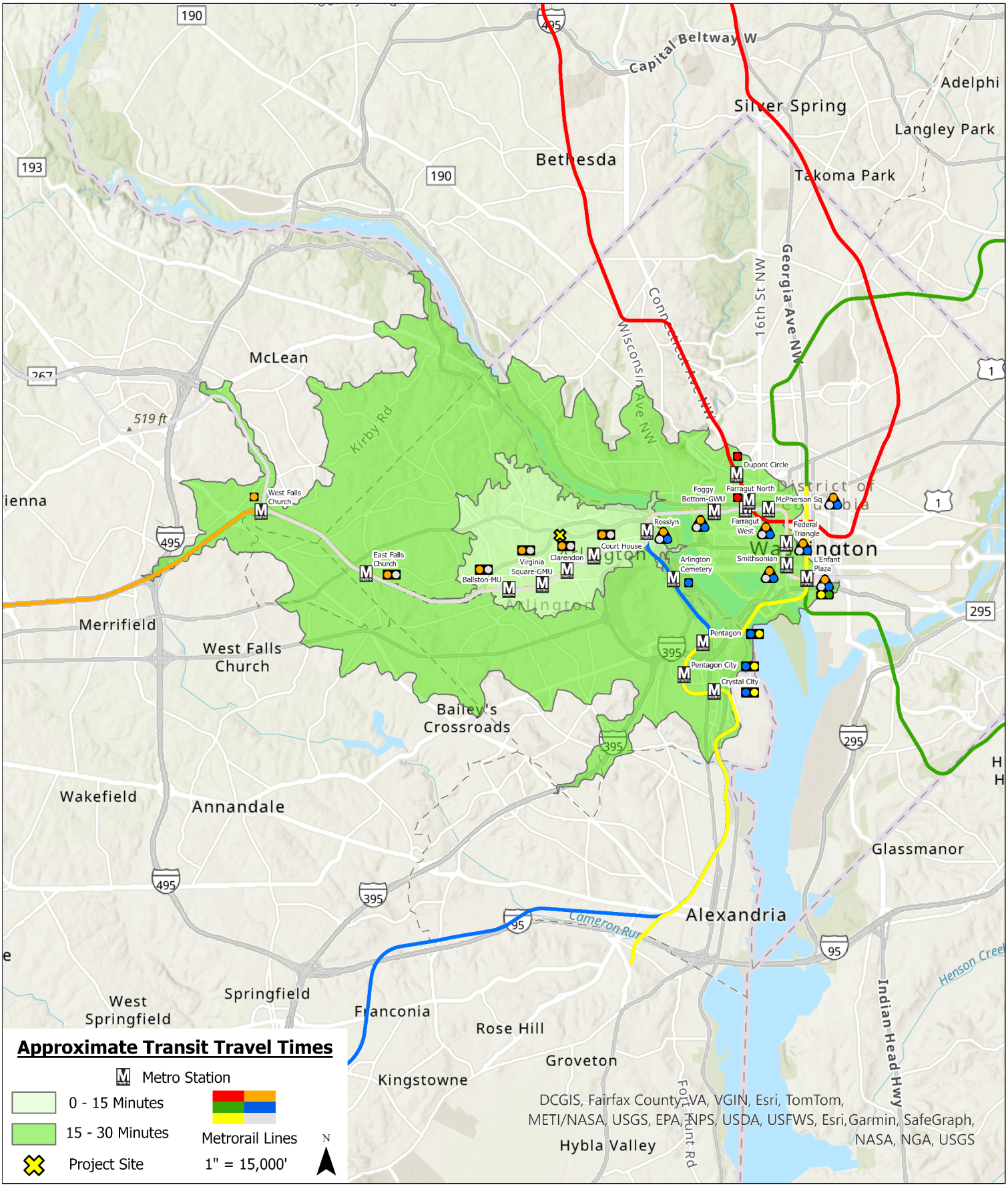

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Figure 3-1
Transit Shed

3130 Langston Boulevard
ARLINGTON, Virginia

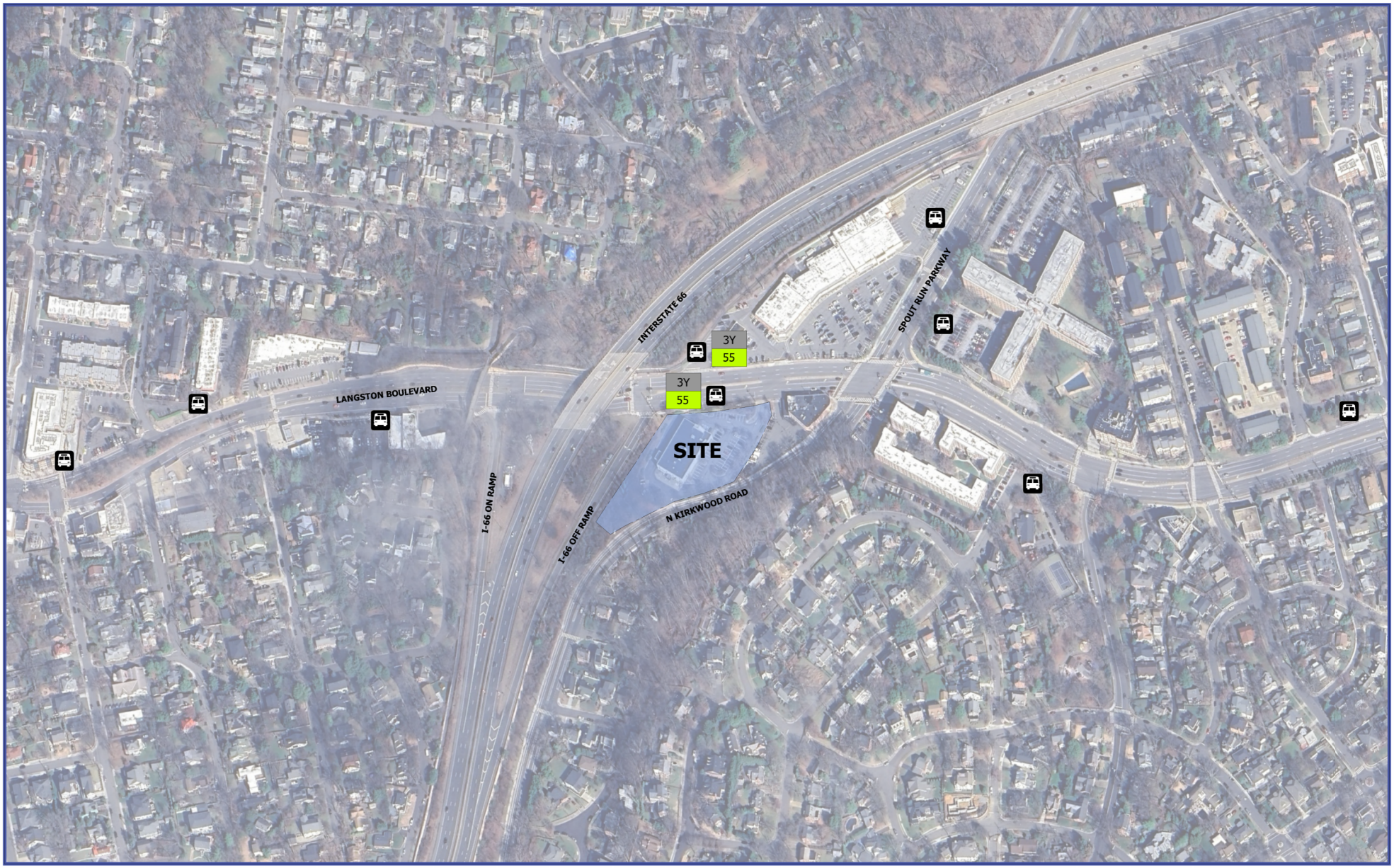

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Figure 3-2
Bus Stop Locations

Bus Stop Location
XXX Bus Route

3130 Langston Boulevard
Arlington, Virginia

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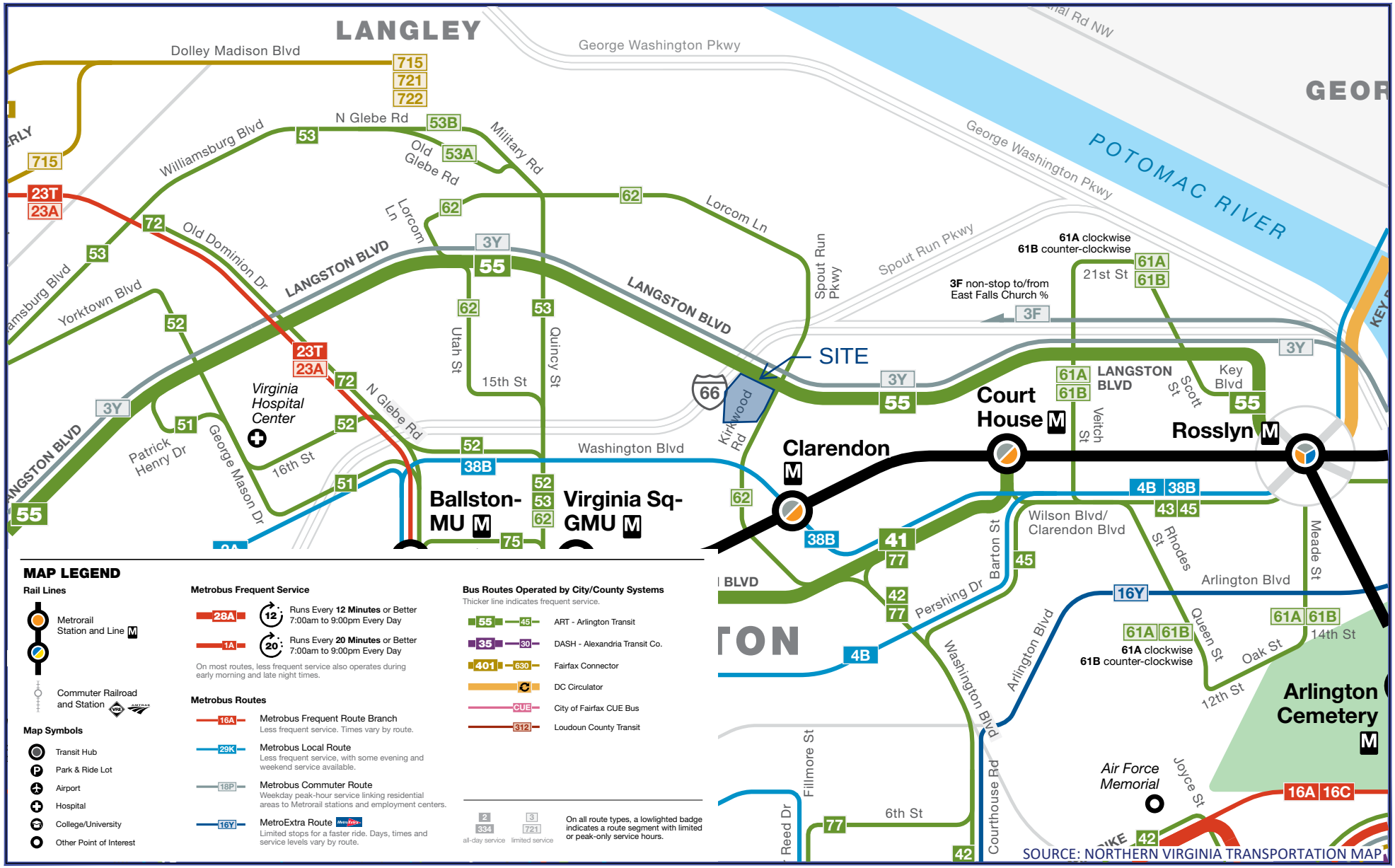

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Figure 3-3
Bus Map

3130 Langston Boulevard
Arlington, Virginia

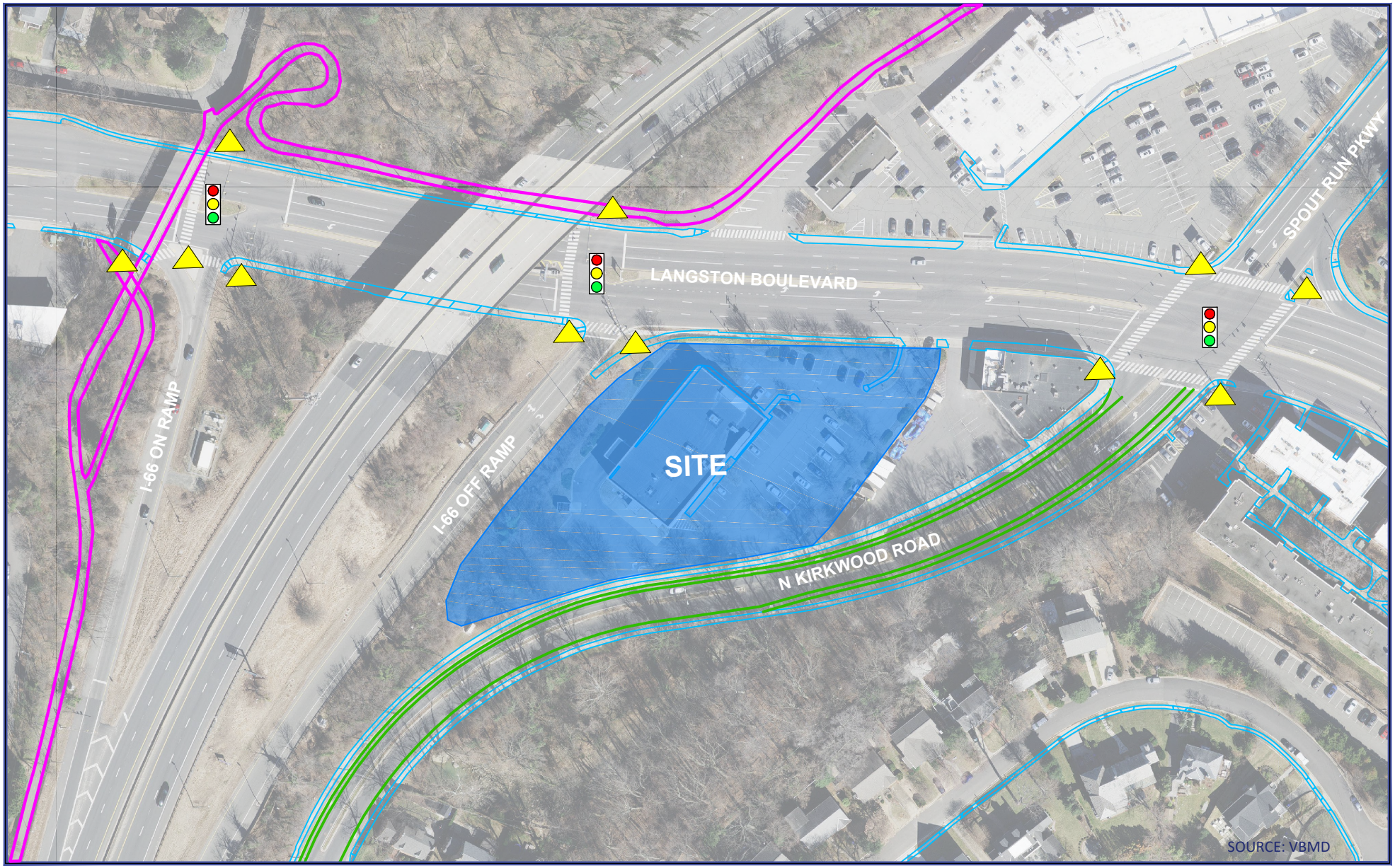

Figure 3-4
Pedestrian Facilities Map

3130 Langston Boulevard
Arlington, Virginia

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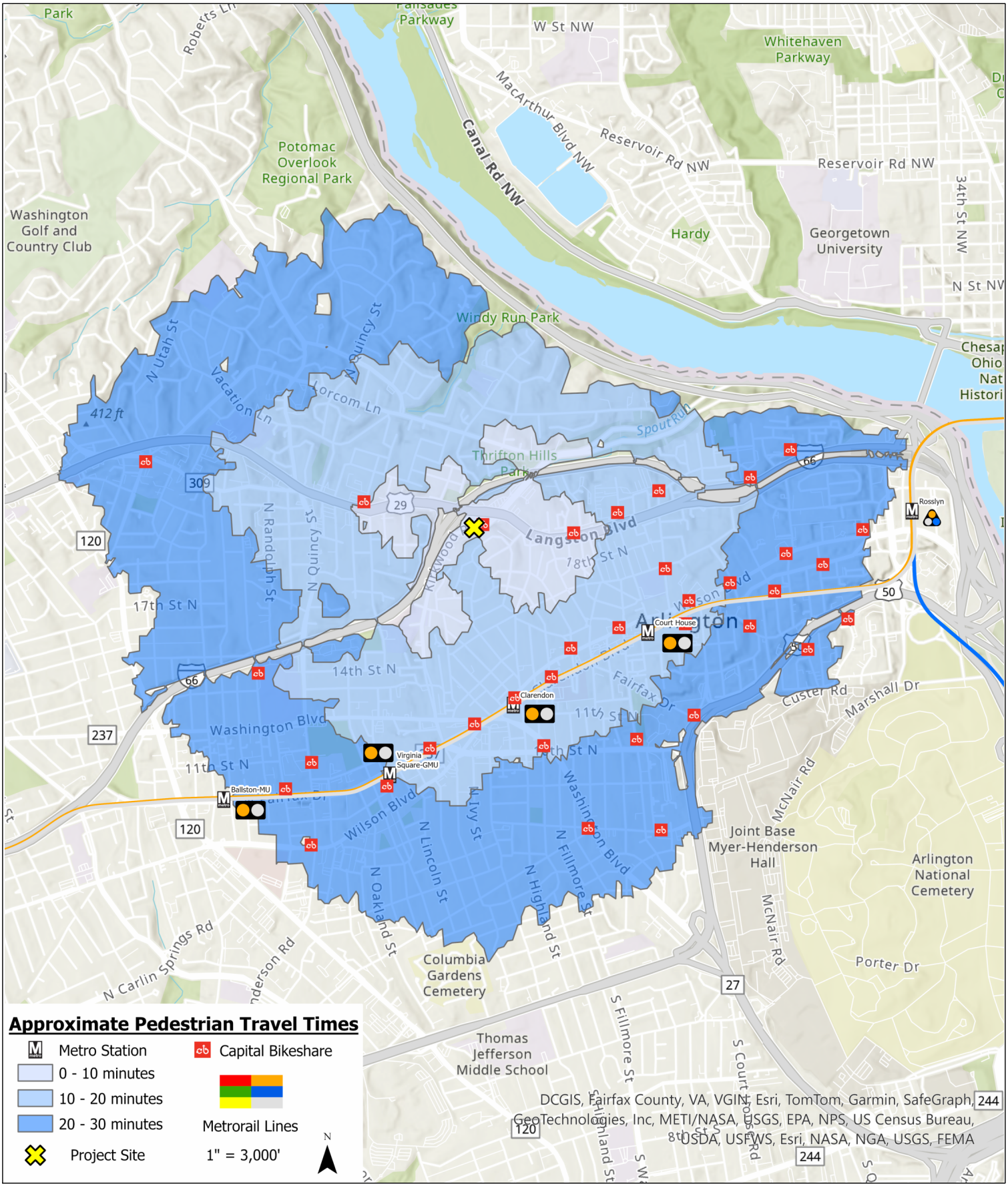

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Figure 3-5
Pedestrian Shed

3130 Langston Boulevard
ARLINGTON, Virginia

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Figure 3-6
Bike Map

3130 Langston Boulevard
Arlington, Virginia

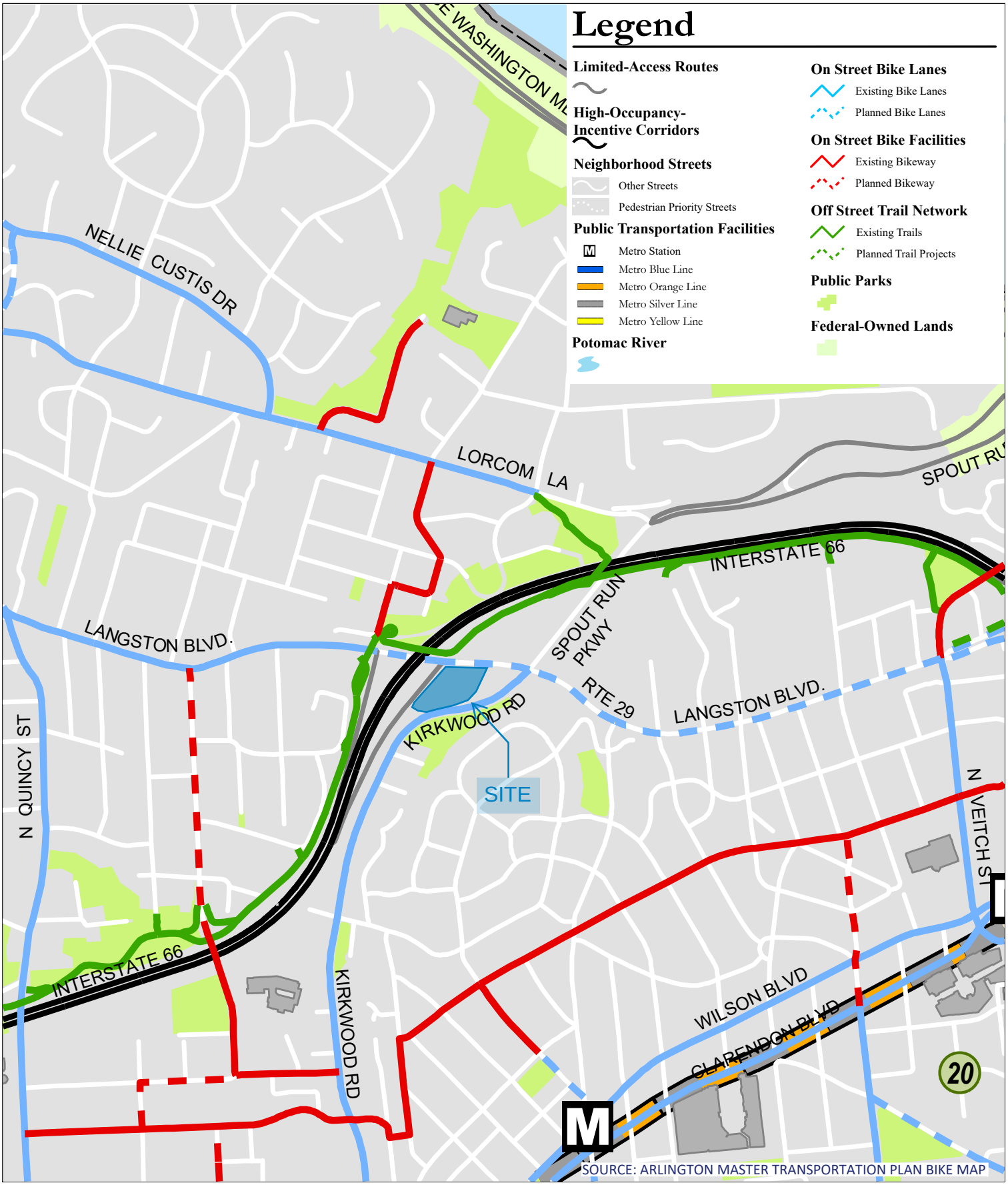

Figure 3-7
Arlington Master Transportation Plan Bike Map

3130 Langston Boulevard
Arlington, Virginia

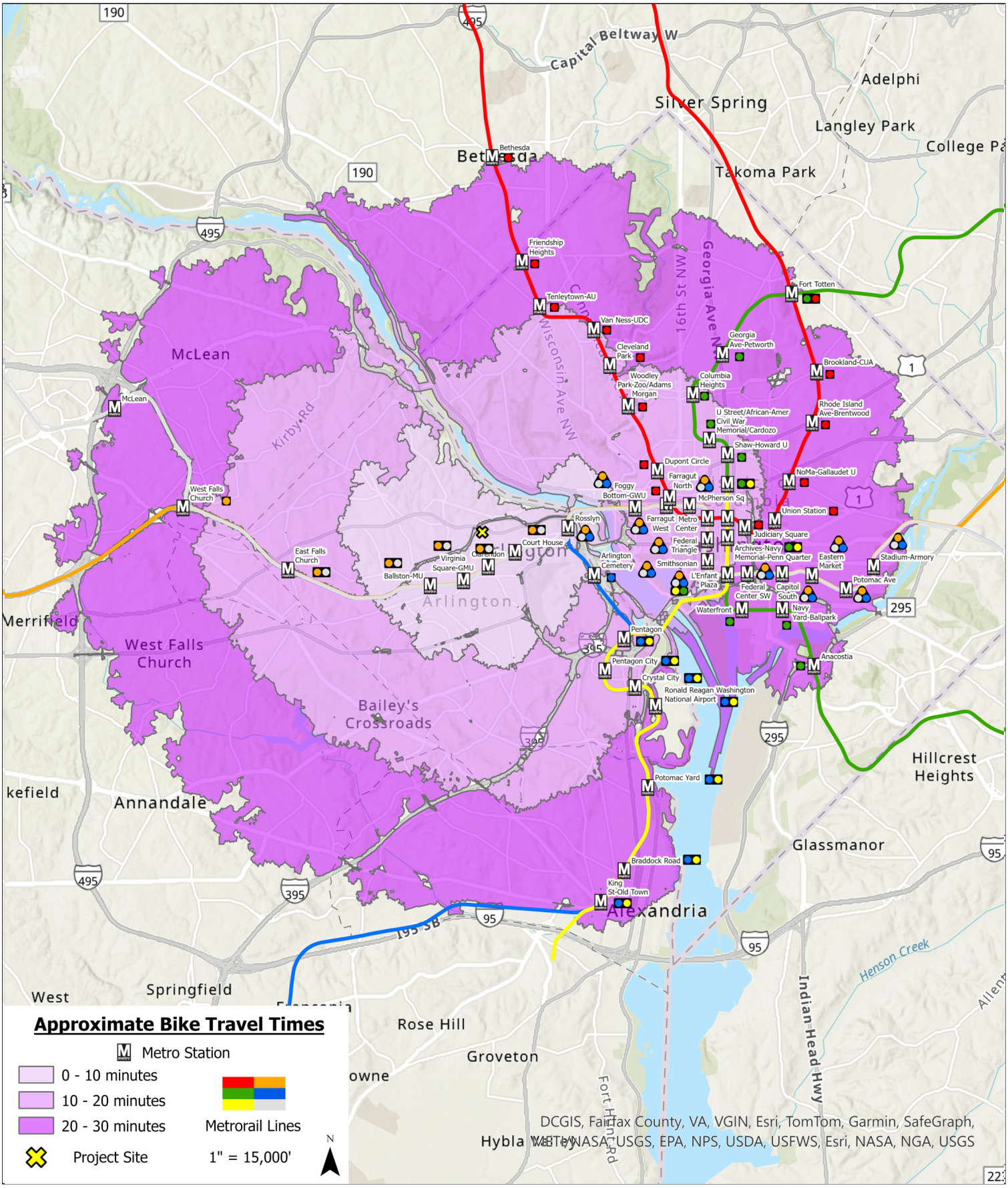

Figure 3-8
Bicycle Shed

3130 Langston Boulevard
ARLINGTON, Virginia

SECTION 4
EXISTING CONDITIONS

Existing Traffic Counts

Existing vehicular, pedestrian, and bicycle traffic counts were conducted by National Data & Surveying Services (NDS) on Thursday, May 30, 2024, from 7:00 to 10:00 AM and 4:00 to 7:00 PM at the following study intersections:

1. Langston Boulevard and I-66 WB On-ramp
2. Langston Boulevard and I-66 EB Off-ramp
3. Langston Boulevard and N. Site Drive and CVS Drive
4. Langston Boulevard and N. Kirkwood Road
5. N. Kirkwood Road and East Site Drive
6. N. Kirkwood Road and Southeast Site Drive

The weekday AM and PM peak hour vehicular, pedestrian, and bicycle traffic counts are summarized on Figures 4-1 through 4-3, respectively. Detailed sheets containing the count data are included in Appendix C.

A review of the peak hour vehicular count data indicates that the link of Langston Boulevard, adjacent to the site, currently carries approximately 2,960 AM peak hour trips and 2,836 PM peak hour trips. The northern driveway on Langston Boulevard currently carries approximately 1 AM peak hour trips, and 7 PM peak hour trips. The western site driveway on Kirkwood Road currently carries approximately 2 AM peak hour trips and 4 PM peak hour trips while the eastern site driveway currently carries approximately 16 AM peak hour trips, and 42 PM peak hour trips.

Existing Conditions Operational Analysis

The existing peak hour LOS and queues were estimated at the study intersections based on; the existing lane use and traffic controls shown on Figure 2-1; existing traffic signal phasing/timings obtained from Arlington County; the existing vehicular, pedestrian, and bicycle traffic counts shown on Figures 4-1 through 4-3; and the Highway Capacity Manual (HCM) 2000 methodologies, using Synchro Software, version 11.

Descriptions of LOS “A” through “F” for signalized and unsignalized intersections are included in Appendix D. The results of the existing conditions analysis are presented in Appendix E and summarized in Tables 4-1 and 4-2. In addition to the peak hour vehicular, pedestrian and bike volumes the following inputs were coded into Synchro: calculated peak hour factors by approach, lane widths, speed limits, adjacent parking lane, number parking maneuvers, and bus blockages.

Levels of Service. As shown in Table 4-1 the three (3) signalized study intersections currently operate at overall acceptable LOS "C" or better during the AM and PM peak hours, with most operating at LOS "B" or "C". All lane groups operate at LOS "E" of better with the exception of the eastbound-left movement during the PM peak hour period at the intersection of Langston Boulevard / N. Kirkwood and Spout Run Parkway.

At the stop-controlled intersections, all lane groups currently operate at LOS "C" or better during the AM and PM peak hours.

Queuing. Existing peak hour queues for study intersection were determined using the 50th and 95th percentile queues estimated by Synchro Software, version 11. The 50th and 95th percentile queues of existing conditions are used to establish a datum against which to compare future conditions. The 50th percentile (or average) queue is defined as the maximum back of queue associated with a typical signal cycle. The 95th percentile queue is defined as the maximum back of queue with 95th percentile traffic volumes. The 95th percentile queue is not necessarily ever observed, it is simply based on statistical calculations[1]. The results of the queueing analysis are presented in Appendix E and summarized in Table 4-2.

As shown on Table 4-2 and observed in the field, peak hour queuing and the calculated average queues can be accommodated within a majority of available turn lane storage provided at study intersections. Vehicular queueing (95th percentile) exceeds the available storage for the southbound left (AM and PM) and eastbound left turns (PM) at the Langston Boulevard / N. Kirkwood and Spout Run Parkway intersection and the westbound left at the Langston Boulevard / I-66 (PM) on ramp as shown on Table 4-2.

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

Table 4-1
3130 Langston Boulevard
Existing Conditions with Development Intersection Level of Service Summary [1]

Approach/ Lane Group	Existing Conditions (2024)			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
1. Langston Boulevard / I-66 On Ramp - Signalized				
EBTR	B	11.5	A	4
WBL	D	35.8	A	1.8
WBT	A	0.1	A	4.4
Overall	**B**	**11.1**	**A**	**4.0**
2. Langston Boulevard / I-66 Off Ramp - Signalized				
EBT	A	3.6	A	3.6
WBT	A	6.6	A	3.0
NBL	C	23.8	D	44.6
NBR	A	4	A	4.1
Overall	**A**	**5.6**	**A**	**3.7**
3. Langston Boulevard / Site Dwy / CVS Dwy - Unsignalized				
EBL	B	10.6	B	11.2
EBTR	A	0.0	A	0.0
WBLTR	A	0.0	A	0.0
NBLTR	A	8.9	B	10.1
SBLTR	B	10.2	B	13.5
4. N Kirkwood Rd / Spout Run Pkwy / Langston Boulevard - Signalized				
EBL	D	43.2	F	184.7
EBTR	B	12.4	A	7.1
WBL	C	34.5	C	27.7
WBT	C	25.9	C	23.2
WBR	C	22.9	B	19.5
NBL	D	35.7	C	34.3
NBTR	D	36.4	C	33.4
SBL	E	69.3	D	54.3
SBT	C	34.4	C	34.7
SBR	C	34.5	C	34.5
Overall	**C**	**27.8**	**D**	**44.7**
5. N Kirkwood Rd / West Site Dwy - Unsignalized				
EBLT	A	0.0	A	0.0
WBLTR	A	0.0	A	0.0
SBLR	A	9.3	B	10.2
6. N Kirkwood Rd / East Site Dwy - Unsignalized				
EBLT	A	0.0	A	0.3
WBTR	A	0.0	A	0.0
SBLR	B	11.6	B	13.4

Note(s):

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

Table 4-2
3130 Langston Boulevard
Existing Conditions with Intersection Queuing Summary [1, 2, 3]

Approach / Lane Group	Storage Length (ft)	Existing Conditions (2023)			
		AM Peak Hour		PM Peak Hour	
		50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile
1. Langston Boulevard / I-66 On Ramp - Signalized					
EBT	-	139	186	54	105
WBL	185	82	#240	74	141
WBT	-	0	0	0	0
NBR	-	0	0	0	0
SBLTR	-	0	0	0	0
2. Langston Boulevard / I-66 Off Ramp - Signalized					
EBT	-	100	351	46	161
WBT	-	265	246	48	167
NBL	-	13	27	18	33
NBR	-	0	30	0	45
3. Langston Boulevard / N Site Dwy / CVS Dwy - Unsignalized					
EBL	-	-	7	-	5
EBTR	-	-	0	-	0
WBLTR	-	-	0	-	0
NBLTR	-	-	0	-	0
SBLTR	-	-	7	-	12
4. N Kirkwood Rd / Spout Run Pkwy / Langston Boulevard - Signalized					
EBL	500	217	#399	~314	#529
EBTR	-	170	198	88	54
WBL	250	28	#91	42	0
WBT	-	132	195	165	#117
WBR	165	0	52	0	246
NBL	100	62	100	51	85
NBTR	-	114	140	90	111
SBL	135	106	170	108	165
SBTR	-	76	115	125	170
SBR	-	0	73	42	132
5. N Kirkwood Rd / West Site Dwy - Unsignalized					
EBLT	-	-	0	-	0
WBLTR	-	-	0	-	0
SBLR	-	-	0	-	0
6. N Kirkwood Rd / East Site Dwy - Unsignalized					
EBLT	-	-	0	-	1
WBTR	-	-	0	-	0
SBLR	-	-	1	-	5

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

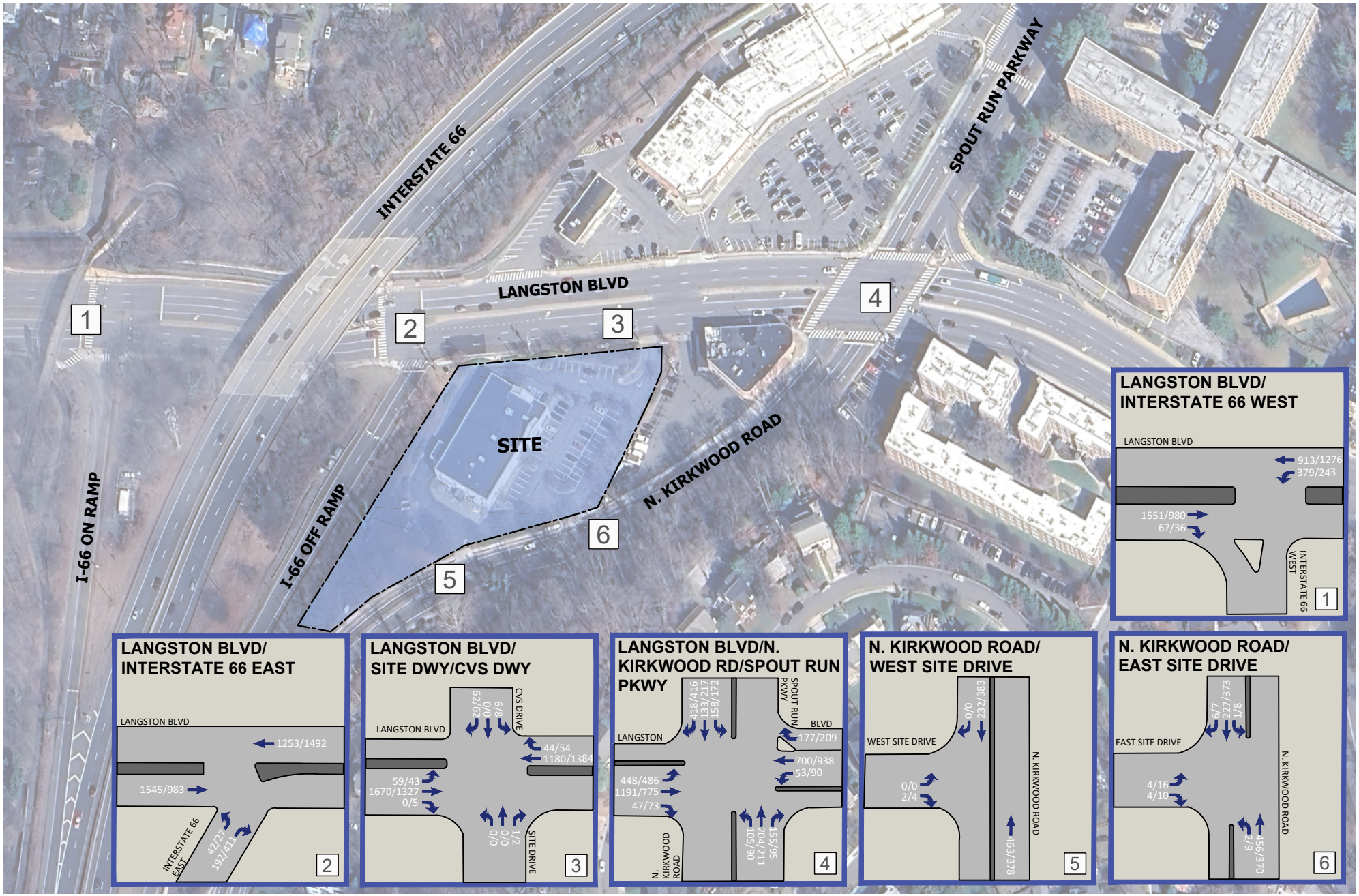

Figure 4-1
Existing Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

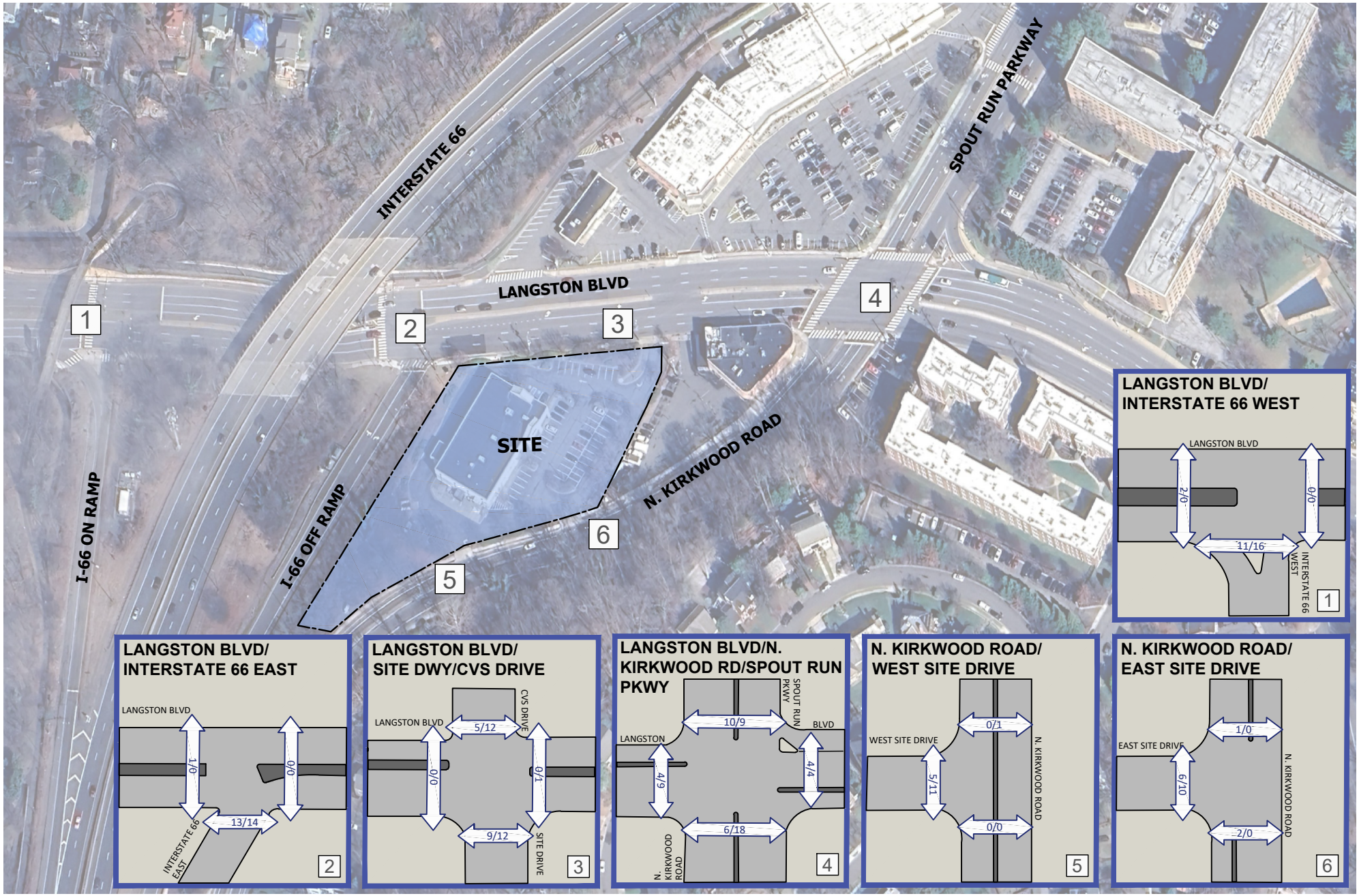

Figure 4-2
Existing Peak Hour Pedestrian Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

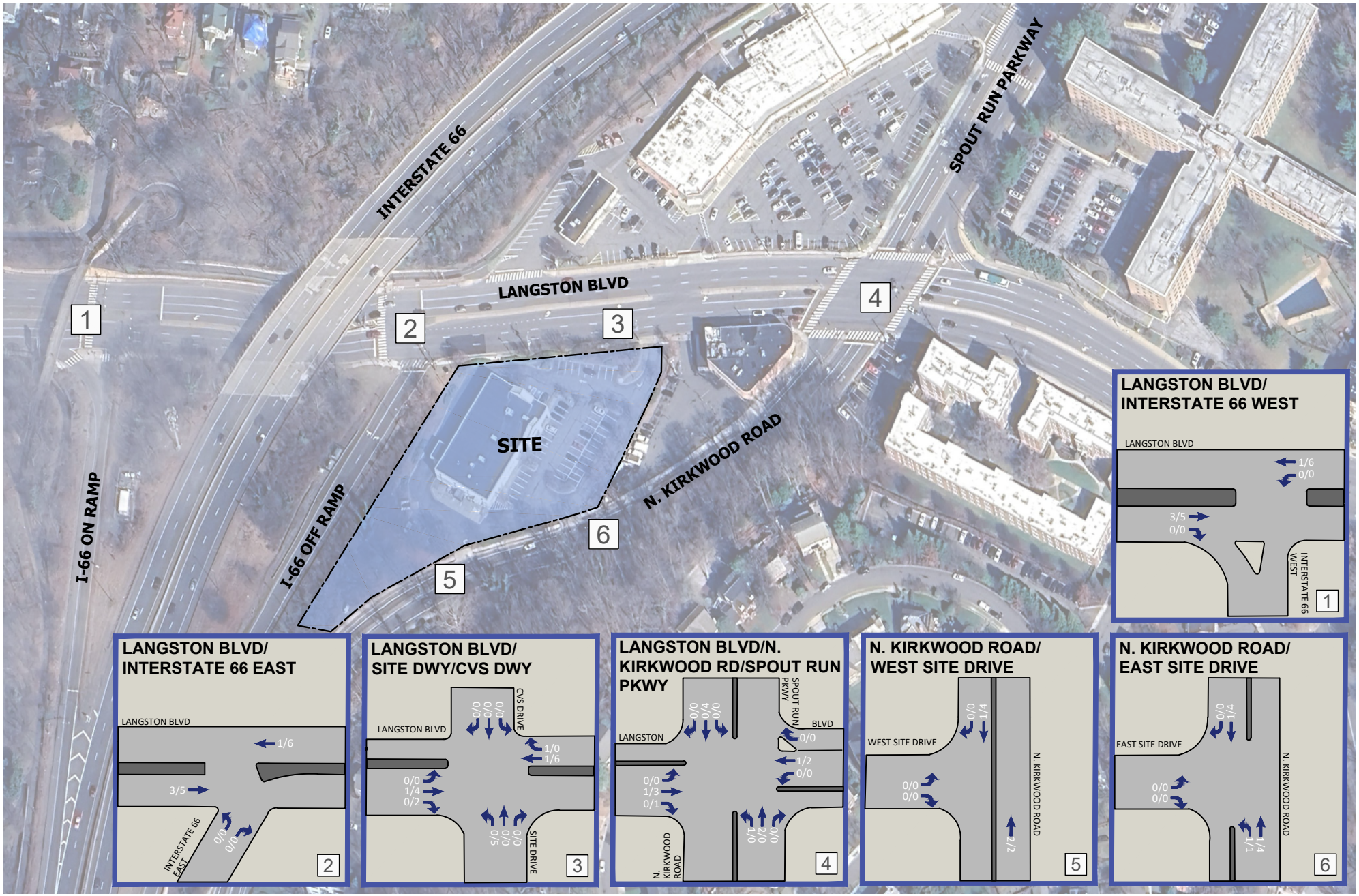

Figure 4-3
Existing Peak Hour Bike Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

SECTION 5
FUTURE CONDITIONS WITHOUT DEVELOPMENT (2028)

Background Conditions

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

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

Pipeline Developments. As outlined in the scoping document, there are currently no pipeline developments identified near the site.

Regional Growth. An increase in traffic associated with regional growth from 2024 to 2028 was estimated at 0.5 percent per year, compounded annually, for all turning movements as agreed to with DES staff during scoping. This growth rate was applied to all turning movements, except for the movements in/out of the site driveways. This growth accounts for increases in traffic resulting from potential development and influences outside of the immediate study area. The regional growth at each of the study intersections is shown on Figure 5-1.

The resulting 2028 future traffic forecasts without development are shown on Figure 5-2.

Planned Improvements. There are currently no funded transportation improvements within the study area. It is noted new traffic signal infrastructure in planned at the Langston Boulevard / N. Kirkwood Road / Spout Run Parkway intersection. No changes to traffic signal timings or phasing are planned with the improvements.

Future Conditions without Development Operational Analysis (2028)

Future peak hour LOS and 50th and 95th percentile queues without the redevelopment of the Walgreens site in year 2028 were estimated at the study intersections based on the existing conditions, lane use and traffic controls shown on Figure 2-1; existing traffic signal phasing/timings obtained from Arlington County; the future peak hour traffic forecasts without redevelopment are shown on Figure 5-2; and the HCM 2000 methodologies using Synchro Software, version 11. The LOS and queue results are presented in Appendix F and summarized in Tables 5-1 and 5-2.

Levels of Service. As shown in Table 5-1, with increases in traffic due to regional growth, all signalized study intersections would continue to operate at overall LOS “C” or better during the AM and PM peak hours.

Additionally, all individual lane groups/movements would operate LOS “E” exception of the eastbound left movement at the intersection of N Kirkwood Road / Spout Run Parkway / Langston Boulevard during the PM peak hour, consistent with existing conditions.

The results indicate that slight increases in delay would occur throughout the network as a result of increased traffic due to regional growth vehicle trips.

All of the stop-controlled study intersections would continue to operate similar to existing conditions, with all movements operating at acceptable levels of service.

Queuing. As shown on Table 5-2, the results of the queueing analysis are similar to those described in under existing conditions. Some movements would experience greater queueing as a result of increased traffic from regional growth and pipeline developments. Storage bays noted under existing conditions would continue to exceed available capacity.

Table 5-1
3130 Langston Boulevard
Future Conditions without Development Intersection Level of Service Summary [1]

Approach/ Lane Group	Existing Conditions (2024)				Future Conditions without Development (2028)			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
1. Langston Boulevard / I-66 On Ramp - Signalized								
EBTR	B	11.5	A	4	B	11.8	A	4.1
WBL	D	35.8	A	1.8	D	37.2	A	1.9
WBT	A	0.1	A	4.4	A	0.1	A	4.5
Overall	**B**	**11.1**	**A**	**4.0**	**B**	**12.7**	**A**	**4.1**
2. Langston Boulevard / I-66 Off Ramp - Signalized								
EBT	A	3.6	A	3.6	A	4.7	A	3.6
WBT	A	6.6	A	3.0	A	6.6	A	3.1
NBL	C	23.8	D	44.6	C	23.9	D	44.6
NBR	A	4	A	4.1	A	4	A	4.1
Overall	**A**	**5.6**	**A**	**3.7**	**A**	**5.7**	**A**	**3.8**
3. Langston Boulevard / Site Dwy / CVS Dwy - Unsignalized								
EBL	B	10.6	B	11.2	B	10.7	B	11.3
EBTR	A	0.0	A	0.0	A	0.0	A	0.0
WBLTR	A	0.0	A	0.0	A	0.0	A	0.0
NBLTR	A	8.9	B	10.1	A	9.0	B	10.1
SBLTR	B	10.2	B	13.5	B	10.2	B	13.6
4. N Kirkwood Rd / Spout Run Pkwy / Langston Boulevard - Signalized								
EBL	D	43.2	F	184.7	D	51.5	F	208.3
EBTR	B	12.4	A	7.1	B	12.8	A	7.2
WBL	C	34.5	C	27.7	D	36.4	C	28.7
WBT	C	25.9	C	23.2	C	26.4	C	23.6
WBR	C	22.9	B	19.5	C	23.3	B	19.7
NBL	D	35.7	C	34.3	D	35.3	C	34.2
NBTR	D	36.4	C	33.4	D	36.1	C	33.2
SBL	E	69.3	D	54.3	E	71.1	E	55.8
SBT	C	34.4	C	34.7	C	34.1	C	34.5
SBR	C	34.5	C	34.5	C	34.2	C	34.7
Overall	**C**	**27.8**	**D**	**44.7**	**C**	**29.1**	**D**	**48.0**
5. N Kirkwood Rd / West Site Dwy - Unsignalized								
EBLT	A	0.0	A	0.0	A	0.0	0	0.0
WBLTR	A	0.0	A	0.0	A	0.0	A	0.0
SBLR	A	9.3	B	10.2	A	9.4	B	10.3
6. N Kirkwood Rd / East Site Dwy - Unsignalized								
EBLT	A	0.0	A	0.3	A	0.0	A	0.3
WBTR	A	0.0	A	0.0	A	0.0	A	0.0
SBLR	B	11.6	B	13.4	B	11.7	B	13.6

Note(s):

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

Table 5-2
3130 Langston Boulevard
Future Conditions without Development Intersection Queuing Summary [1, 2, 3]

Approach / Lane Group	Storage Length (ft)	Existing Conditions (2023)				Future Conditions without Development (2026)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile
1. Langston Boulevard / I-66 On Ramp - Signalized									
EBT	-	139	186	54	105	143	192	57	110
WBL	185	82	#240	74	141	94	#242	3	5
WBT	-	0	0	0	0	0	0	79	147
NBR	-	0	0	0	0	-	-	-	-
SBLTR	-	0	0	0	0	-	-	-	-
2. Langston Boulevard / I-66 Off Ramp - Signalized									
EBT	-	100	351	46	161	0	104	47	165
WBT	-	265	246	48	167	5	271	49	175
NBL	-	13	27	18	33	13	28	18	34
NBR	-	0	30	0	45	0	31	0	45
3. Langston Boulevard / N Site Dwy / CVS Dwy - Unsignalized									
EBL	-	-	7	-	5	-	7	-	5
EBTR	-	-	0	-	0	-	0	-	0
WBLTR	-	-	0	-	0	-	0	-	0
NBLTR	-	-	0	-	0	-	0	-	0
SBLTR	-	-	7	-	12	-	7	-	12
4. N Kirkwood Rd / Spout Run Pkwy / Langston Boulevard - Signalized									
EBL	500	217	#399	~314	#529	228	~340	~340	#552
EBTR	-	170	198	88	54	174	92	92	55
WBL	250	28	#91	42	0	29	44	44	#123
WBT	-	132	195	165	#117	137	171	171	252
WBR	165	0	52	0	246	0	0	0	53
NBL	100	62	100	51	85	62	52	52	87
NBTR	-	114	140	90	111	115	92	92	113
SBL	135	106	170	108	165	108	110	110	170
SBTR	-	76	115	125	170	78	127	127	173
SBR	-	0	73	42	132	0	46	46	140
5. N Kirkwood Rd / West Site Dwy - Unsignalized									
EBLT	-	-	0	-	0	-	0	-	0
WBLTR	-	-	0	-	0	-	0	-	0
SBLR	-	-	0	-	0	-	0	-	0
6. N Kirkwood Rd / East Site Dwy - Unsignalized									
EBLT	-	-	0	-	1	-	0	-	1
WBTR	-	-	0	-	0	-	0	-	0
SBLR	-	-	1	-	5	-	1	-	5

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

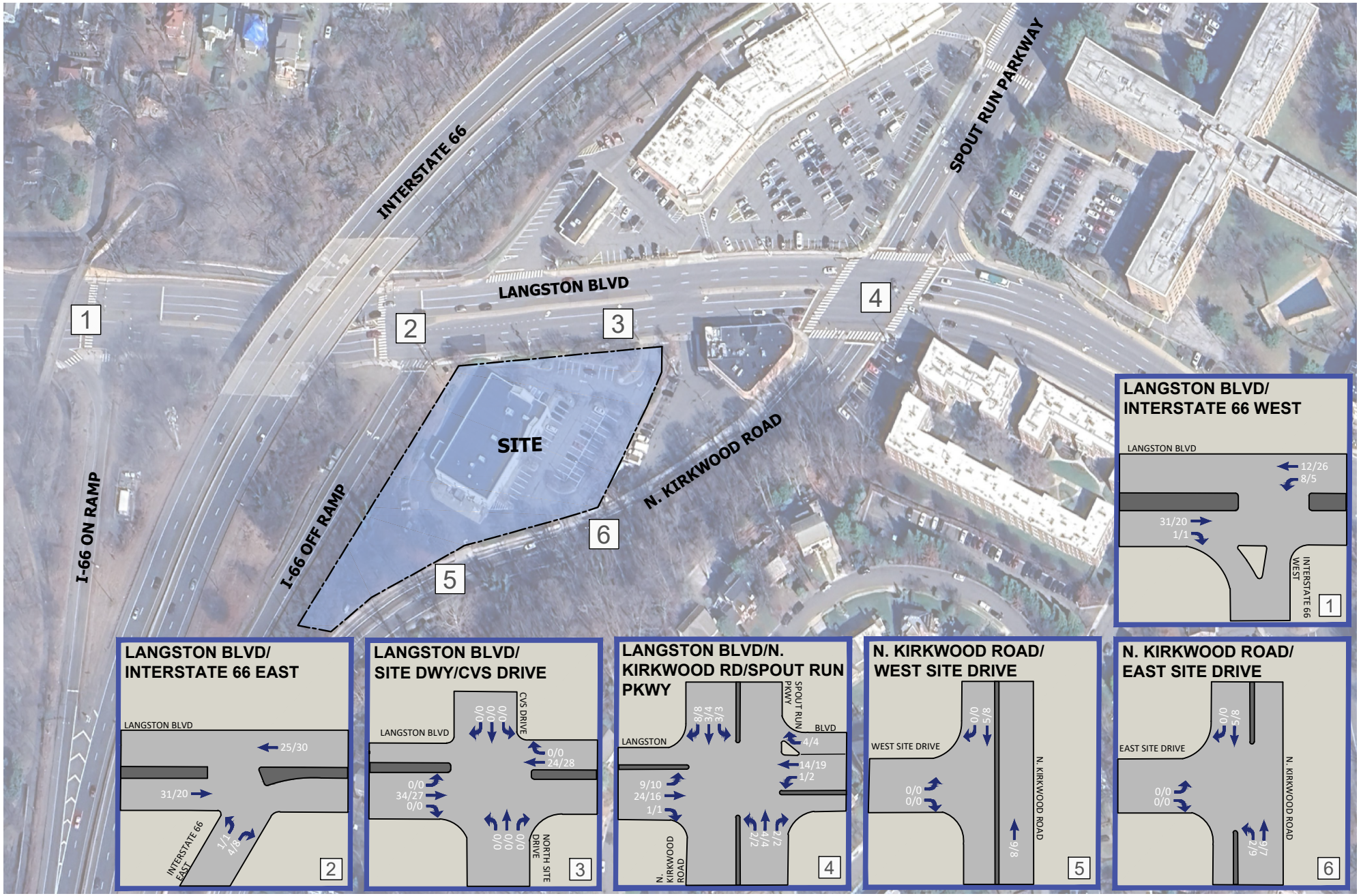

Figure 5-1
Regional Growth (2024-2028)

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

VIKA

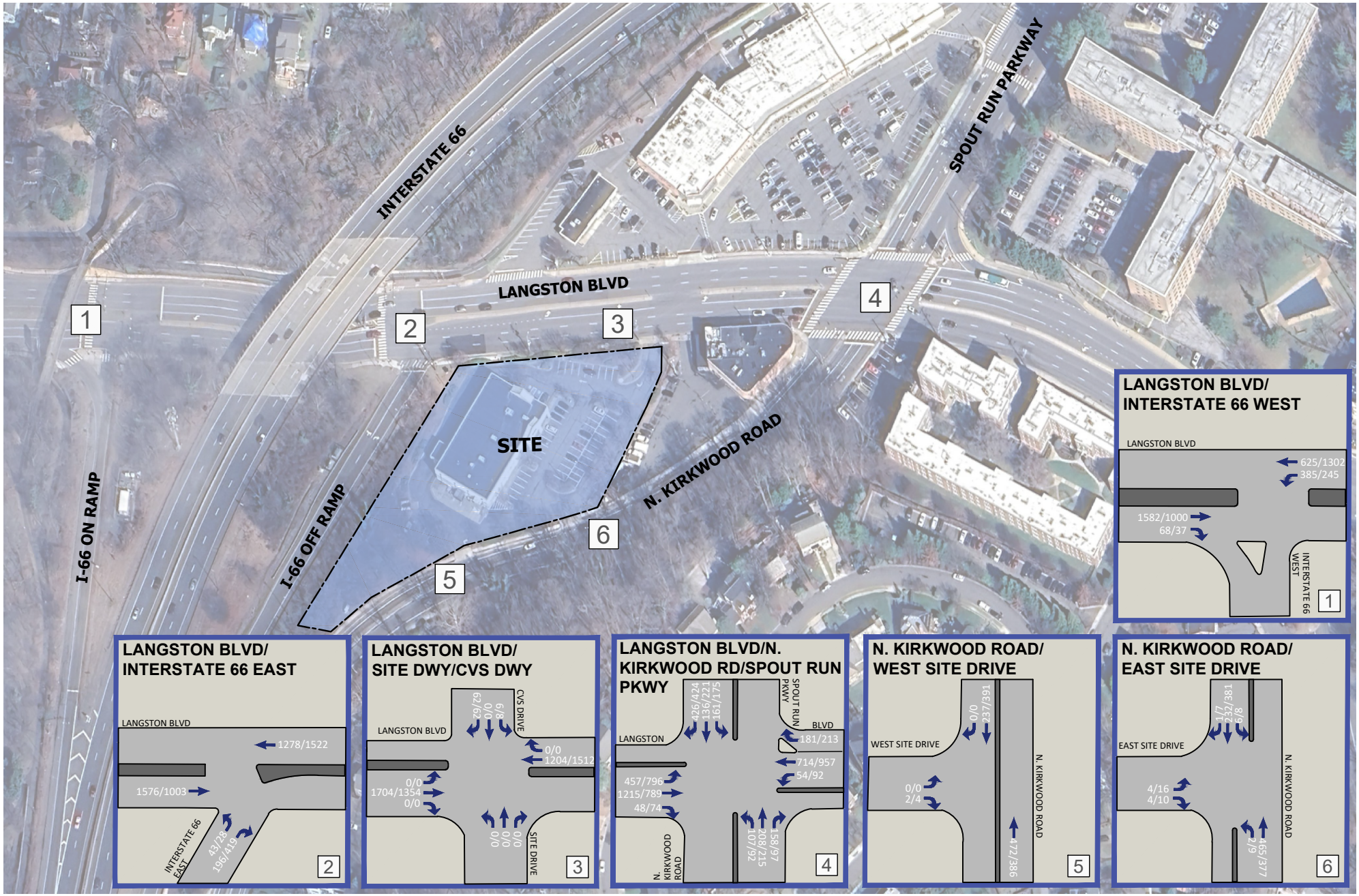

Figure 5-2
Future Peak Hour Traffic Forecasts without Development

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

VIKA

SECTION 6
PROPOSED SITE DESCRIPTION, TRIP GENERATION, DISTRIBUTIONS & ASSIGNMENTS

Proposed Site Redevelopment Description

The Applicant has filed a 4.1 Site Plan and rezoning application to redevelop the site with mixed-used development in accordance with the Langston Boulevard Plan. This redevelopment would include up to 276 multi-family residential dwelling units and space for ground floor retail and/or equivalent. The site will be served by a parking structure with a total of approximately 331 parking spaces.

Access to the site would be consolidated from two (2) to one (1) driveway along N. Kirkwood Road and provide access to the parking structure.

Site Trip Generation Analysis

The number of site generated vehicular and person trips anticipated to be generated by the redevelopment was estimated for proposed conditions based on ITE's Trip Generation Manual, 11th Edition Land Use Code (LUC) 222 (Multifamily Residential). General Urban / Suburban rates were utilized along with the Arlington County mode share assumptions that would suggest a 48% non-auto reduction for the residential use. No internal reduction was assumed for the residential use.

As shown on Table 6-1, the proposed development program (276 residential units) is anticipated to generate 42 AM peak hour trips (11 in and 31 out), and 49 PM peak hour trips (30 in and 19 out). Accordingly, comparing the existing and proposed programs, the proposed uses would generate 4 additional AM peak hour trips, and 55 fewer PM peak hour trips.

The number of person trips expected to be generated by the site also were estimated. As shown in Table 6-1, the site is expected to generate 87 AM peak hour person trips and 102 PM peak hour person trips. This includes 33 AM and 39 PM transit trips and 6 AM and 7 PM active trips.

Site Trip Distribution and Assignment

The total vehicular trips generated by the proposed development were assigned to the roadway network using the trip distributions developed from the traffic count data, existing observed intersection splits and directions of approaches, and engineering judgement.

The trips were assigned to the proposed site driveway on N. Kirkwood Road. These distributions were reaffirmed with County staff through the scoping process.

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

To/From the East on Langston Boulevard:	20%
To/From the West on Langston Boulevard:	15%
To/From the North on Spout Run Parkway:	25%
To/From the South on N. Kirkwood Road:	20%
To/From the West on Interstate 66:	20%
Total:	100%

Refer to Figure 6-1 for the site trips assignments.

Existing Site Trips Removed

The existing site trips summarized previously in the MMTA were removed from the network based on existing traffic patterns and are shown in Figure 6-2.

Table 6-1
3130 Langston Boulvard
Multimodal Site Trip Generation Analysis [1, 2, 3]

Land Use	Land Use Code	Size	Unit	VEHICULAR TRIPS							PERSON TRIPS											
				Weekday AM Peak Hour			Weekday PM Peak Hour				Weekday AM Peak Hour				Weekday PM Peak Hour				Daily			
				In	Out	Total	In	Out	Total	Daily	Vehicle	Transit	Active	Total Person Trips	Vehicle	Transit	Active	Total Person Trips	Vehicle	Transit	Active	Total Person Trips
Existing																						
Pharmacy w/Drive Through	881	11,661	SF	23	21	44	60	60	120	1,258												
Non-Auto Mode Share			*13%*	*(3)*	*(3)*	*(6)*	*(8)*	*(8)*	*(16)*	*(164)*												
			Vehicle Trips	20	18	38	52	52	104	1,094												
			Person Trips								48	4	2	54	130	11	5	146	1,368	113	50	1,531
Proposed																						
Multifamily Residential	222	276	DU	21	59	80	59	36	95	1,415												
Non-Auto Mode Share			*48%*	*(10)*	*(28)*	*(38)*	*(29)*	*(17)*	*(46)*	*(679)*												
			Vehicle Trips	11	31	42	30	19	**49**	736												
			Person Trips								48	33	6	87	56	39	7	102	846	580	99	1,525
Net Increase Vehicle Trips				**(9)**	**13**	**4**	**(22)**	**(33)**	**(55)**	**(358)**												
Net Increase Person Trips											**-**	**29**	**4**	**33**	**(74)**	**28**	**2**	**(44)**	**(522)**	**467**	**49**	***(6)***

Notes:
1. Trip Generation obtained from ITE's Trip Generation Manual, 11th Edition (General Urban/Suburban).
2. Mode split assumptions based on the I-66 Corridor.

	Vehicle	Transit	Active
Production	52.0%	41.0%	7.0%
Attractions	87.0%	9.0%	4.0%

3. Average vehicle occupancy based on the ITE Trip Generation Handbook, FHWA, NHTS and engineering judgement.

Residential	1.15
Retail	1.25

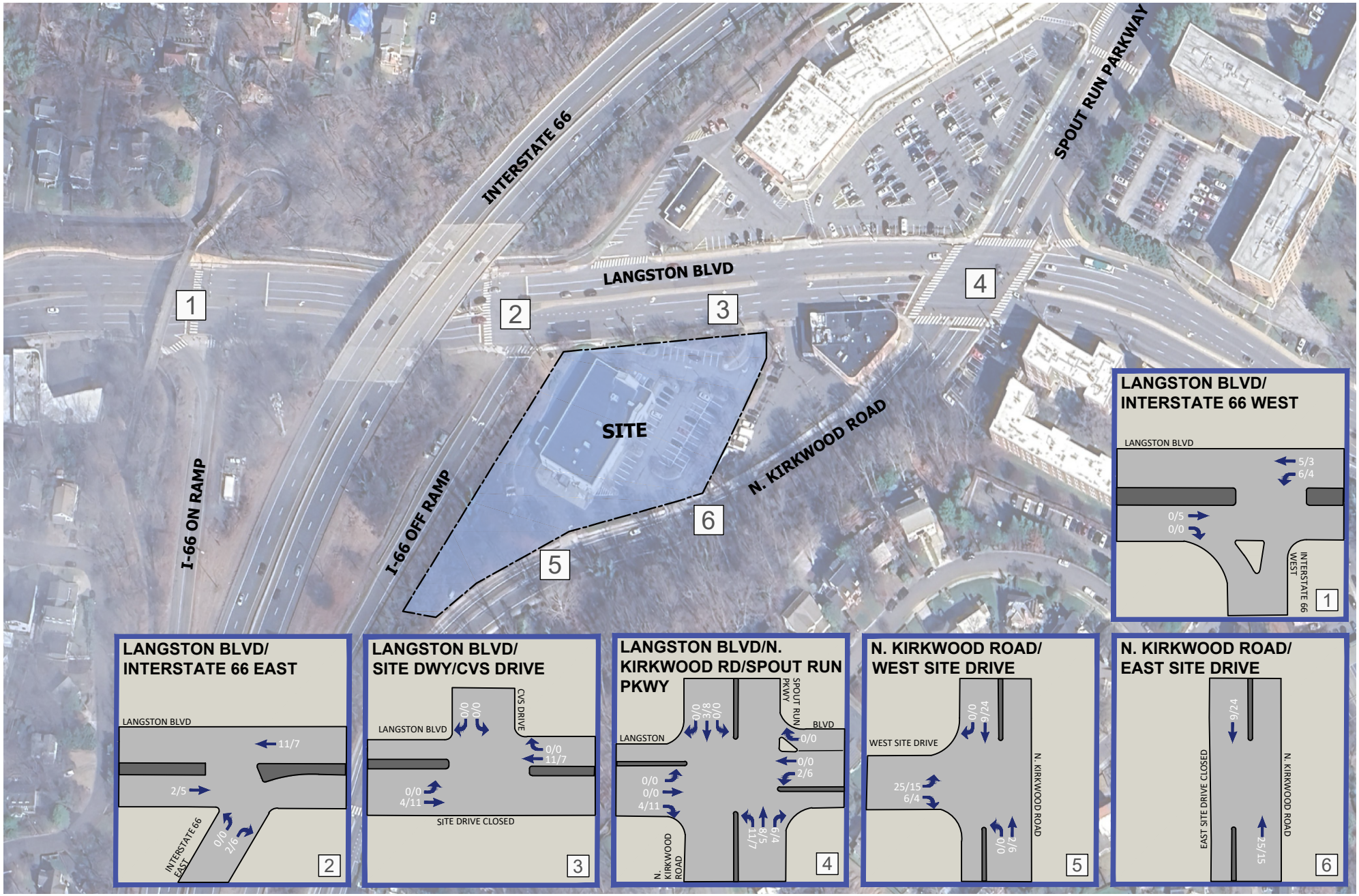

Figure 6-1
Site Peak Hour Traffic Forecasts

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

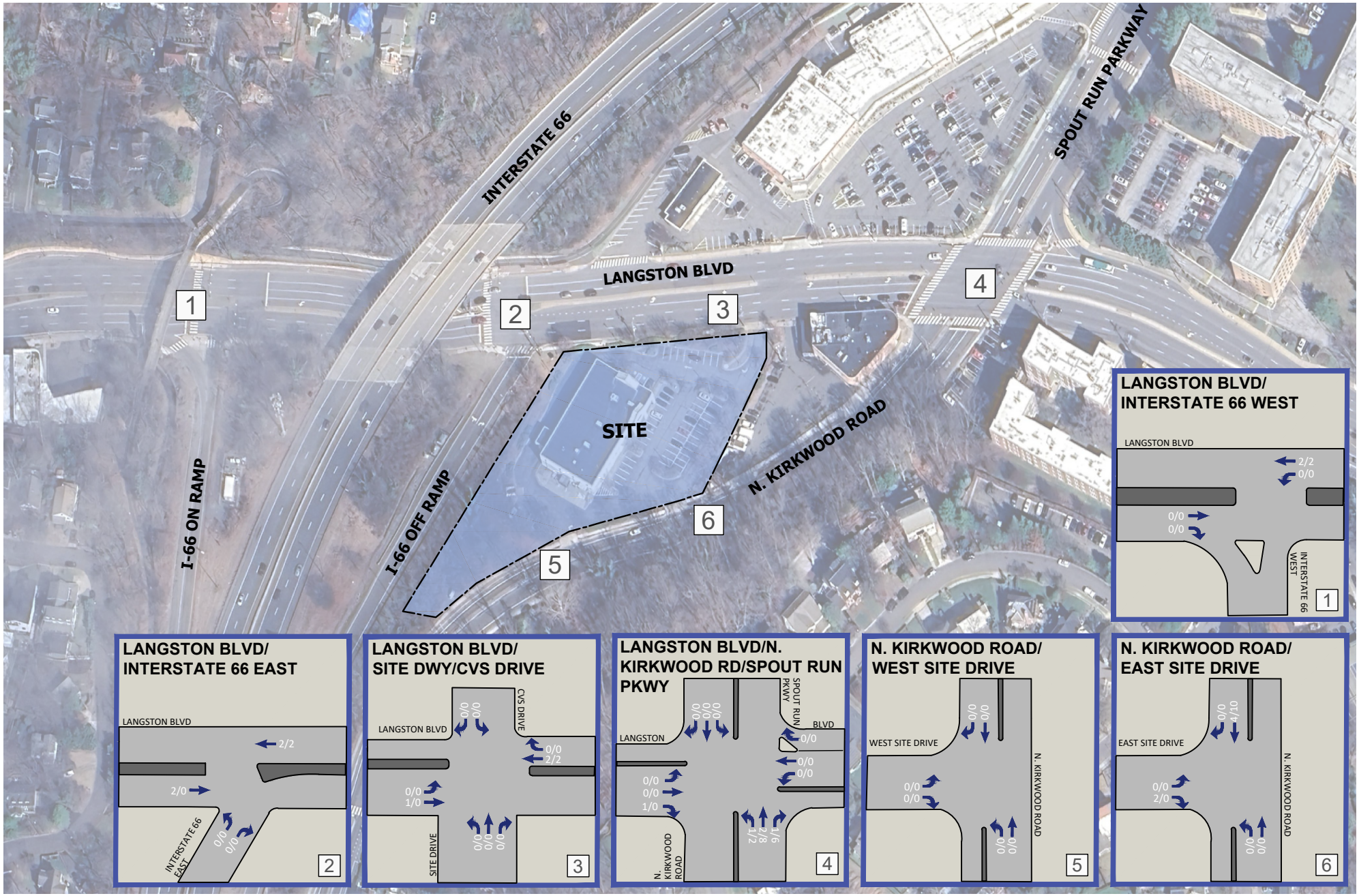

Figure 6-2
Site Trips Removed

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

SECTION 7
FUTURE CONDITIONS WITH DEVELOPMENT (2028)

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

Future Traffic Forecasts with Development (2028)

Future traffic forecasts with the site development were derived by adding the future traffic forecasts without development, shown on Figure 5-2, the site generated trips shown on Figure 6-1, and the existing site trips removed shown on Figure 6-2 to arrive at the future traffic forecasts with development shown on Figure 7-1.

Operational Analysis of Future Conditions with the Proposed Development

Future peak hour LOS and 50th and 95th percentile queues with the proposed development were estimated at the study intersections based on the future peak hour traffic forecasts with redevelopment shown on Figure 7-1; the existing traffic signal phasing/timings obtained from Arlington County; and the HCM 2000 methodologies using Synchro Software, Version 11. The results are presented in Appendix H and summarized in Table 7-1 and Table 7-2.

Levels of Service. The results with the proposed redevelopment indicate that all of the signalized study intersections would continue to operate at an overall LOS “C” or better during the AM and PM. These results are based on the current traffic signal timings provided by Arlington County DES. Additionally, all lane groups and turning movements will operate at similar levels of service to the future conditions without development. Based on a review of the traffic signal timings provided by DES staff indicated that adjustments to phasing could improve operations for certain lane groups operating at or near capacity.

Queuing. As shown on Table 7-2, the results of the queueing analysis are similar to those described in under existing conditions and future conditions without development. Increases in the estimated average and 95th percentile queues when compared to future conditions would not significantly affect the overall performance of the study intersections.

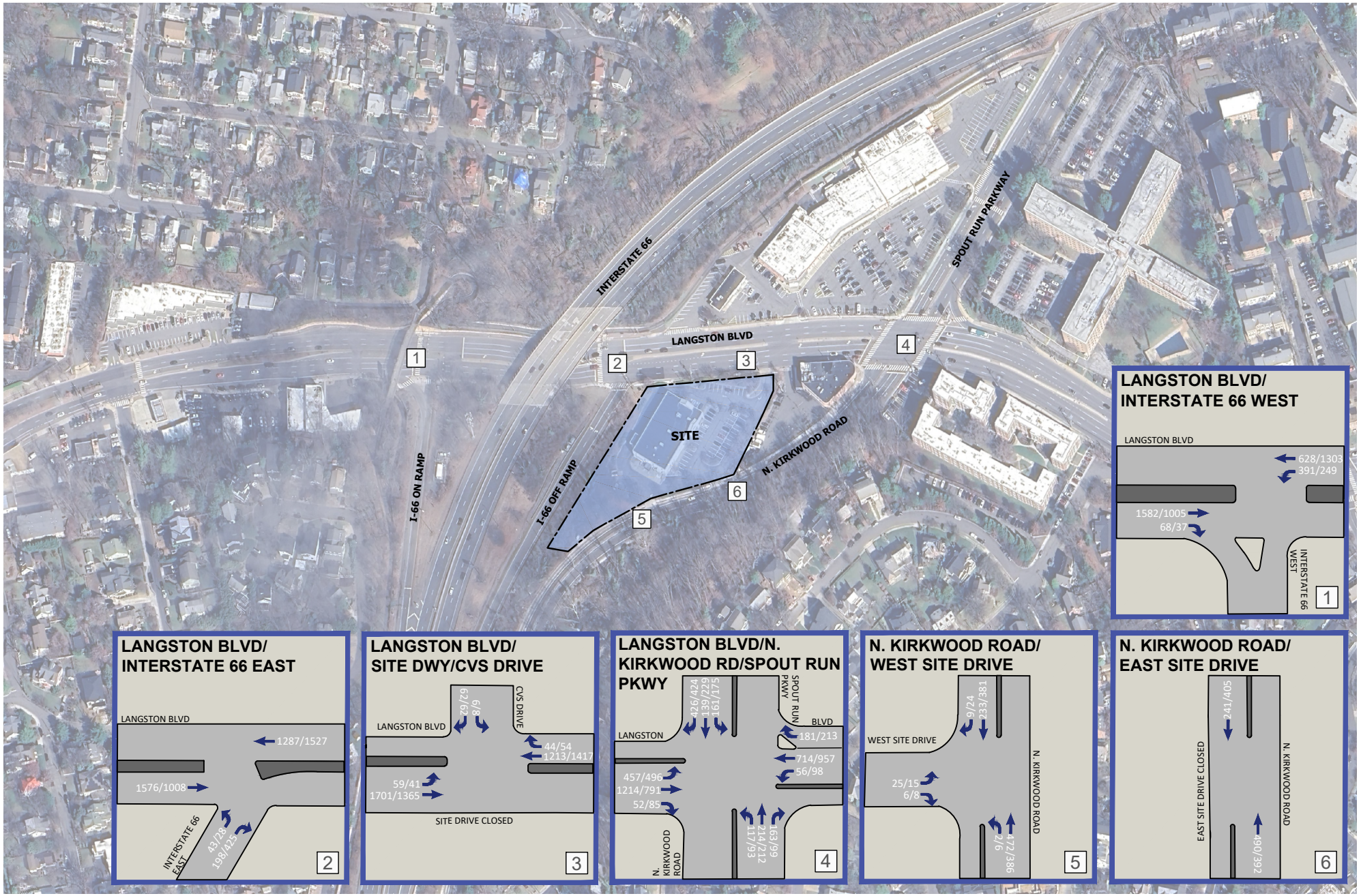

Figure 7-1
Future Peak Hour Traffic Forecasts with Development

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

VIKA

Table 7-1
3130 Langston Boulevard
Future Conditions with Development Intersection Level of Service Summary [1]

Approach/ Lane Group	Existing Conditions (2024)				Future Conditions without Development (2028)				Future Conditions with Development (2028)			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
1. Langston Boulevard / I-66 On Ramp - Signalized												
EBTR	B	11.5	A	4	B	11.8	A	4.1	B	12	A	4.2
WBL	D	35.8	A	1.8	D	37.2	A	1.9	D	37.0	A	2.0
WBT	A	0.1	A	4.4	A	0.1	A	4.5	A	0.1	A	4.6
Overall	**B**	**11.1**	**A**	**4.0**	**B**	**12.7**	**A**	**4.1**	**B**	**12.9**	**A**	**4.2**
2. Langston Boulevard / I-66 Off Ramp - Signalized												
EBT	A	3.6	A	3.6	A	4.7	A	3.6	A	4.7	A	3.6
WBT	A	6.6	A	3.0	A	6.6	A	3.1	A	6.6	A	3.1
NBL	C	23.8	D	44.6	C	23.9	D	44.6	C	23.9	D	44.6
NBR	A	4	A	4.1	A	4	A	4.1	A	4	A	4.1
Overall	**A**	**5.6**	**A**	**3.7**	**A**	**5.7**	**A**	**3.8**	**A**	**5.7**	**A**	**3.8**
3. Langston Boulevard / Site Dwy / CVS Dwy - Unsignalized												
EBL	B	10.6	B	11.2	B	10.7	B	11.3	B	10.7	B	10.7
EBTR	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
WBLTR	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
NBLTR	A	8.9	B	10.1	A	9.0	B	10.1	**DWY CLOSED**		**DWY CLOSED**	
SBLTR	B	10.2	B	13.5	B	10.2	B	13.6	B	10	B	12.6
4. N Kirkwood Rd / Spout Run Pkwy / Langston Boulevard - Signalized												
EBL	D	43.2	F	184.7	D	51.5	F	208.3	D	52.6	F	208.4
EBTR	B	12.4	A	7.1	B	12.8	A	7.2	B	25.8	A	7.3
WBL	C	34.5	C	27.7	D	36.4	C	28.7	D	37.7	C	30.1
WBT	C	25.9	C	23.2	C	26.4	C	23.6	C	26.6	C	23.6
WBR	C	22.9	B	19.5	C	23.3	B	19.7	C	23.5	B	19.7
NBL	D	35.7	C	34.3	D	35.3	C	34.2	D	35.6	C	34.2
NBTR	D	36.4	C	33.4	D	36.1	C	33.2	D	36.0	C	32.8
SBL	E	69.3	D	54.3	E	71.1	E	55.8	E	73.2	E	55.4
SBT	C	34.4	C	34.7	C	34.1	C	34.5	C	33.9	C	34.9
SBR	C	34.5	C	34.5	C	34.2	C	34.7	C	34.0	C	34.7
Overall	**C**	**27.8**	**D**	**44.7**	**C**	**29.1**	**D**	**48.0**	**C**	**29.4**	**D**	**47.8**
5. N Kirkwood Rd / West Site Dwy - Unsignalized												
EBLT	A	0.0	A	0.0	A	0.0	0	0.0				
WBLTR	A	0.0	A	0.0	A	0.0	A	0.0	**DWY CLOSED**		**DWY CLOSED**	
SBLR	A	9.3	B	10.2	A	9.4	B	10.3				
6. N Kirkwood Rd / East Site Dwy - Unsignalized												
EBLT	A	0.0	A	0.3	A	0.0	A	0.3	A	0.0	A	0.2
WBTR	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0
SBLR	B	11.6	B	13.4	B	11.7	B	13.6	B	13.7	B	13.9

Note(s):

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

Table 7-2
3130 Langston Boulevard
Future Conditions with Development Intersection Queuing Summary [1, 2, 3]

Approach / Lane Group	Storage Length (ft)	Existing Conditions (2023)				Future Conditions without Development (2026)				Future Conditions with Development (2026)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile	50th Pecentile	95th Pecentile
1. Langston Boulevard / I-66 On Ramp - Signalized													
EBT	-	139	186	54	105	143	192	57	110	143	192	59	112
WBL	185	82	#240	74	141	94	#242	3	5	101	#249	3	5
WBT	-	0	0	0	0	0	0	79	147	0	0	81	150
NBR	-	0	0	0	0	-	-	-	-	-	-	-	-
SBLTR	-	0	0	0	0	-	-	-	-	-	-	-	-
2. Langston Boulevard / I-66 Off Ramp - Signalized													
EBT	-	100	351	46	161	0	104	47	165	0	104	47	165
WBT	-	265	246	48	167	5	271	49	175	5	271	49	176
NBL	-	13	27	18	33	13	28	18	34	13	28	18	34
NBR	-	0	30	0	45	0	31	0	45	0	31	0	46
3. Langston Boulevard / N Site Dwy / CVS Dwy - Unsignalized													
EBL	-	-	7	-	5	-	7	-	5	-	7	-	5
EBTR	-	-	0	-	0	-	0	-	0	-	0	-	0
WBLTR	-	-	0	-	0	-	0	-	0	-	0	-	0
NBLTR	-	-	0	-	0	-	0	-	0	**DWY CLOSED**		**DWY CLOSED**	
SBLTR	-	-	7	-	12	-	7	-	12	-	7	-	11
4. N Kirkwood Rd / Spout Run Pkwy / Langston Boulevard - Signalized													
EBL	500	217	#399	~314	#529	228	~340	~340	#552	229	~339	~339	#553
EBTR	-	170	198	88	54	174	92	92	55	174	93	93	55
WBL	250	28	#91	42	0	29	44	44	#123	30	47	47	#136
WBT	-	132	195	165	#117	137	171	171	252	138	171	171	252
WBR	165	0	52	0	246	0	0	0	53	0	0	0	53
NBL	100	62	100	51	85	62	52	52	87	69	52	52	89
NBTR	-	114	140	90	111	115	92	92	113	118	91	91	113
SBL	135	106	170	108	165	108	110	110	170	108	110	110	170
SBTR	-	76	115	125	170	78	127	127	173	79	132	132	180
SBR	-	0	73	42	132	0	46	46	140	0	46	46	140
5. N Kirkwood Rd / West Site Dwy - Unsignalized													
EBLT	-	-	0	-	0	-	0	-	0	**DWY CLOSED**		**DWY CLOSED**	
WBLTR	-	-	0	-	0	-	0	-	0				
SBLR	-	-	0	-	0	-	0	-	0				
6. N Kirkwood Rd / East Site Dwy - Unsignalized													
EBLT	-	-	0	-	1	-	0	-	1	-	0	-	0
WBTR	-	-	0	-	0	-	0	-	0	-	0	-	0
SBLR	-	-	1	-	5	-	1	-	5	-	6	-	4

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

SECTION 8
TRANSPORTATION MANAGEMENT PLAN

A Transportation Management Plan (TMP) will be required to ensure users of the site are familiar with and use the multimodal transportation options available to them. The project site's location makes it a prime location for multimodal commuting given its excellent transit, pedestrian, and bicycle facilities discussed herein.

The elements of the TMP as described herein will be customized to meet the needs of this site given its location and surrounding multimodal environment. The goal of the TMP is to ultimately reduce the reliance on single occupancy vehicle trips and encourage alternative modes of transportation. The TMP will be developed and implemented to meet the needs of the proposed development and support the objectives of the Arlington County TDM program. The implementation of a TMP will influence the travel behavior of residents, visitors, employees, and users of the site by reducing peak hour vehicle-trips, parking demand, promote use of alternative transportation modes and maximize the use of the multimodal transportation facilities available.

At the time of Final Site Plan for the site, the Developer agrees to obtain the approval of the County Manager or his designee for such plan prior to the issuance of the First Certificate of Occupancy (CO) for the building. Upon approval of the TMP by the County Manager, the Developer agrees to implement all elements of the plan with assistance, when appropriate, by agencies of the County. The Developer agrees that all individual elements of the TMP will be operational prior to issuance of the First Partial Certificate of Occupancy for Tenant Occupancy. All dollar denominated rate will be adjusted for inflation by the U.S. Department of Labor, Bureau of Labor Statistics Consumer Price Index (CPI) Inflation Calculator from the date of site plan approval by the County Board.

The TMP will include a schedule and details of implementation, and continued operation of the elements in the plan. The location of the site and its proximity to public transportation allow for a TMP that may include, but not be limited to, the following strategies.

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, as directed by applicable adopted Site Plan Conditions. The PTC shall be trained, to the satisfaction of Arlington County Commuter Services (ACCS), to provide transit, bicycle, 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, or as directed by applicable adopted Site Plan Conditions. 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, and location of will be approved by ACCS. The developer agrees that the required transportation information displays will 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 Site Plan conditions to provide bicycle parking/storage facilities, a Parking Management Plan (PMP), and a Bicycle Facilities Management Plan, if required.

3. Bus stops, shelters, and/or bikeshare stations on the sidewalk within 50 feet of the site will be maintained free of snow, ice, trash, and debris. A minimum six (6) foot wide path, clear of snow and ice, to the main entrance of the building will be maintained for bus stops and bikeshare stations.

Promotions, Services, Policies

1. Prepare, reproduce and distribute, in digital or hard copy, materials provided by Arlington County, which includes site-specific transit, bicycle, walk, and rideshare related information, to each new office, 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 office, retail, 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:

    - Metro fare on a SmarTrip card or successor fare medium
    - A one-year bikeshare membership
    - A one-year carshare membership

3. 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.

4. Provide, administer, or cause the provision of a sustainable commute benefit program for each on-site property management, maintenance and hotel employee. This commute benefit program shall offer, at a minimum, a monthly pre-tax transit benefit or a monthly subsidized/direct transit benefit.

5. Provide, under a "transportation information" heading on the Developer and property manager's websites regarding this development:

    - Links to the most appropriate Arlington County Commuter Services and/or external transportation-related web page(s). Confirmation of most appropriate link will be obtained from ACCS.
    - 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 (2) years, five (5) years, and each subsequent five (5) years (at the County's option), after issuance of the First Partial 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 by the County. The study may include, building occupancy rates, average vehicle occupancy, average garage occupancy for various days of the week and times of day, parking availability by time of day, average duration of stay for short term parkers for various days of the week and times of day, pedestrian traffic, a seven-day count of site-generated vehicles traffic, and/or a voluntary mode-split survey.

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.

SECTION 9
CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this study are as follows:

1. The site is well-served by a multimodal transportation system that includes interstate, arterial, collector, and local streets; a connected network of sidewalks with ramps and pedestrian countdown heads; bicycle facilities; and numerous bus lines providing easy access to the nearby Metrorail stations, and other points of interests.

2. The three (3) signalized study intersections currently operate at overall acceptable LOS “C” or better during the AM and PM peak hours. Some individual movements or approaches operate at or near capacity.

3. In the future without and with redevelopment, the three (3) signalized study intersections would experience minor increases in delay as a result of nearby development and regional growth but would continue to operate generally consistent to existing conditions.

4. Upon completion, the proposed development is expected to generate 42 AM peak hour trips (11 in and 31 out), and 49 PM peak hour trips (30 in and 19 out). It would generate 4 more AM peak hour trips and 55 fewer PM peak hour trips when compared to the existing office and retail uses. The site is expected to generate 87 AM peak hour person trips and 102 PM peak hour person trips. This includes 33 AM and 39 PM transit trips and 6 AM and 7 PM active trips.

5. The proposal will be redeveloped in accordance with the Langston Boulevard Plan and will include multimodal improvements to both Langston Boulevard and N. Kirkwood Road. These improvements will include a new separated bike lane along Langston Boulevard as recommended in the Master Transportation Plan and Langston Boulevard Plan.

6. The proposal will consolidate site access to a single driveway on N. Kirkwood Road and will include the closure of Langston Boulevard driveway which will allow for an improved multimodal environment along the site’s frontage.

7. The proposal will meet the bicycle and vehicular parking requirements.

8. The implementation of a Transportation Management Plan (TMP) will encourage the use of other non-auto modes of transportation including walking, bicycling and public transit as alternative to single occupancy vehicles and minimize the project’s vehicular traffic impacts.