Record GLPA24-00004:

Click here for more information

Add to collection

GLUP Amendment

Record Status: Application Complete

Record Info | Payments | Plan Review

Application Location

3130 LANGSTON BLVD, ARLINGTON, VA 22201 *

Record Details

Owner:

RP LANGSTON I LLC %ROONEY PROPERTIES

P.O. BOX 1159

DEERFIELD IL 60015

More Details

Related Contacts

Developer information

Cassie Guy
Rooney Properties, LLC
3330 Washington Blvd. Suite 220
Arlington, VA, 22201

Primary Phone:571974904

Agent information

Zachary Williams
Venable LLP
600 Massachusetts Avenue NW
Washington, DC, 20001

Primary Phone:2023444369

Application Information

GLUP AMENDMENT DETAILS

Is this GLUP Amendment proposed by an adopted Arlington County plan?:	Yes
Has a Special Glup Study been completed for this requested change?:	No
Provide name of planning area:	Not in a Planning Area
Is this GLUP Amendment to be advertised on the County Board's own motion?:	No
Is this GLUP Amendment associated with a Rezoning request?:	Yes
Is this GLUP Amendment associated with a New Site Plan or a Site Plan Amendment?:	Yes
This application is being submitted by:	Agent on behalf of Developer

Application Information Table

LIST ALL CONTRIBUTING PARCELS

RPC Number:
15012041
Master RPC Number:
15012041
Owner:
RP LANGSTON I LLC %ROONEY PROPERTIES
Address:
3130 LANGSTON BLVD
Converted SF:
73254
Total Lot SF:
73251
Current GLUP:
Service Commercial

Proposed GLUP:
Medium Office-Apartment-Hotel
Current Zoning:
C-2 Service Commercial - Community Business Districts
Proposed Zoning:
C-O-2.5 Commercial Office Building, Hotel and Apartment Districts

Parcel Information

Parcel Number:15012041 *

Block:970000

Lot:73251

Subdivision:CRUITT TRACT & PT PARC 4 CRUITT TRACT 72,501 SQ FT

PROPERTYNAME: Walgreens Pharmacy
RPCMSTR: 15012041
CLASS: 211-Retail strip
SHEET: 43-7

VENABLE LLP

600 MASSACHUSETTS AVE., NW WASHINGTON, DC 20001
T 202.344.4000 F 202.344.8300 www.Venable.com

August 13, 2024

t 202.344.4369
f 202.344.8300
ZGWilliams@Venable.com

Ms. Arlova Vonhm
Zoning Administrator
Arlington County
2100 Clarendon Boulevard, Suite 1000
Arlington, Virginia 22201

RE: STATEMENT OF JUSTIFICATION FOR 3130 LANGSTON BOULEVARD
PROPERTY: 3130 LANGSTON BOULEVARD (RPC #15-012-041)
OWNER/APPLICANT: RP LANGSTON I LLC

Dear Ms. Vonhm:

This firm represents RP Langston I LLC (the "Applicant"), an affiliate of Rooney Properties, LLC and title owner of the property located at 3130 Langston Boulevard in Arlington, Virginia (RPC #15-012-041) (the "Property"). On behalf of the Applicant, please accept this letter as a statement of justification for an application to amend the Property's General Land Use Plan ("GLUP") designation, a rezoning, and a new Administrative Regulation 4.1 site plan (collectively, the "Application").

The Property

The Property consists of a 73,254 square feet (1.68 acres) parcel located near the intersection of Langston Boulevard and North Kirkwood Road. It is improved with a single-story commercial building constructed in 1998, which currently operates as a drive-through Walgreens Pharmacy.

The Property is designated for Service Commercial and Public uses in the GLUP and is located within the boundaries of the Langston Boulevard Area Plan (the "Plan"). Within the Plan, the Property is located in Area 5 (West). The Property is currently zoned to the "C-2" Service Commercial-Community Business Zoning District. The Property is not subject to an existing site plan.

The Proposed Project

The Applicant proposes to redevelop the Property with a new mixed-use residential building with ground floor retail. The proposed twelve-story building will have a height of up to 136 feet at its highest point. It will provide approximately 276 residential units to accommodate

the County's growing housing demand, as well as 5,320 square feet of retail GFA to serve the community and 7,292 square feet of retail equivalent building amenities. The retail area and the main residential entry will be located along Langston Boulevard. Above the three-story podium, the Applicant proposes a courtyard and amenities for the building's residents. The building's L-shaped tower—which engages the Langston Boulevard and I-66 frontages—will overlook the courtyard, providing an attractive view for the residents.

Approximately 331 parking spaces for the proposed building will be provided onsite in a multi-level garage. The garage entrance, along with the building's service areas (such as trash and loading) will be located along the North Kirkwood Road frontage. This placement shields such areas from view and minimizes disruptions along Langston Boulevard.

The proposed development also includes significant site improvements, including but not limited to street and sidewalk improvements along Langston Boulevard and North Kirkwood Road, stormwater planters, a green roof, and a multi-use pathway fronting the site on Langston Boulevard. Further, the proposed development will include a new public space and dog run of approximately 5,000 square feet, as envisioned in the Plan.

The GLUP Amendment, Rezoning, and Site Plan

To facilitate the Property's redevelopment, the Applicant proposes to amend the Property's GLUP designation to "Medium" Office-Apartment-Hotel, rezone the Property to the "C-O-2.5" Mixed Use Zoning District, and create a new site plan for the Property. The Plan acknowledges that the Property's current GLUP designation reflects land use policies envisioned in the mid-1960s and that, to redevelop the Property in accordance with the Plan, its GLUP designation must change to "Medium" Office-Apartment-Hotel. The C-O-2.5 Zoning District implements the "Medium" Office-Apartment Hotel GLUP designation, allowing development consistent with that designation's density.

In addition to the GLUP amendment, rezoning, and new site plan, the Applicant proposes modifications for bonus density, density exclusions, loading, compact parking ratio, and other modifications as may be necessary to support the proposed development. The Applicant proposes to achieve bonus density in consideration of a community benefits package to be developed in coordination with Arlington County staff.

The Applicant's redevelopment proposal is consistent with the Plan recommendations that the Property be developed with a commercial, multi-family residential, or mixed-use building with ground floor retail along Langston Boulevard. The proposed development will help transform Langston Boulevard into a main street with taller buildings concentrated around an activity hub—the Spout Run Parkway Activity Hub—where mixed uses support a walkable

environment. It will also contribute to the Plan's vision for a diverse mix of parks, plazas, and other natural areas that balance community needs with environmental goals such as providing overland relief and public open space.

Thank you for your attention to this request. Please do not hesitate to contact me at zgwilliams@venable.com or at 202-344-4369 if you require additional information related to this Application.

Sincerely,

Zachary G. Williams

May 21, 2024

Ms. Arlova Vonhm
Zoning Administrator
Arlington County
2100 Clarendon Boulevard, Suite 1000
Arlington, Virginia 22201

Re: Consent and Authorization Letter – Administrative Regulation 4.1 Site Plan Application and Concept Plan Application, Rezoning, GLUP Amendment
Property: 3130 Langston Boulevard (RPC # 15-012-041) (the "Property")

Dear Ms. Vonhm:

The undersigned is the title owner of the above-referenced Property. The purpose of this letter is to consent to the filing of a new Administrative Regulation 4.1 Site Plan Application and Concept Plan Application for the Property, including any related applications such as (but not strictly limited to) a Rezoning Application, GLUP Amendment, Major Site Plan Amendment Applications, Minor Site Plan Amendment Applications, Administrative Change Applications, Vacations, and Encroachments.

We hereby authorize Venable LLP to act as attorneys on our behalf in connection with the Administrative Regulation 4.1 Site Plan Application and any related application(s) described herein. Please direct all correspondence relating to the application(s) to Zachary G. Williams at Venable LLP. The boundaries of the application(s) include the undersigned's land.

[SIGNATURE PAGE FOLLOWS]

RP Langston I LLC

A Virginia limited liability company

By: Cassie Guy

Name: Cassie Guy

Title: Authorized person

STATE/COMMONWEALTH OF VIRGINIA

COUNTY/CITY/DISTRICT OF ARLINGTON

On this 6TH day of AUGUST, 2024, before me, a Notary Public in and for said jurisdiction, personally appeared CASSIE GUY, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he/she executed the same for the purposes therein contained.

Given under my hand and official seal, this 6TH day of AUGUST, 2024.

CHRISTOPHER ABSHER OURSLER
NOTARY PUBLIC
REGISTRATION # 8033888
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES 2/28/27

Notary Public

My Commission Expires: 2/28/27

Registration Number: 8033888

DISCLOSURE STATEMENT

ARLINGTON COUNTY ZONING ORDINANCE §15.1.4

Department of Community Planning, Housing & Development – Zoning Division
2100 Clarendon Boulevard, Suite 1000, Arlington, Virginia 22201
building.arlingtonva.us | contactzoning@arlingtonva.us
Phone (703) 228-3883 | Fax (703) 228-3896

ARLINGTON
VIRGINIA

Revised July 2019

REAL PROPERTY IDENTIFICATION

3130 Langston Boulevard

ADDRESS(ES)

15-012-041

REAL PROPERTY CODE(S) [RPC]

SUBDIVISION NAME *LOT(S)* *BLOCK* *SECTION*

LEGAL DESCRIPTION

OWNERSHIP INTEREST(S)

Please provide the: full name, full address, and nature of ownership interest of ALL persons and/or entities having equitable ownership of the identified real estate. For properties owned by general or limited partnerships, limited liability companies (LLCs), or other corporate entities, please list the full names of all stockholders, officers, and directors [*for exceptions see below*], and please provide staff the state incorporation paperwork for the corporation. Please attach any additional documentation as necessary.

SUBJECT PARCEL ADDRESS/RPC	*NAME OF OWNER*	*FULL ADDRESS OF OWNER*	*NATURE OF OWNERSHIP INTEREST*
15-012-041	RP Langston I LLC	c/o Rooney Properties, LLC 3330 Washington Blvd, Suite 220 Arlington, VA, 22201	Title owner and Applicant

Corporations with: (1) more than 500 shareholders; and, (2) having stock traded on a national or local stock exchange are not required to list all stockholders, officers, and directors. Please indicate any corporations listed above which meet these criteria:

CERTIFICATION

I hereby certify that this is a true and accurate disclosure of all persons and/or entities having equitable ownership interest in the real property identified above.

See attached signature page.
_____
SIGNATURE

_____
ADDRESS

STATE OF _____, COUNTY OF _____, TO WITNESS _____

Subscribed and sworn before me this _____ day of _____, 20 _____

Notary _____

My commission expires _____

Commonwealth of Virginia
State Corporation Commission
Office of the Clerk
Entity ID: 11511723
Filing Number: 2303105609255
Filing Date/Time: 03/10/2023 12:59 PM
Effective Date/Time: 03/10/2023 12:59 PM

Limited Liability Company - Articles of Organization

Entity Information

Entity Name: RP Langston I LLC

Entity Type: Limited Liability Company

Business Type

Industry Code: 0 - General

Duration

Perpetual(forever)

Registered Agent Information

RA Type: Entity

Locality: ARLINGTON COUNTY

RA Qualification: N/A

Name: ROONEY PROPERTIES, LLC

Email Address: mrooney@rooneyholdings.com

The company's initial registered office address, including the street and number, if any, which is identical to the business office of the initial registered agent, is:

Registered Office Address: 3330 Washington Blvd Ste 220, Arlington, VA, 22201 - 4535, USA

Contact Number: N/A

Principal Office Address

Address: Brynn Hunt, 3330 Washington Blvd Ste 220, Arlington, VA, 22201 - 4535, USA

Principal Information

Management Structure: Member-Managed

Signature Information

Date Signed: 03/10/2023

Executed in the name of the limited liability company by:

Printed Name	Signature	Title
Michael Rooney	Michael Rooney	Organizer

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

AT RICHMOND, MARCH 10, 2023

The State Corporation Commission has found the accompanying articles of organization submitted on behalf of

RP Langston I LLC

to comply with the requirements of law, and confirms payment of all required fees. Therefore, it is ORDERED that this

CERTIFICATE OF ORGANIZATION

be issued and admitted to record with the articles of organization in the Office of the Clerk of the Commission, effective March 10, 2023.

The limited liability company is granted the authority conferred on it by law in accordance with the articles of organization, subject to the conditions and restrictions imposed by law.

STATE CORPORATION COMMISSION

By 

Jehmal T. Hudson
Commissioner

Rooney Properties, LLC
Officers

1. Kathleen D. Rooney, President
2. Michael C. Rooney, General Counsel and Vice President
3. Greg Hoffman, Secretary
4. Brynn Hunt, Assistant Secretary and Treasurer

RP Langston I LLC

A Virginia limited liability company

By: Cassie Guy

Name: Cassie Guy

Title: Authorized person

STATE/COMMONWEALTH OF VIRGINIA

COUNTY/CITY/DISTRICT OF ARLINGTON

On this 6TH day of AUGUST, 2024, before me, a Notary Public in and for said jurisdiction, personally appeared CASSIE GUY, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he/she executed the same for the purposes therein contained.

Given under my hand and official seal, this 6TH day of AUGUST, 2024.

CHRISTOPHER ABSHER OURSLER
NOTARY PUBLIC
REGISTRATION # 8033888
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES 2/28/27

Notary Public

My Commission Expires: 2/28/27

Registration Number: 8033888

NOTES:

1. THE SUBJECT PROPERTY IS IDENTIFIED ON ARLINGTON COUNTY, VIRGINIA AS REAL PROPERTY CODE (RPC) NO. 15-012-041 AND IS ZONED C-2.
2. THE SUBJECT PROPERTY IS LOCATED IN ZONE X-NOT SHADED (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), ZONE X-SHADED (AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREA PROTECTED BY LEVEES FROM THE 1% ANNUAL CHANCE FLOOD), AND ZONE AE (SPECIAL FOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. BASE FLOOD ELEVATIONS DETERMINED) AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP (FIRM) NUMBER 51013C0038C, COMMUNITY PANEL 515520 038 C, FOR ARLINGTON COUNTY, DATED AUGUST 19, 2013.
3. THE HORIZONTAL DATUM SHOWN HEREON IS REFERENCED TO VIRGINIA COORDINATE SYSTEM OF 1983 (VCS '83).
4. THE VERTICAL DATUM SHOWN HEREON IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
5. THE HORIZONTAL AND VERTICAL DATUMS SHOWN HEREON ARE BASED ON A GPS SURVEY PERFORMED BY VIKA VIRGINIA, LLC ON MARCH 24, 2023.
6. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON A FIELD RUN SURVEY BY VIKA VIRGINIA, LLC.
7. THE SURVEY CONTROL ESTABLISHED BY VIKA VIRGINIA, LLC AND USED TO DETERMINE THE BOUNDARY HAS A HORIZONTAL PRECISION OF 1:291432 WHICH EXCEEDS THE MINIMUM HORIZONTAL PRECISION OF 1:20,000 AS REQUIRED BY THE COMMONWEALTH OF VIRGINIA.
8. CONTOUR INTERVAL SHOWN HEREON IS 2'-0".
9. THE AVERAGE SITE ELEVATION TAKEN AT THE PERIMETER OF THE SUBJECT PROPERTY IS 177.72'.
10. BUILDING HEIGHT CALCULATIONS FOR THE SUBJECT PROPERTY ARE BASED UPON THE VERTICAL DIFFERENCE BETWEEN THE ROOF ELEVATION AND THE AVERAGE SITE ELEVATION (177.72').
11. THE SUBJECT PROPERTY IS NOT LOCATED IN A HISTORIC DISTRICT PER ARLINGTON COUNTY LOCAL HISTORIC SITES AND DISTRICTS MAP DATED 2004.
12. A PORTION OF THE SUBJECT PROPERTY LIES WITHIN A RESOURCE PROTECTION AREA (RPA) PER ARLINGTON COUNTY STREAMS, WATERSHEDS, AND RESOURCE PROTECTION AREAS MAP DATED 2007.
13. THE EXISTING CONDITIONS SURVEY WAS COMPLETED UNDER THE DIRECT RESPONSIBLE CHARGE OF LISA M. GOODWIN, LS FROM AN ACTUAL GROUND SURVEY MADE UNDER MY SUPERVISION; THAT THE ORIGINAL DATA WAS OBTAINED ON MARCH 29, 2024 THRU APRIL 2, 2024.
14. UTILITIES SHOWN HEREON ARE BASED UPON: SUE QUALITY LEVEL B (QL-B) - FIELD SURVEY UTILIZING SURFACE GEOPHYSICAL TECHNIQUES TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF UNDERGROUND UTILITIES WITHIN THE AREA OF INTEREST. UTILITIES LOCATED OUTSIDE THE AREA OF INTEREST ARE QL-C OR QL-D. GRAVITY DEPENDENT UTILITY SYSTEMS (STORM AND SANITARY SEWERS) SHOWN HEREON ARE NOT INCLUDED IN THE QL-B SURVEY.; FIELD SURVEY OF VISIBLE ABOVE-GROUND UTILITY FACILITIES, SUCH AS MANHOLES, VALVE BOXES, POSTS, ETC.; IN ADDITION TO EXISTING UTILITY RECORDS.
15. STEWART TITLE GUARANTY COMPANY, COMMITMENT OF TITLE INSURANCE, FILE NO. 8083-IJATC WITH AN EFFECTIVE DATE OF JULY 26, 2022 AT 8:00 A.M HAS BEEN INCORPORATED INTO THIS SURVEY. ALL KNOWN, PLOTTABLE EASEMENTS OF RECORD ARE SHOWN.
16. COMMON BOUNDARY LINES WITH THE SUBJECT PROPERTY AND ADJOINING BOUNDARIES ARE CONTIGUOUS, WITH NO GAPS GORES OR OVERLAPS, UNLESS NOTED OTHERWISE HEREON.
17. THERE IS NO OBSERVED EVIDENCE OF WETLANDS FIELD DELINEATION ON THE SUBJECT PROPERTY.
18. THERE IS NO OBSERVED EVIDENCE OF CEMETERIES OR BURIAL GROUNDS ON THE SUBJECT PROPERTY.

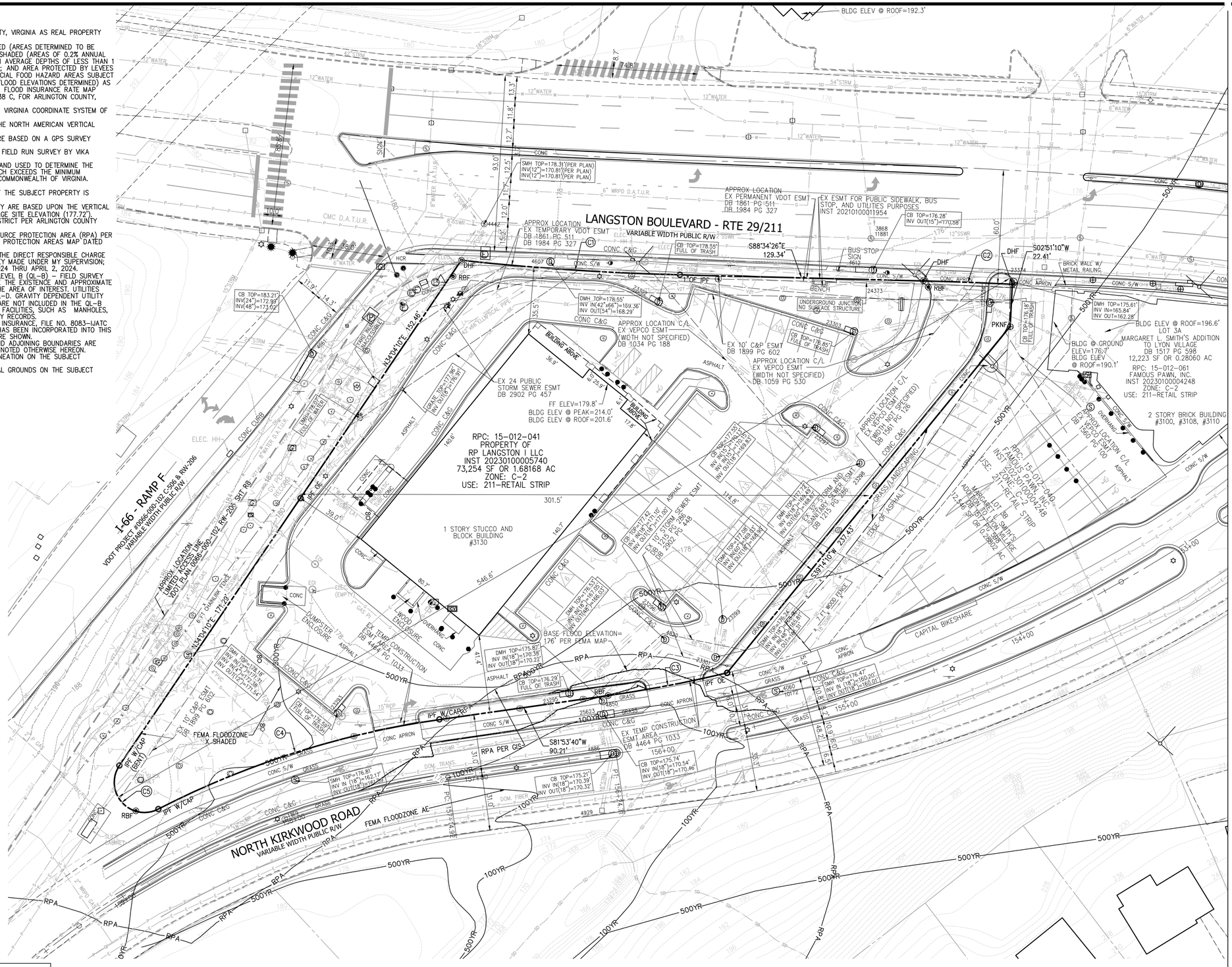
PARKING TABULATION:

STANDARD STRIPED PARKING SPACES	58
HANDICAP STRIPED PARKING SPACES	4
TOTAL STRIPED PARKING SPACES ON SITE	62

* PARKING SPACES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND VISUAL INSPECTION. VIKA VIRGINIA, LLC DOES NOT CERTIFY THAT SPACES ARE STRIPED IN ACCORDANCE WITH REQUIRED JURISDICTIONAL STANDARDS.

AREA TABULATION:

RPC 15-012-041 73,254 SF OR 1.68168 AC



GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD BRG	CHORD
C1	116.21'	1387.60'	004°47'54"	58.14'	S86°10'29"E	116.17'
C2	47.16'	1850.00'	001°27'38"	23.58'	S87°50'37"E	47.15'
C3	64.39'	680.12'	005°25'29"	32.22'	S79°10'55"W	64.37'
C4	157.42'	471.74'	019°07'11"	79.45'	S72°20'05"W	156.69'
C5	42.24'	16.00'	151°17'18"	62.51'	N41°34'51"W	31.00'

VIKA VIRGINIA, LLC
8180 Greensboro Dr., Suite 200
Tysons, VA 22102
703.442.7800 | vika.com
Our Site Set on the Future.

V 12.00

PLAN STATUS	DATE
4.1 SITE PLAN SUBMISSION	08/09/2024

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

LISA M. GOODWIN
Lic. No. 3364
08/09/2024

3130 LANGSTON BOULEVARD

4.1 SITE PLAN

ARLINGTON COUNTY, VIRGINIA

CERTIFIED SURVEY

DRAWN BY: LMG
DESIGNED BY: LMG
DATE ISSUED: 08/09/2024
DWG. SCALE: 1" = 25'
VIKA NO. VV8574A
SHEET NO. C-01

FILE: Q:\Projects\8574\8574A\CADD\SURVEYS\BASE DRAWINGS\8574A-SV.dwg USER: Goodwin DATE: August 9, 2024 TIME: 4:14:22 PM LAYOUT: C-01 CERTIFIED SURVEY

LAYOUT: C-01 CERTIFIED SURVEY, Plotted By: Goodwin

NOTES:

1. THE SUBJECT PROPERTY IS IDENTIFIED ON ARLINGTON COUNTY, VIRGINIA AS REAL PROPERTY CODE (RPC) NO. 15-012-041 AND IS ZONED C-2.
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10. COMMON BOUNDARY LINES WITH THE SUBJECT PROPERTY AND ADJOINING BOUNDARIES ARE CONTIGUOUS, WITH NO GAPS GORES OR OVERLAPS, UNLESS NOTED OTHERWISE HEREON.

LEGAL DESCRIPTION:

BEING ALL OF THE PROPERTY OF RP LANGSTON I LLC AS RECORDED IN INSTRUMENT 20230100005740 AMONG THE LAND RECORDS OF ARLINGTON COUNTY, VIRGINIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING FOR THE SAME AT A DRILL HOLE FOUND LYING ON THE SOUTHERLY RIGHT-OF-WAY LINE OF LANGSTON BOULEVARD – RTE 29-211 (VARIABLE WIDTH PUBLIC R/W), SAID DRILL HOLE FOUND ALSO MARKING THE COMMON NORTHERLY CORNER BETWEEN THE AFORESAID PROPERTY OF LP LANGSTON I LLC AND THE PROPERTY OF FAMOUS PAWN, INC. AS RECORDED IN INSTRUMENT 20230100004248 AMONG THE AFORESAID LAND RECORDS; THENCE DEPARTING SAID SOUTHERLY RIGHT-OF-WAY LINE OF LANGSTON BOULEVARD AND RUNNING WITH SAID PROPERTY OF FAMOUS PAWN, INC. THE FOLLOWING TWO (2) COURSES AND DISTANCES:

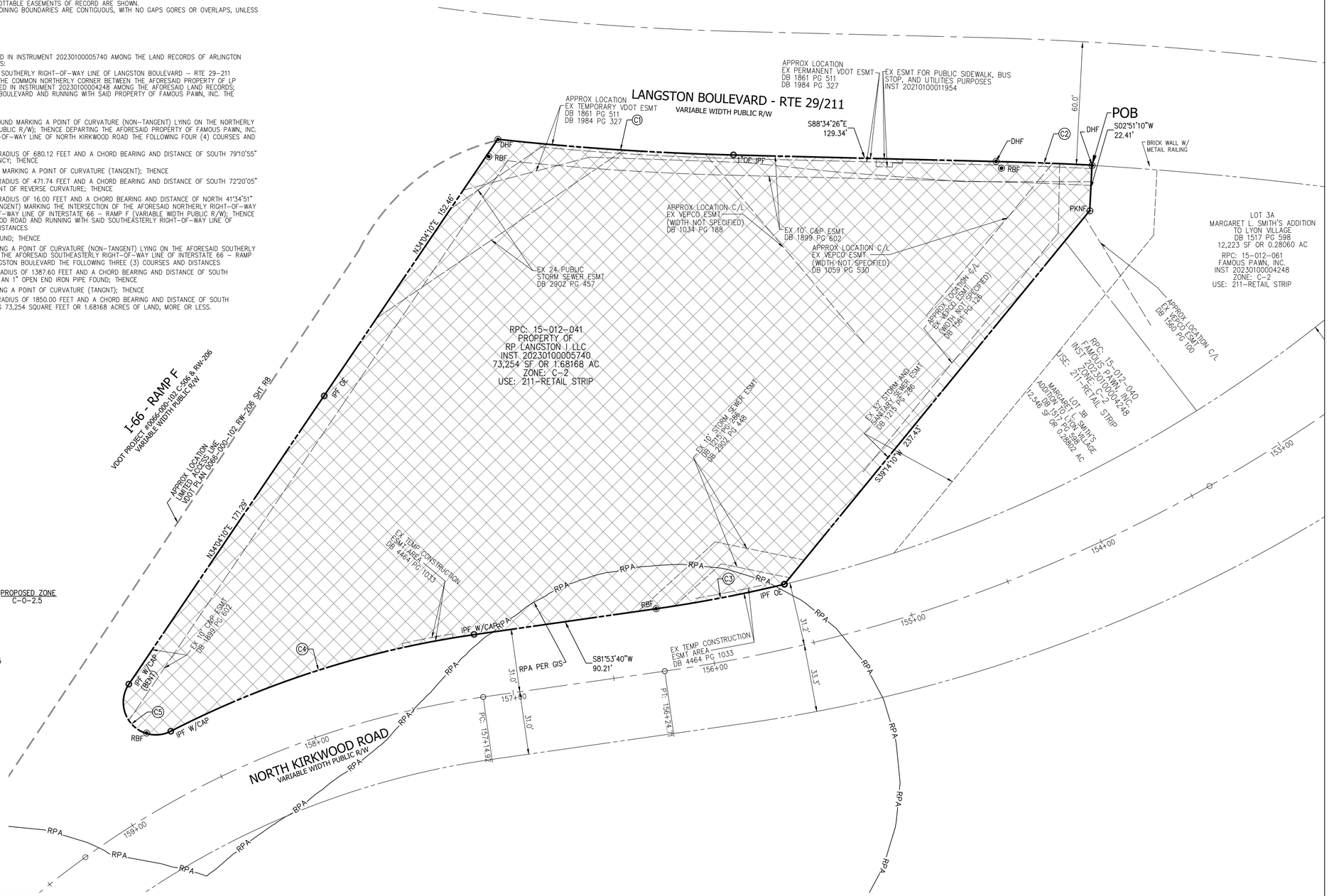
1. SOUTH 02°51'10" WEST, 22.41 FEET TO A PK NAIL FOUND; THENCE
2. SOUTH 39°14'10" WEST, 237.43 FEET TO AN OPEN END IRON PIPE FOUND MARKING A POINT OF CURVATURE (NON-TANGENT) LYING ON THE NORTHERLY RIGHT-OF-WAY LINE OF NORTH KIRKWOOD ROAD (VARIABLE WIDTH PUBLIC R/W); THENCE DEPARTING THE AFORESAID PROPERTY OF FAMOUS PAWN, INC. (INST 20230100004248) AND RUNNING WITH SAID NORTHERLY RIGHT-OF-WAY LINE OF NORTH KIRKWOOD ROAD THE FOLLOWING FOUR (4) COURSES AND DISTANCES:
3. 64.39 FEET ALONG THE ARC OF A CURVE TO THE RIGHT HAVING A RADIUS OF 680.12 FEET AND A CHORD BEARING AND DISTANCE OF SOUTH 79°10'55" WEST, 64.37 FEET TO A REBAR FOUND MARKING A POINT OF TANGENCY; THENCE
4. SOUTH 81°53'40" WEST, 90.21 FEET TO AN IRON PIPE FOUND W/CAP MARKING A POINT OF CURVATURE (TANGENT); THENCE
5. 157.42 FEET ALONG THE ARC OF A CURVE TO THE LEFT HAVING A RADIUS OF 471.74 FEET AND A CHORD BEARING AND DISTANCE OF SOUTH 72°20'05" WEST, 156.69 FEET TO AN IRON PIPE FOUND W/CAP MARKING A POINT OF REVERSE CURVATURE; THENCE
6. 42.24 FEET ALONG THE ARC OF A CURVE TO THE RIGHT HAVING A RADIUS OF 16.00 FEET AND A CHORD BEARING AND DISTANCE OF NORTH 41°34'51" WEST, 31.00 FEET TO AN IRON PIPE FOUND W/CAP (BENT) (NON-TANGENT) MARKING THE INTERSECTION OF THE AFORESAID NORTHERLY RIGHT-OF-WAY LINE OF NORTH KIRKWOOD ROAD AND THE SOUTHEASTERLY RIGHT-OF-WAY LINE OF INTERSTATE 66 – RAMP F (VARIABLE WIDTH PUBLIC R/W); THENCE DEPARTING SAID NORTHERLY RIGHT-OF-WAY LINE OF NORTH KIRKWOOD ROAD AND RUNNING WITH SAID SOUTHEASTERLY RIGHT-OF-WAY LINE OF INTERSTATE 66 – RAMP F THE FOLLOWING TWO (2) COURSES AND DISTANCES
7. NORTH 34°04'10" EAST, 171.29 FEET TO AN OPEN END IRON PIPE FOUND; THENCE
8. NORTH 34°04'10" EAST, 152.46 FEET TO A DRILL HOLE FOUND MARKING A POINT OF CURVATURE (NON-TANGENT) LYING ON THE AFORESAID SOUTHERLY RIGHT-OF-WAY LINE OF LANGSTON BOULEVARD; THENCE DEPARTING THE AFORESAID SOUTHEASTERLY RIGHT-OF-WAY LINE OF INTERSTATE 66 – RAMP F AND RUNNING WITH SAID SOUTHERLY RIGHT-OF-WAY LINE OF LANGSTON BOULEVARD THE FOLLOWING THREE (3) COURSES AND DISTANCES
9. 116.21 FEET ALONG THE ARC OF A CURVE TO THE LEFT HAVING A RADIUS OF 1387.60 FEET AND A CHORD BEARING AND DISTANCE OF SOUTH 86°10'29" EAST, 116.17 FEET TO A POINT OF TANGENCY MARKED BY AN 1" OPEN END IRON PIPE FOUND; THENCE
10. SOUTH 88°34'26" EAST, 129.34 FEET TO A DRILL HOLE FOUND MARKING A POINT OF CURVATURE (TANGNT); THENCE
11. 47.16 FEET ALONG THE ARC OF A CURVE TO THE RIGHT HAVING A RADIUS OF 1850.00 FEET AND A CHORD BEARING AND DISTANCE OF SOUTH 87°50'37" EAST, 47.15 FEET TO THE POINT OF BEGINNING CONTAINING 73,254 SQUARE FEET OR 1.68168 ACRES OF LAND, MORE OR LESS.

REZONING AREA TABULATION:

	EXISTING ZONE	PROPOSED ZONE
RPC 15-012-041 73,254 SF OR 1.68168 AC	C-2	C-O-2.5

LEGEND:

AREA TO BE REZONED FROM C-2 TO C-O-2.5



CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD BRG	CHORD
C1	116.21'	1387.60'	004°47'54"	58.14'	S86°10'29"E	116.17'
C2	47.16'	1850.00'	001°27'38"	23.58'	S87°50'37"E	47.15'
C3	64.39'	680.12'	005°25'29"	32.22'	S79°10'55"W	64.37'
C4	157.42'	471.74'	019°07'11"	79.45'	S72°20'05"W	156.69'
C5	42.24'	16.00'	151°17'18"	62.51'	N41°34'51"W	31.00'

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

VIKA VIRGINIA, LLC
8180 Greensboro Dr., Suite 200
Tysons, VA 22102
703.442.7800 | vika.com

Our Site Set on the Future.

V 12.00

PLAN STATUS	DATE
4.1 SITE PLAN SUBMISSION	08/09/2024

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
LISA M. GOODWIN
Lic. No. 3364
08/09/2024
LAND SURVEYOR

3130 LANGSTON BOULEVARD

4.1 SITE PLAN

ARLINGTON COUNTY, VIRGINIA

REZONING PLAT

DRAWN BY:	LMG
DESIGNED BY:	LMG
DATE ISSUED:	08/09/2024
DWG. SCALE:	1" = 25'
VIKA NO.	VV8574A
SHEET NO.	C-02

FILE: O:\Projects\8574A\8574A\CADD\SURVEY\BASE DRAWINGS\8574A-SV.dwg USER: Goodwin DATE: August 9, 2024 TIME: 4:15:56 PM LAYOUT: C-02 REZONING
LAYOUT: C-02 REZONING, Plotted By: Goodwin

Facts about Arlington

As of September 2023

Land

Land Area	25.8 Square Miles (66.82 Square Kilometers)
Highest Elevation	460 Feet above Sea Level (140.3 meters)

Population and Employment

Total Population, 2020 U.S. Census	238,643
2023 Population Estimate	237,300
Average Household Size, 2021 ACS	2.12 persons
Estimated At-Place-Employment, January 2023*	214,600 Jobs (100%)**
Construction	4,100 (1.9%)
Retail Trade	9,500 (4.4%)
Transportation and Warehousing	11,300 (5.3%)
Information	6,400 (3.0%)
Finance and Insurance	6,200 (2.9%)
Real Estate and Rental/Leasing	8,300 (3.9%)
Professional and Technical Services	59,300 (27.6%)
Hospitality and Food Services	11,000 (5.1%)
Other Services	45,800 (21.3%)
Government	44,600 (20.8%)
All Other	8,100 (3.3%)
Estimated Daytime Population, 2023	301,700

* At-place employment refers to jobs located in Arlington.
** Figures may not sum due to rounding.
Source: Arlington County, Department of Community Planning, Housing and Development, January 2023 estimates.

Development

Total Dwelling Units, 2020 U.S. Census*	119,085
2023 Dwelling Units Estimate**	121,200
Rentable Building Area in Square Feet, 4Q 2022***	41,908,023
Total Hotel Rooms, 2023 estimate****	9,556

Sources:
* U.S. Census Bureau
** Arlington County, Department of Community Planning, Housing and Development
*** CoStar
**** Arlington Economic Development

Other Planning Documents

Arlington County Profile (March 2023)
Annual and Quarterly Development Tracking Reports (2022)

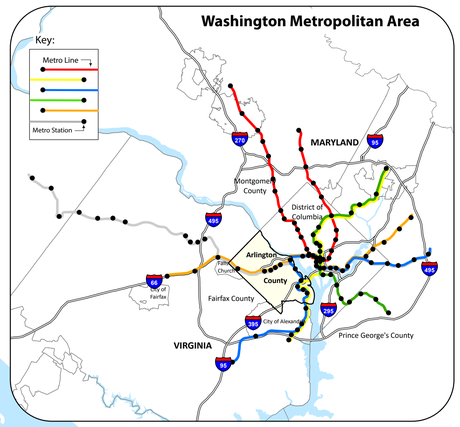
General Land Use Plan

An element of Arlington County's Comprehensive Plan

Adopted February, 2020

Adopted August 12, 1961 with amendments through December 31, 2023. The record of the official General Land Use Plan is on file with the Clerk of the County Board and the Department of Community Planning, Housing and Development; Planning Division.

Washington Metropolitan Area



Major Planning Corridors

Legend

Symbols

- M — Metro Station (Existing)
- ▲ — General Location for Public Space
- ⬢ — Memorial
- Public Ownership
- Planning Districts
- Roads, Medians

Land Use

Land Use Designation*	Range of Density/Typical Use	Zoning**
Residential		
Low	1-10 units per acre, including one-family dwellings, accessory dwellings, and expanded housing option uses	R-20, R-10, R-10T, R-8, R-6, R-5
Low	11-15 units per acre	R2-7, R15-30T
Low-Medium	16-36 units per acre	R15-30T, RA14-26, RA8-18
Medium	Up to 37-72 units per acre	RA7-16, RA6-15, RA-H
High-Medium	Up to 3.24 F.A.R. *(Floor Area Ratio)* Residential	RA-4.8
High	Up to 4.8 F.A.R. Residential Up to 3.8 F.A.R. Hotel	RA-H-3.2, C-O Rosslyn
Commercial and Industrial		
Service Commercial	Personal and business services. Generally one to four stories, with special provisions within the Columbia Pike Special Revitalization District.	C-1-R, C-1, C-1-O, C-2, C-O-1.0, C-TH
Service Industry	Wholesale, storage, and light manufacturing uses, including those relating to building construction activity.	CM, M-1, M-2
Public and Semi-Public		
Public	Parks *(Local, regional, and federal)*. Schools *(public)*. Parkways, major unpaved rights-of-way. Libraries and cultural facilities.	S-3A, S-D
Semi-Public	Country clubs and semi-public recreational facilities. Churches, private schools and private cemeteries *(predominant use on block)*.	S-3A, S-D
Government and Community Facilities	County, state and federal administration and service facilities *(police, fire, property yard, etc.)* Hospitals, nursing homes, and institutional housing. Utilities, military reservations, airports, etc.	P-S, S-D, S-3A

Office-Apartment-Hotel	Office Density	Apartment Density	Hotel Density	
Low	Up to 1.5 F.A.R.	Up to 72 units/acre	Up to 110 units/acre	C-O-1.5, C-O-1.0
Medium	Up to 2.5 F.A.R.	Up to 115 units/acre	Up to 180 units/acre	C-O-2.5
High	Up to 3.8 F.A.R.	Up to 4.8 F.A.R.	Up to 3.8 F.A.R.	C-O, C-O Crystal City, C-O Rosslyn, RA-H-3.2

Mixed Use		
Medium Density Mixed-Use	Up to 3.0 F.A.R. with special provision for additional density within the "Clarendon Revitalization District" (See Note 12) and the "Special Coordinated Mixed Use District" for East End of Virginia Square (See Note 3)	C-R, C-3, MU-VS
High-Medium Residential Mixed-Use	Up to 3.24 F.A.R. including associated office and retail activities.	R-C
Coordinated Mixed-Use Development	This is a high density mixed-use district with actual density determined by site size. Up to 6.0 F.A.R. with office not more than 3.0 F.A.R.	C-O-A

✻ Each land use designation on the GLUP map indicates a range of densities and typical uses for that general location. An approval by the County Board of a development proposal anywhere within this range would be consistent with the County's goals and vision. The higher end of that density range may not necessarily represent the vision for a specific location. When a development proposal substantially complies with County goals, policies and plans, and is consistent with good zoning practice, and/or assists in achieving the objectives identified in Section 15.5.9 of the Zoning Ordinance, the County Board may approve that development proposal at the higher end of that density range or within or above the density ranges identified on the GLUP map, as provided by the Zoning Ordinance. Where a mix is shown, the width of the stripe indicates percentage of use. The GLUP booklet provides additional information of land use designation striping.

✻✻ The zoning districts which are listed next to each General Land Use Plan designation are those which typically correspond to that specific land use plan designation. However, there may be instances where other zoning categories may apply or cases in which the listed zoning categories are not appropriate, since the determination of an appropriate zoning district for a particular site depends upon factors other than simply the General Land Use Plan designation. This list is provided as a guide only. If an area is shown "Public" but is not publicly owned (not crosshatched) the existing zoning of the property and surrounding land uses should determine the development potential of the site.

Map prepared by GIS Mapping Center
2100 Clarendon Boulevard
Arlington, VA 22201
Email: GISMC@arlingtonva.us
Website: maps.arlingtonva.us

Spatial reference: Virginia State Plane North, NAD 1983.
Base map updated from April 2021 digital aerial photography. Potomac River from USGS 1:24,000 DLG files. Cadastral and political data layers are maintained on an on-going basis. The street network on the GLUP map includes both existing and proposed streets. Maps shall not be construed as legal documents.

Pursuant to Section 54.1-402 of the Code of Virginia, any determination of topography or contours, or any depiction of physical improvements, property lines or boundaries is for general information only and shall not be used for the design, modification, or construction of improvements to real property or for flood plain determination.

Additional information related to this map may be found in the printed version of the GLUP Booklet. In addition, please visit www.arlingtonva.us (search "GLUP") for the most current online version of the General Land Use Plan (Map and Booklet).

Printed: May 2024

SCALE: 1 inch = 1,300 feet

SCALE IN FEET
0 1,300 2,600 3,900 5,200

0 0.25 0.5 0.75 1
SCALE IN MILES

Notes

1. This area was designated the "Crystal City Coordinated Redevelopment District" on 9/28/10, to permit heights and densities called for in the Crystal City Sector Plan where Sector Plan goals are otherwise generally met.
2. This area was designated the Western Rosslyn Coordinated Redevelopment District on 2/20/16.
3. This area shall be part of a "Special Coordinated Mixed-Use District" (East Clarendon, 7/13/82), (George Mason University/Virginia Square Shopping Center, 8/7/82), (East End of Virginia Square, 6/14/03). The "Special Coordinated Mixed-Use District" designation was established for larger sites where redevelopment may result in significant changes within a Metro Station Area.

   Development of the East Clarendon district bordered by Wilson Boulevard, North Danville Street, 11th Street North, and North Fillmore Street shall be consistent with the concept plan and design guidelines included in the East Clarendon: Special Coordinated Mixed Use District Plan adopted by the County Board on 9/20/94.

   In the George Mason University/Virginia Square Shopping Center district, the area designated "High" Office Apartment Hotel allows a base F.A.R. of 3.0 Office/Hotel; and up to a total of 4.3 F.A.R. in consideration of residential development, community services and cultural facilities (7/11/83). The area bordered by N. Monroe Street, N. Lincoln Street, Washington Boulevard, Kirkwood Road, and Fairfax Drive and designated "Public" is intended to accommodate existing facilities and future expansion of the George Mason University Arlington campus (7/28/01).

   For the East End district of Virginia Square, designated as "Medium Density Mixed-Use" and bordered by Fairfax Drive, Wilson Boulevard, North Lincoln Street, and the intersection of 10th Street North/Wilson Boulevard/Fairfax Drive, shall be developed consistent with the Virginia Square Sector Plan adopted by the County Board on 12/7/02 and any adopted amendments thereto. Allow density up to 3.24 F.A.R. for properties east of North Kansas Street and up to 4.0 F.A.R. for properties west of North Kansas Street.
4. This area was designated the "Pentagon City Coordinated Redevelopment District" on 2/12/22, to permit heights and densities called for in the Pentagon City Sector Plan where Sector Plan goals are otherwise generally met.
5. This area was designated a "Coordinated Preservation and Development District" on 4/23/77.
6. This area is subject to further planning guidance in the Shirlington Special GLUP Study Plus and Concept Plan, adopted by the County Board on July 18, 2020.
7. On 4/16/11, this area was designated as the "East Falls Church Neighborhood Center District."
8. These areas were designated as "Special Revitalization District": *(continued)*
8. *(continued)* Columbia Pike on 11/15/86 and amended on 12/17/02, 2/25/03 and 12/15/07, Langston Boulevard (formerly Lee Highway)/Cherrydale on 4/1/95 and amended on 12/16/23.
9. This area was designated as the "Langston Boulevard Planning District" on 11/11/23. The MTP indicates areas planned for new streets throughout the district.
10. Notes 10 and 11 were removed in the 2019 GLUP Reprint to eliminate explanations already provided elsewhere on the map. The Note numbers have been reserved for future use.
11. Notes 10 and 11 were removed in the 2019 GLUP Reprint to eliminate explanations already provided elsewhere on the map. The Note numbers have been reserved for future use.
12. This area was designated the "Clarendon Revitalization District" on 7/7/90. The boundary for this district was amended on 2/25/06 and 12/9/06. The goals and objectives for this area are set forth in the "Clarendon Revitalization District" located in the GLUP Booklet.
13. These areas were designated a "Special Affordable Housing Protection District": Pollard Gardens/Clarendon Courts on 11/17/90; Twin Oaks on 5/24/00; The Odyssey on 11/20/01; Liberty Center on 1/26/02; WRIT Rosslyn Center on 7/20/02; North Monroe Street Residential on 10/18/03; North Troy Street Residential on 2/21/04; Rosslyn Ridge on 7/10/04; Rosslyn Commons on 6/17/08; and 1501 Arlington Boulevard on 4/23/19.
14. This area was designated as the "North Quincy Street Coordinated Mixed-Use District" on 2/4/95, and amended on 2/23/13.
15. This area was designated as the "Rosslyn Coordinated Redevelopment District" on 5/11/96 and revised on 2/20/16.
16. This area has been designated a "Coordinated Multiple-Family Conservation and Development District" on 1/2/99. In order to achieve affordable housing goals without unduly impacting adjacent areas designated "Low" Residential (11 - 15 units per acre) and "Low-Medium" Residential (16-36 units per acre), development on this site shall not exceed 48 units per acre.
17. This area was designated as the "Radnor Heights East Special District" on 12/14/99.
18. The County Board has designated this area as eligible for an additional gross floor area of up to 1.161 million square feet over and above the base density of the site, which may be granted upon fee conveyance to the County of a sufficient amount of property, as determined by the County Board, for parks, open space, and community recreation use, in accordance with Section 15.5.7 of the Zoning Ordinance. The total base and additional densities shall include a minimum of 1/3 for residential use, including hotel, and a maximum of 2/3 for office and commercial uses.
19. Affordable Housing requirements for site plan projects were adopted by the County Board on 12/10/05 for residential and commercial site plan projects within and outside the Metro Corridors as identified on the General Land Use Plan. These provisions are contained in Section 15.5.8 and 15.5.9 of the Zoning Ordinance.
20. This area was designated as the "North Tract Special Planning District" on 4/24/04. In accordance with a revised agreement, dated 9/29/10, between the County and MR Monument View LLC, providing for the exchange of certain property owned by the County and property owned by MR Monument View LLC known as the Twin Bridges site, the County Board, pursuant to Section 15.5.7 of the Zoning Ordinance, and in order to facilitate the implementation of the North Tract Master Plan for Park and Recreational Facilities, has designated the property owned by the County and to be transferred to MR Monument View LLC as eligible for up to 145,797 square feet of additional development density over and above its base density.
21. This area was designated the Green Valley Village Center (formerly Nauck) Special Revitalization District on 7/10/04.
22. This area was designated the Fort Myer Heights North Special District on 4/16/05.
23. Within the area shown as "Medium" Office-Apartment-Hotel, in order to provide an appropriate transition to adjacent residential neighborhoods, buildings on the southwest and western portions of the site shall consist of residential uses and have maximum heights of 50 feet.
24. These areas were designated a "Special Revitalization District" on 11/16/13 and include Conservation Areas (#24a).
25. Adopted on 2/24/18 as additional guidance for this area, development along the south side of 11th Street North between North Vermont and North Randolph Streets should complete and reinforce the overall transition envisioned by the Ballston Sector Plan from Fairfax Drive to 11th Street by:
    - Limiting building heights along 11th Street to 3 to 4 stories for the first 80 feet of block depth; and
    - Encouraging sufficient separation between buildings on adjacent sites.
26. This area was designated the "Courthouse Square Special District" on 10/21/17.
27. This area is subject to further planning guidance as provided in the "Washington Boulevard and Kirkwood Road Special GLUP Study and Concept Plan," adopted by the County Board on 11/18/17.
28. These areas were designated as a "Housing Conservation District" on 12/16/17 and amended on 11/11/23 following the adoption of the "Langston Boulevard Planning District".

FRONT

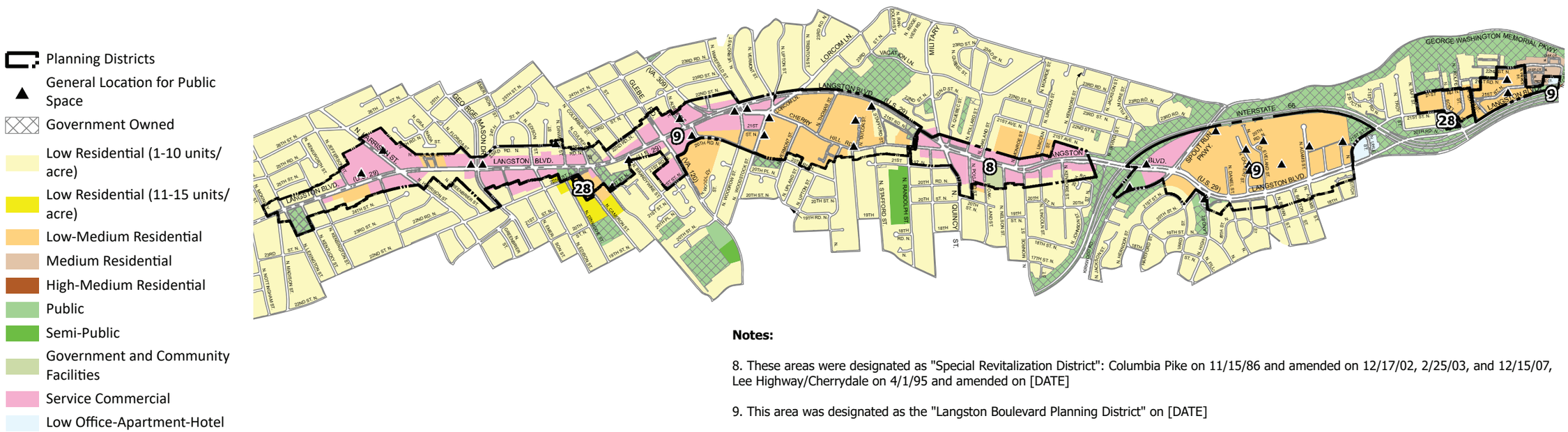
5.2 GLUP and Zoning Ordinance Amendments

GLUP amendments, MTP amendments, and Zoning Ordinance amendments are recommended to facilitate reinvestment per the Plan goals.

5.2.1 GLUP Amendments

The GLUP expresses the County's vision for future land use and development and provides guidance that reinforces and ensures that development patterns within the County are compatible in terms of uses and densities. The existing GLUP designations in the Langston Boulevard Planning Area reflect land use policies originally envisioned when the Comprehensive Plan was adopted in the mid-1960s. The Langston Boulevard Plan recommends Plan goals that are not reflected in the current GLUP, as well as land uses and building heights that are inconsistent with the existing GLUP designations on sites located within Core Study Area.

To implement the Langston Boulevard vision expressed in the Plan, several amendments to the GLUP Map and Booklet are therefore proposed with Plan adoption. Intended to communicate that a new planning vision has been adopted for the Langston Boulevard corridor, initial GLUP amendments proposed with Plan adoption include the establishment of the Langston Boulevard Planning District and larger Planning Corridor, addition of open space triangles, and removal of HCD areas. Proposed amendments also include removal of parcels within the Cherrydale Revitalization District adjacent to areas where redevelopment has already occurred per Cherrydale Plan goals, as proposed with adoption of new policy and regulations for Expanded Housing Options.



Notes:

8. These areas were designated as "Special Revitalization District": Columbia Pike on 11/15/86 and amended on 12/17/02, 2/25/03, and 12/15/07, Lee Highway/Cherrydale on 4/1/95 and amended on [DATE]

9. This area was designated as the "Langston Boulevard Planning District" on [DATE]

28. These areas were designated as a "Housing Conservation District" on 12/16/17

Figure 5.01: Future Glup Map - Planning Study Area

In addition to the GLUP Map and booklet amendments proposed with Plan adoption, amendments to land use designations are also appropriate. The Draft Langston Boulevard Plan recommends land uses and building heights that are inconsistent with existing GLUP designations on many sites located within the Core Area. Thus, amendments for the Residential District, Mixed-Use District, and Activity Hubs would align the GLUP with Plan goals and policies. These amendments to GLUP designations may correspond with existing zoning district regulations for special exception development and would support rezoning requests to facilitate special exception private development applications.

A future GLUP map indicates the amendments requested with Plan adoption, as noted above, as well as the appropriate GLUP designations that private property owners should request with applications for redevelopment.

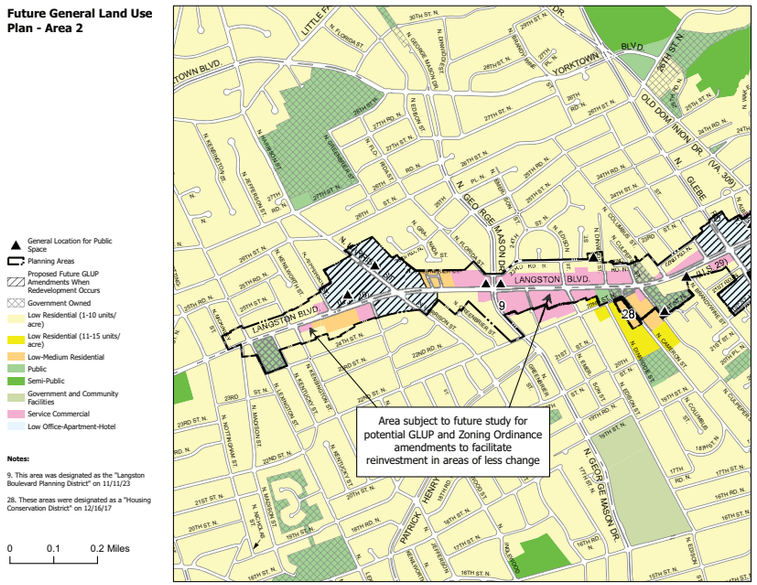


Figure 5.02: Future Glup Map - Area 2

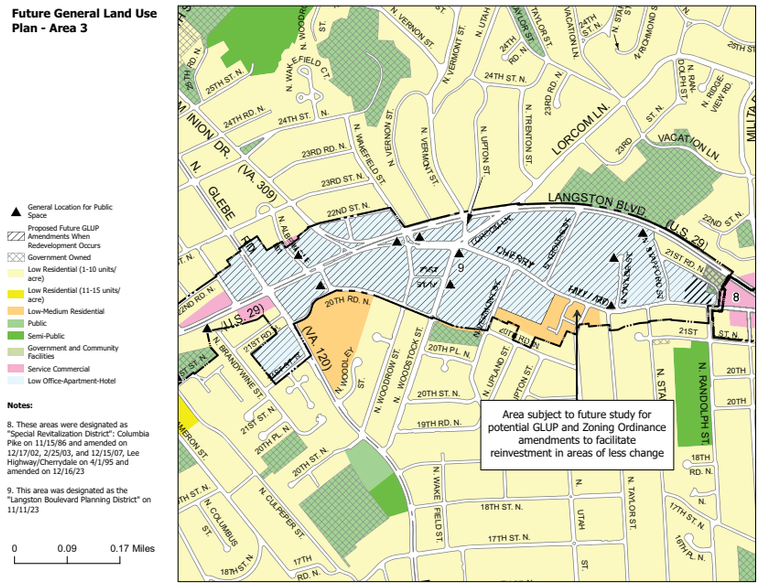


Figure 5.03: Future Glup Map - Area 3

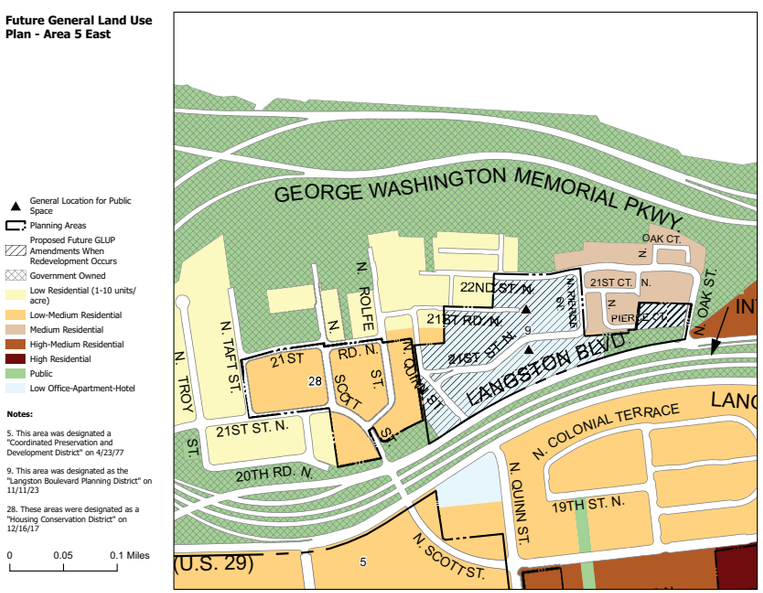


Figure 5.04: Future Glup Map - Area 5E

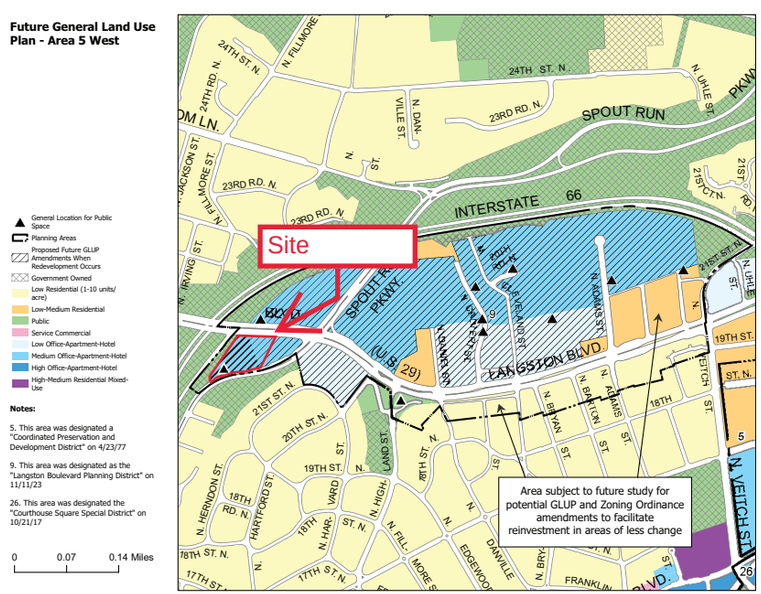


Figure 5.05: Future Glup Map - Area 5W

3130 LANGSTON BOULEVARD

Multimodal Transportation Assessment

Arlington, VA

August 9, 2024

Prepared by:

VIKA Virginia LLC
Michael R. Pinkoske, PTP
Rodolfo A. Roman
(703) 442-7800

www.vikavirginia.com

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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

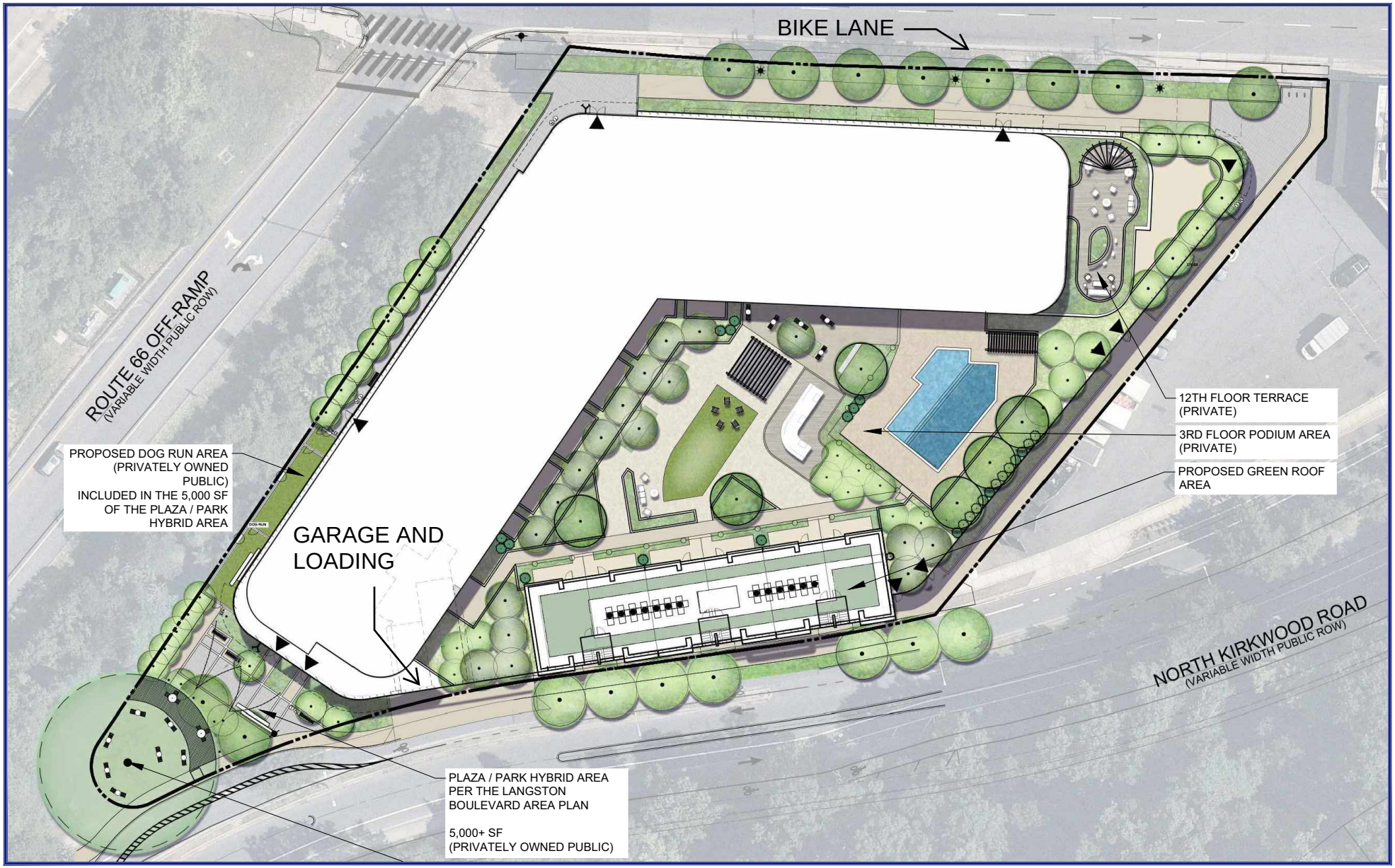

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Figure 1-2
Rendered 4.1 Site Plan

3130 Langston Boulevard
Arlington, Virginia

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.

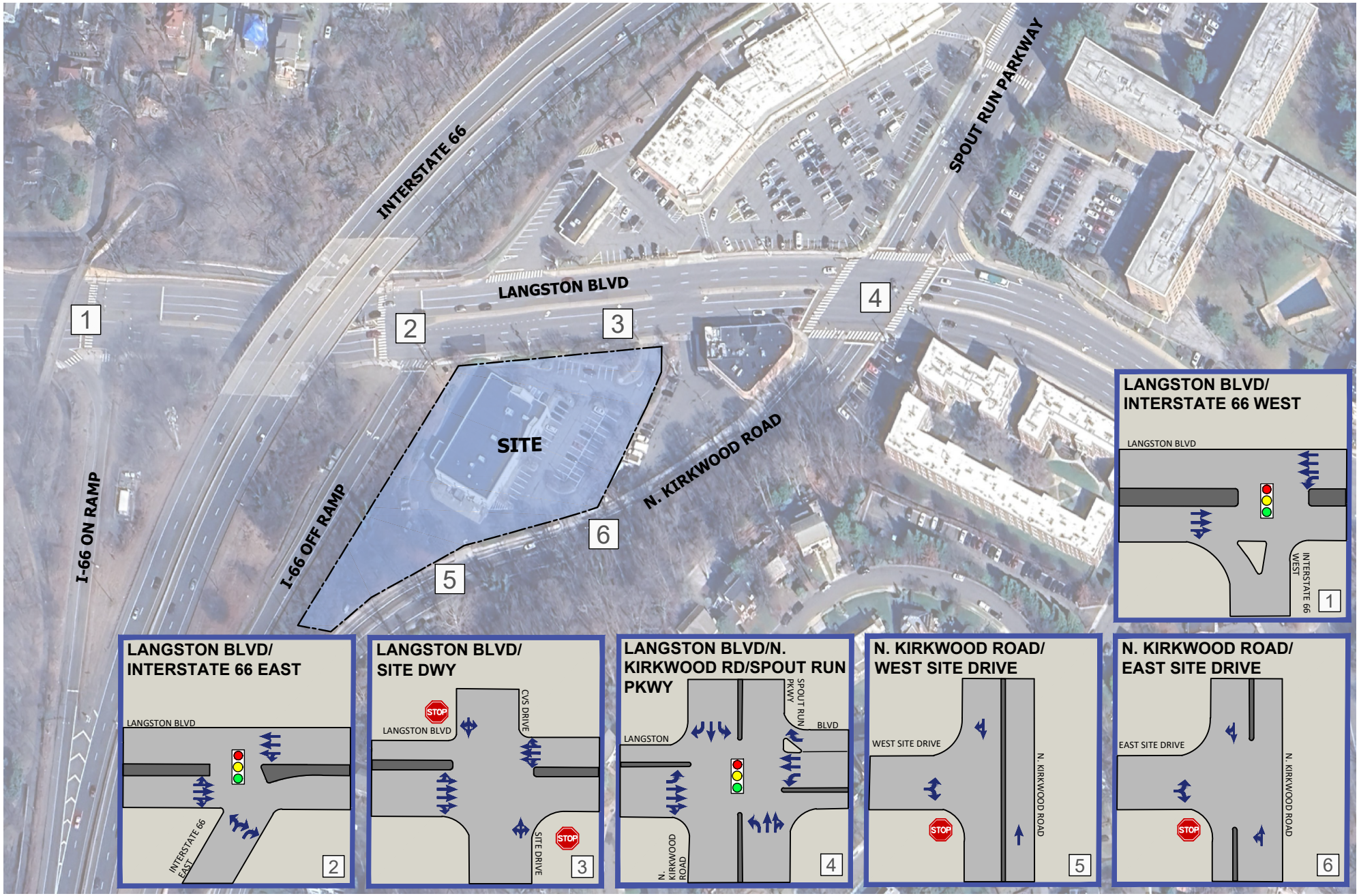
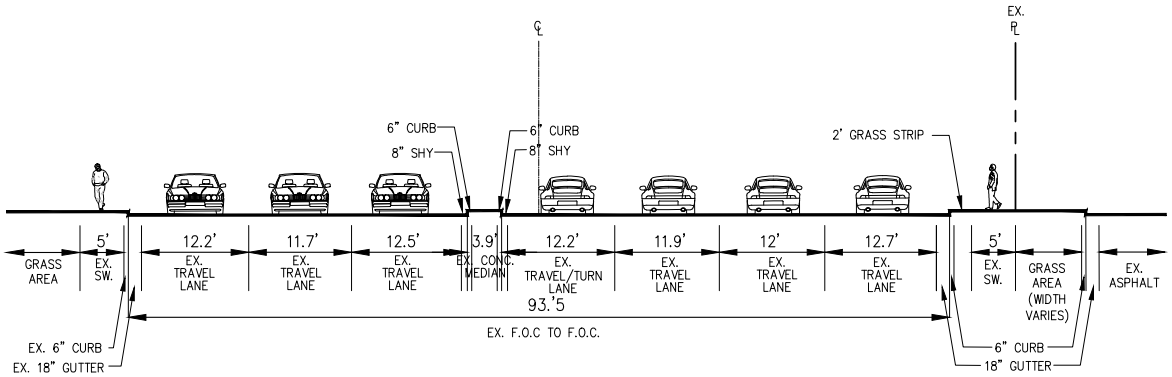
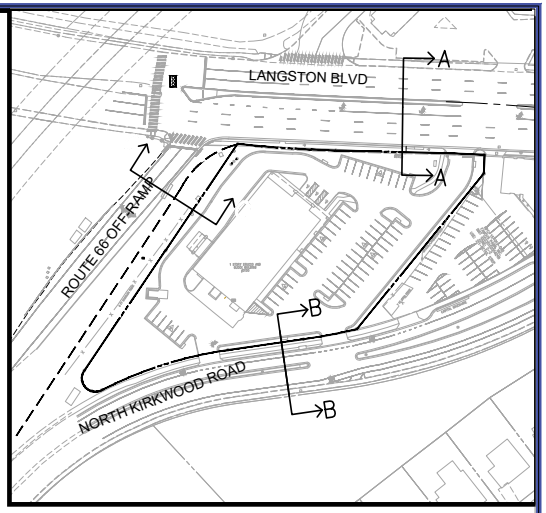


Figure 2-1
Existing Lane Use and Traffic Controls

3130 Langston Boulevard
Arlington, Virginia

EXISTING



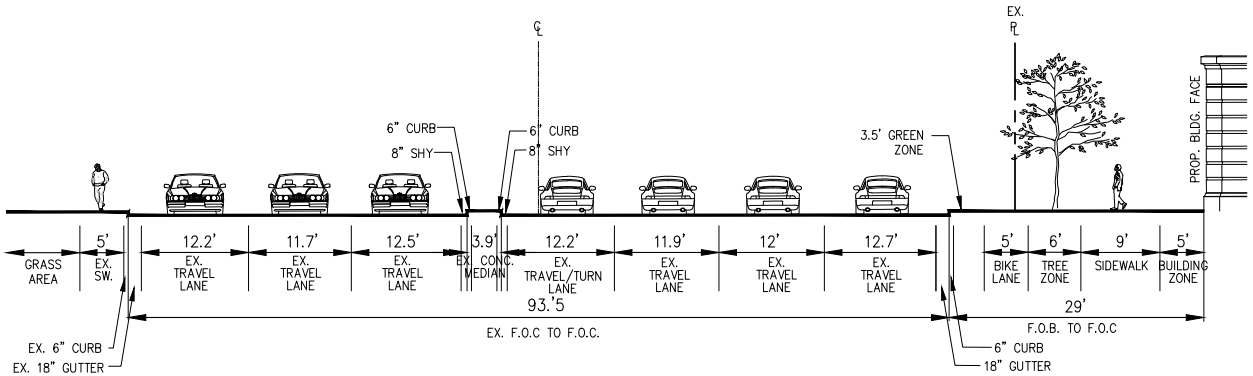


SCALE: 1" = 60'

SECTION A-A (LOOKING EAST)

LANGSTON BLVD

PROPOSED



SECTION A-A (LOOKING EAST)

LANGSTON BLVD

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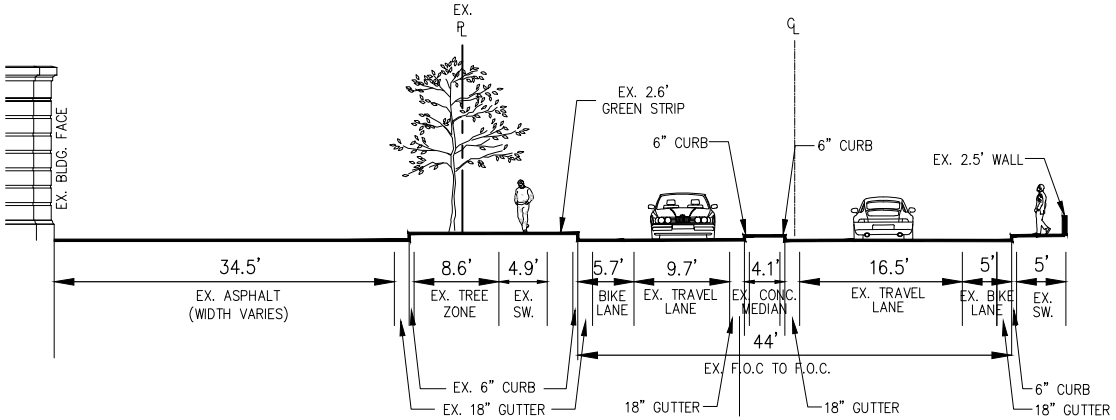
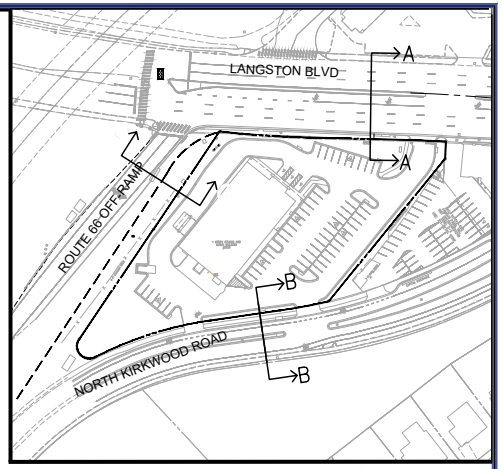
Figure 2-2
Langston Boulevard Street Section

3130 Langston Boulevard
Arlington, Virginia

EXISTING

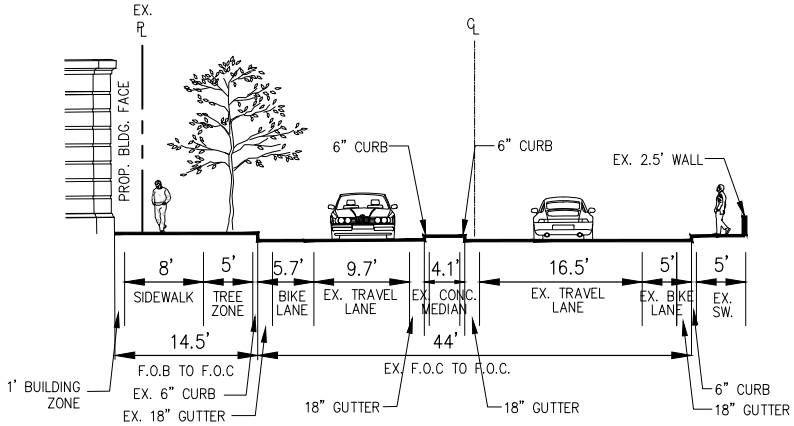




SECTION B-B (LOOKING EAST)

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

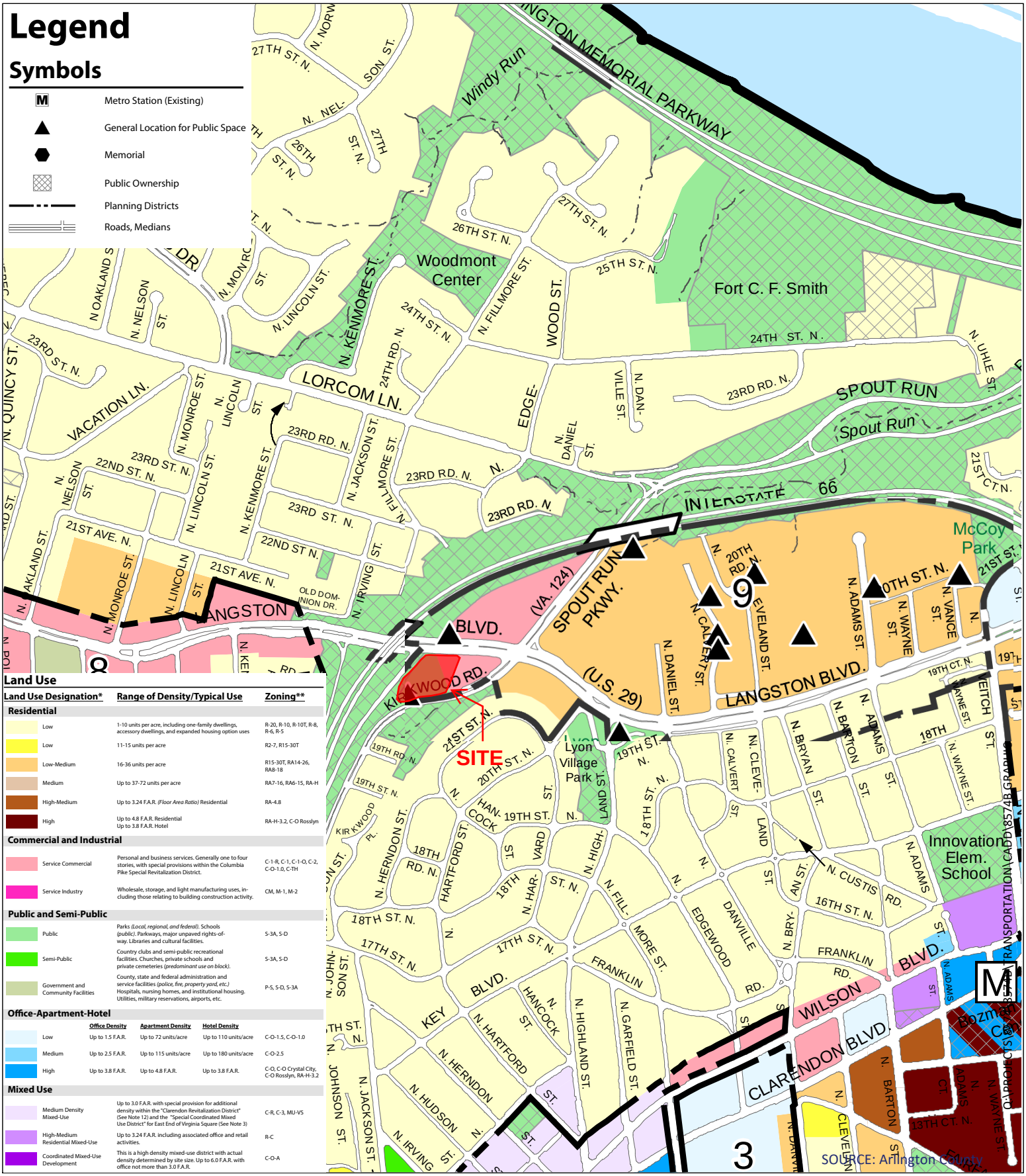

Figure 2-2
Arlington General land Use Plan

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.

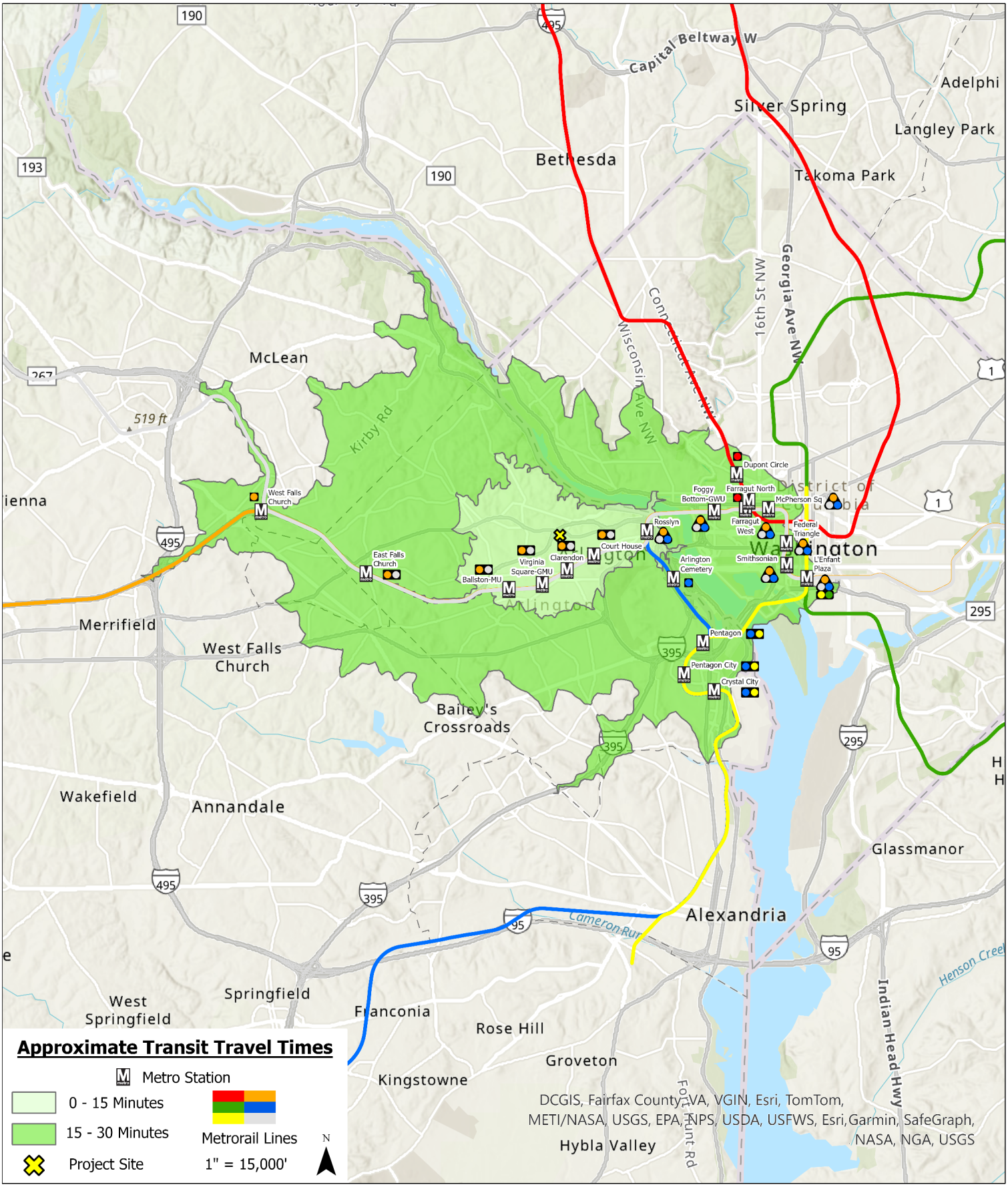

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Figure 3-1
Transit Shed

3130 Langston Boulevard
ARLINGTON, Virginia

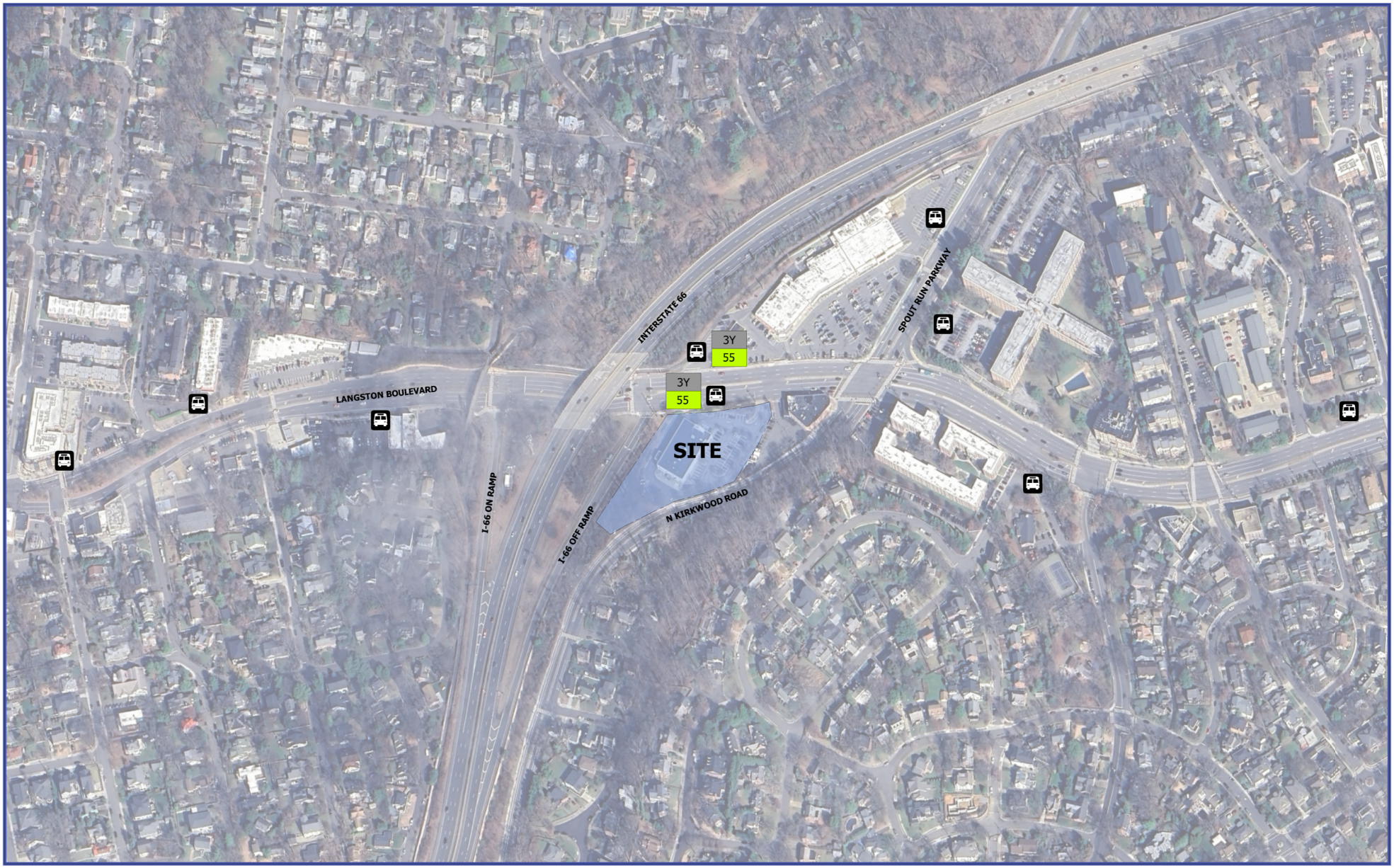

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Figure 3-2
Bus Stop Locations

Bus Stop Location
XXX Bus Route

3130 Langston Boulevard
Arlington, Virginia

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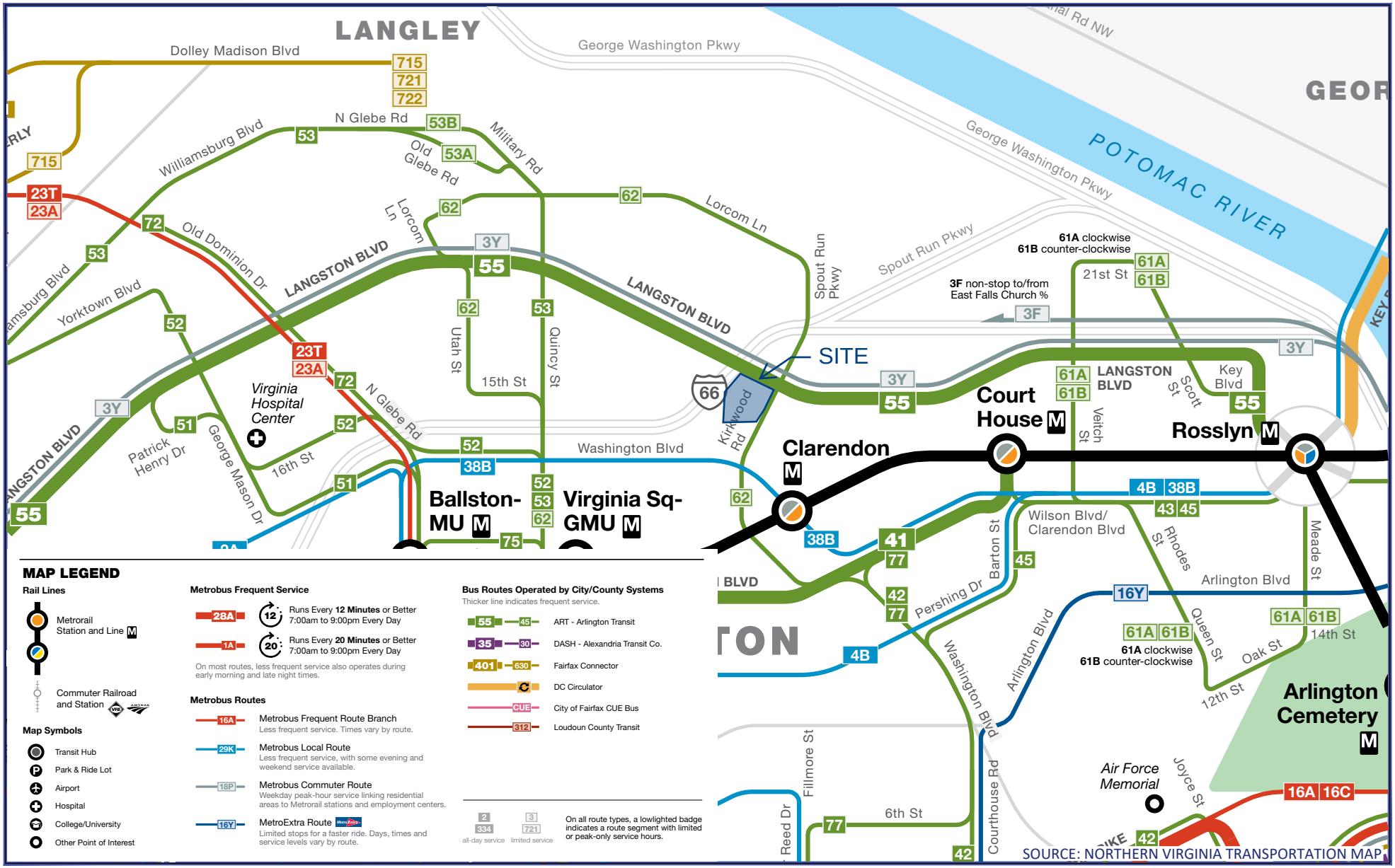

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Figure 3-3
Bus Map

3130 Langston Boulevard
Arlington, Virginia

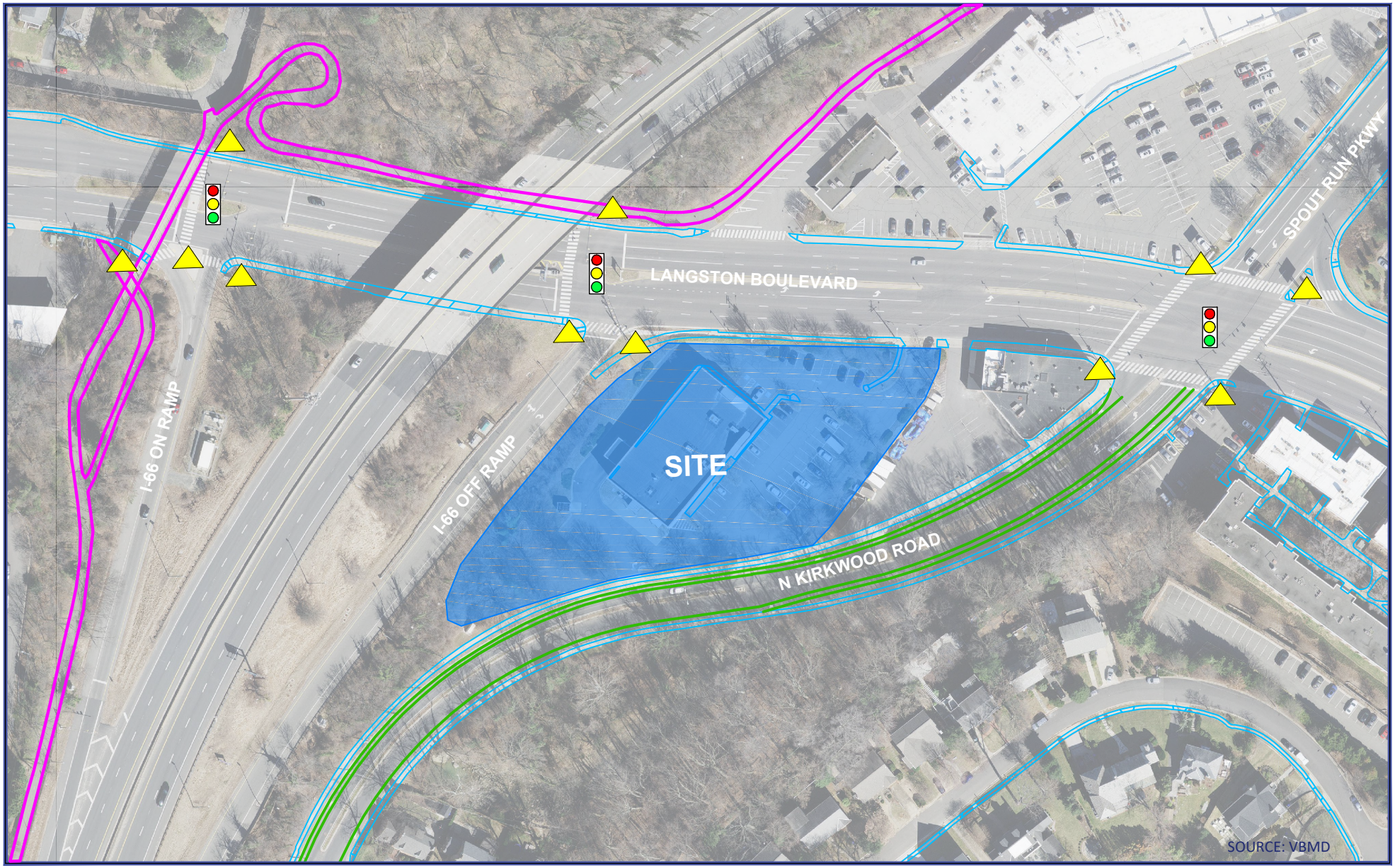

Figure 3-4
Pedestrian Facilities Map

3130 Langston Boulevard
Arlington, Virginia

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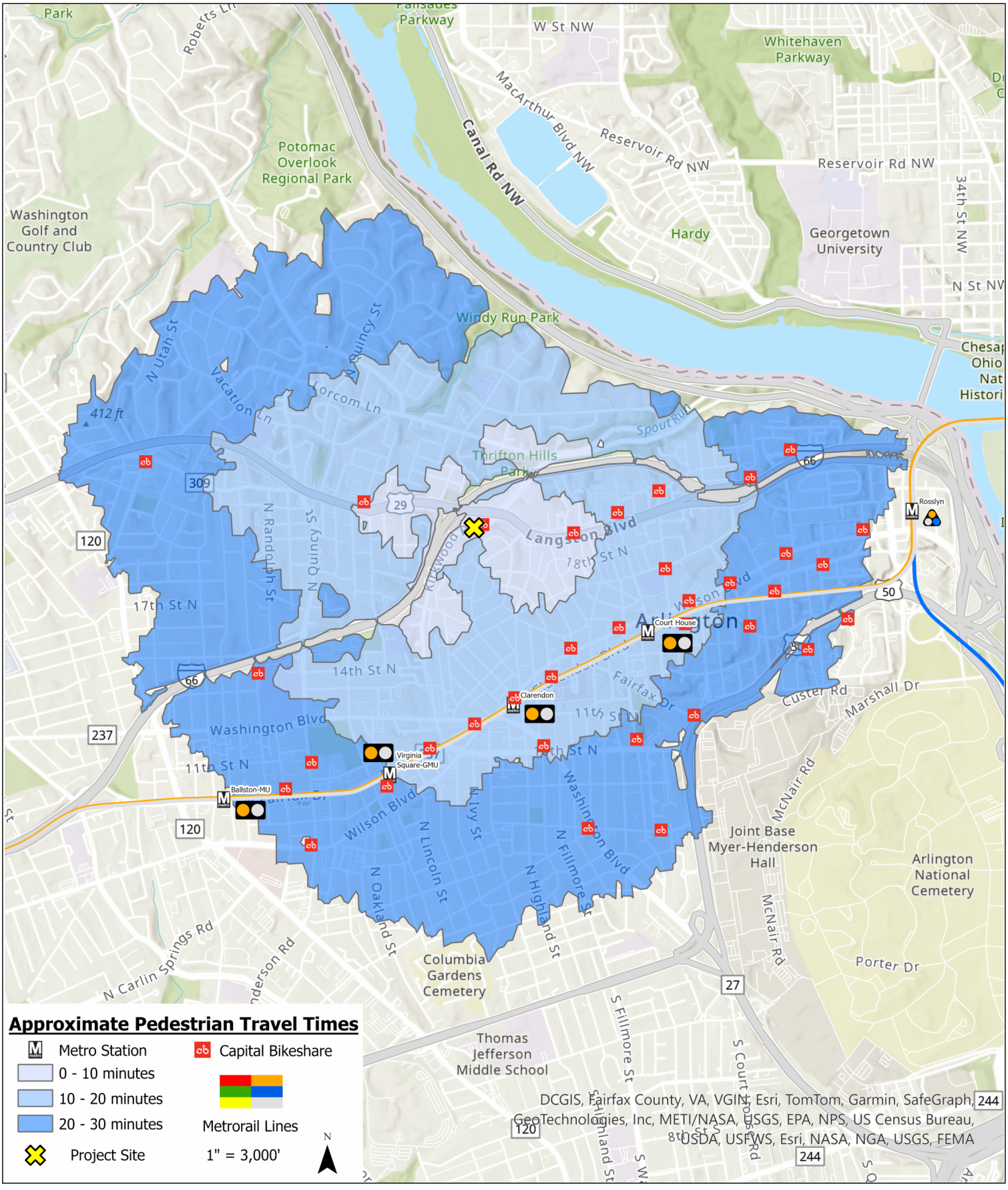

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Figure 3-5
Pedestrian Shed

3130 Langston Boulevard
ARLINGTON, Virginia

Figure 3-6
Bike Map

3130 Langston Boulevard
Arlington, Virginia

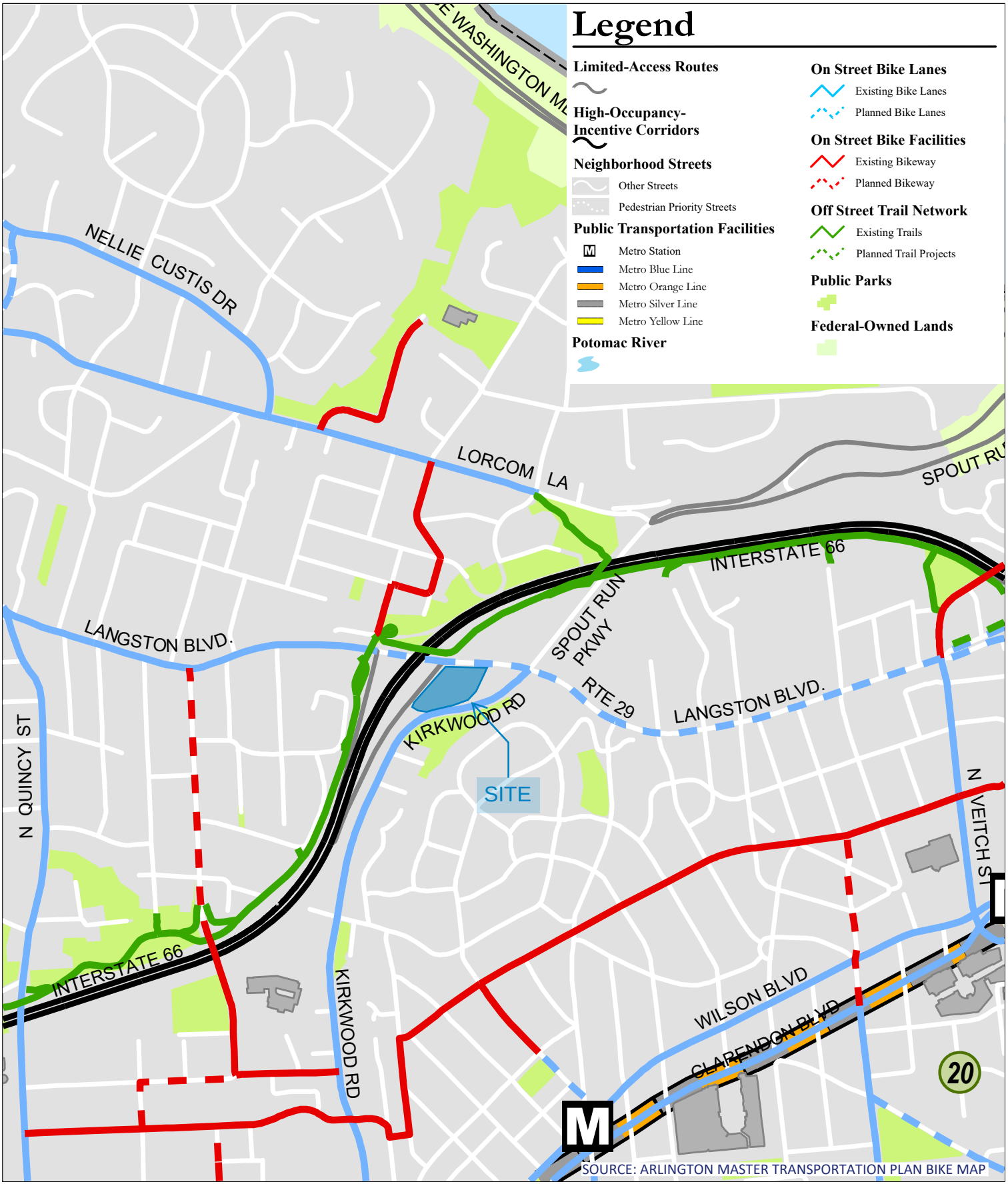


Figure 3-7
Arlington Master Transportation Plan Bike Map

3130 Langston Boulevard
Arlington, Virginia

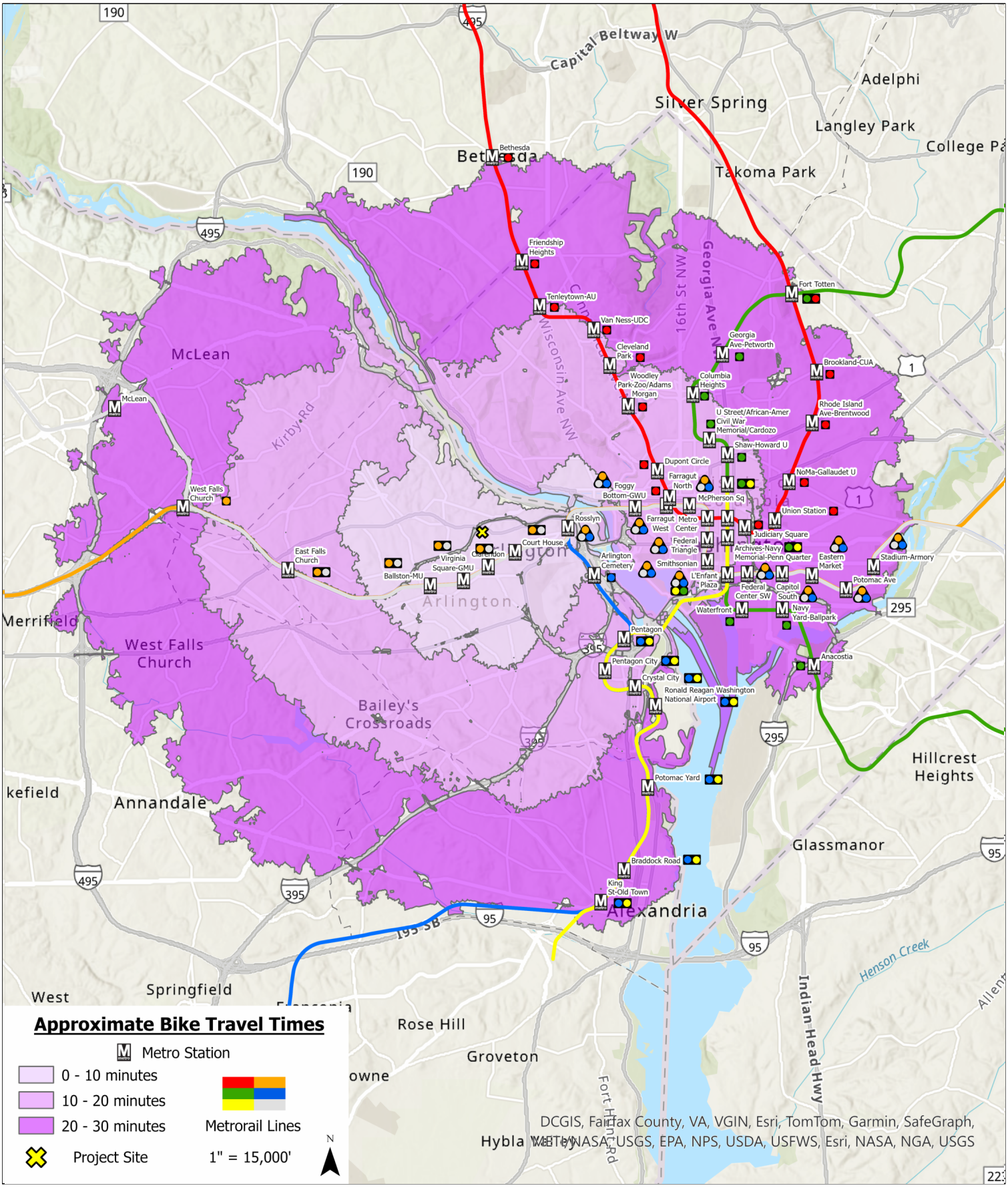


Figure 3-8
Bicycle Shed

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.

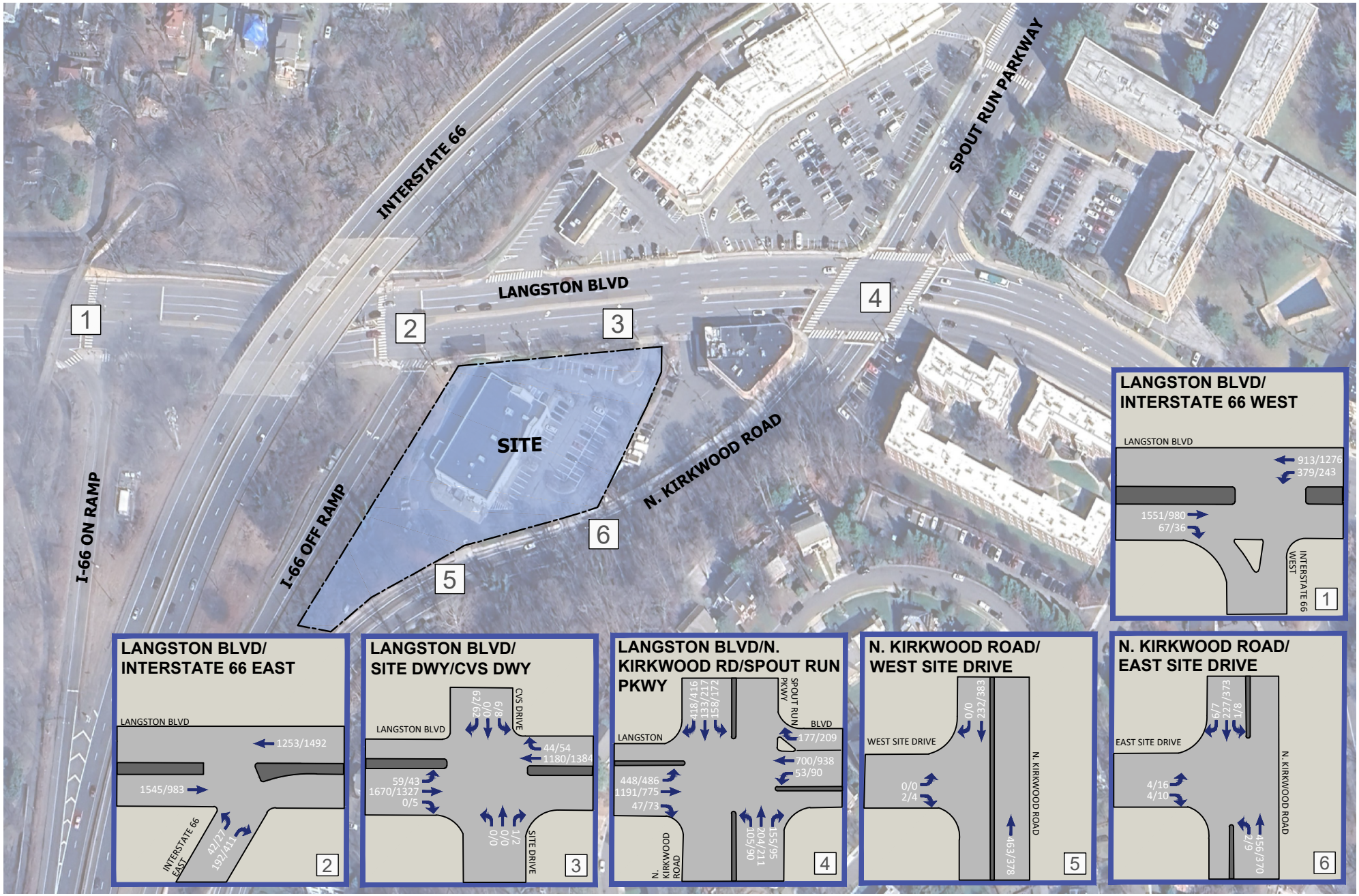


Figure 4-1
Existing Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

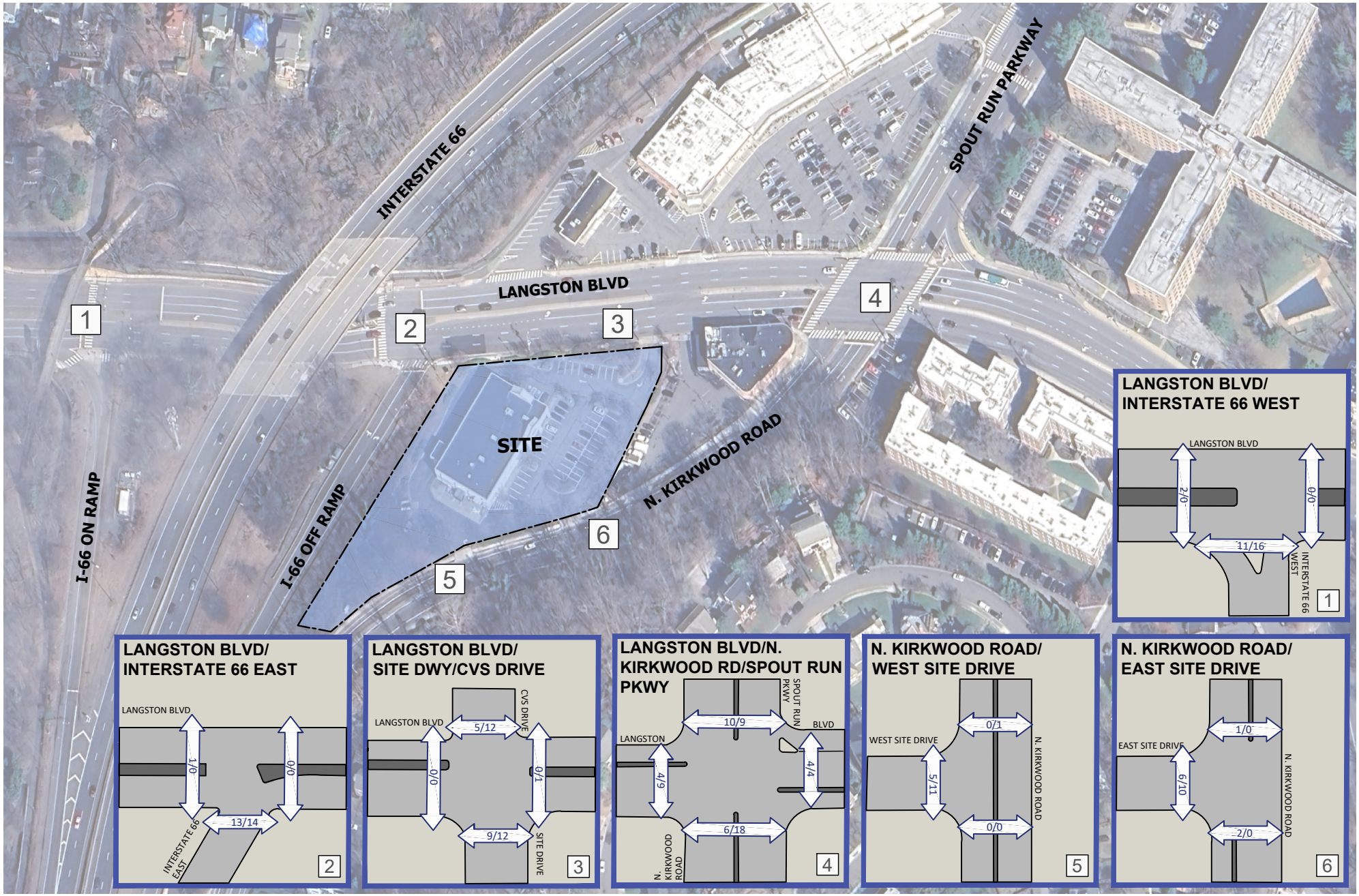


Figure 4-2
Existing Peak Hour Pedestrian Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

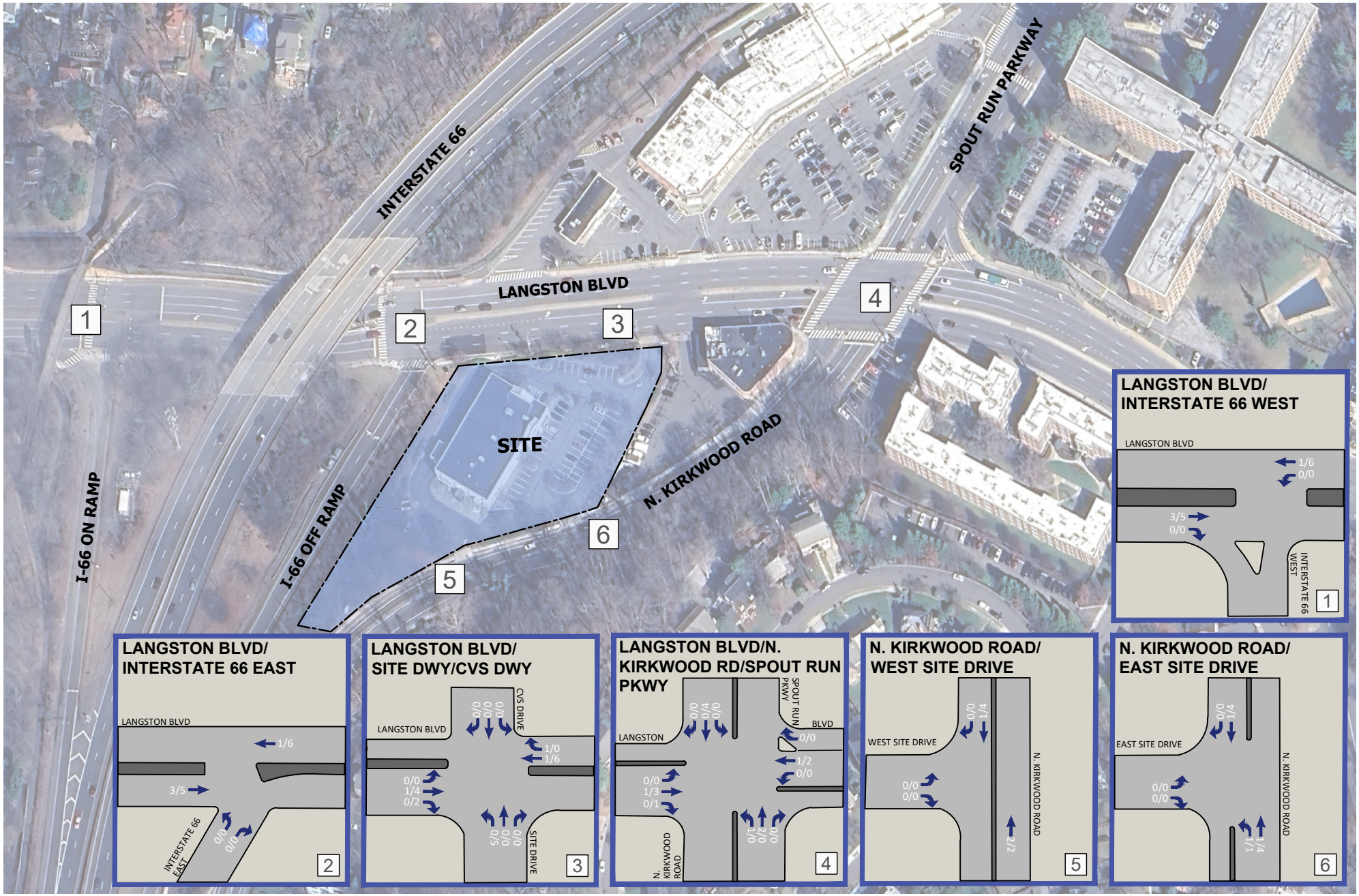


Figure 4-3
Existing Peak Hour Bike Volumes

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.

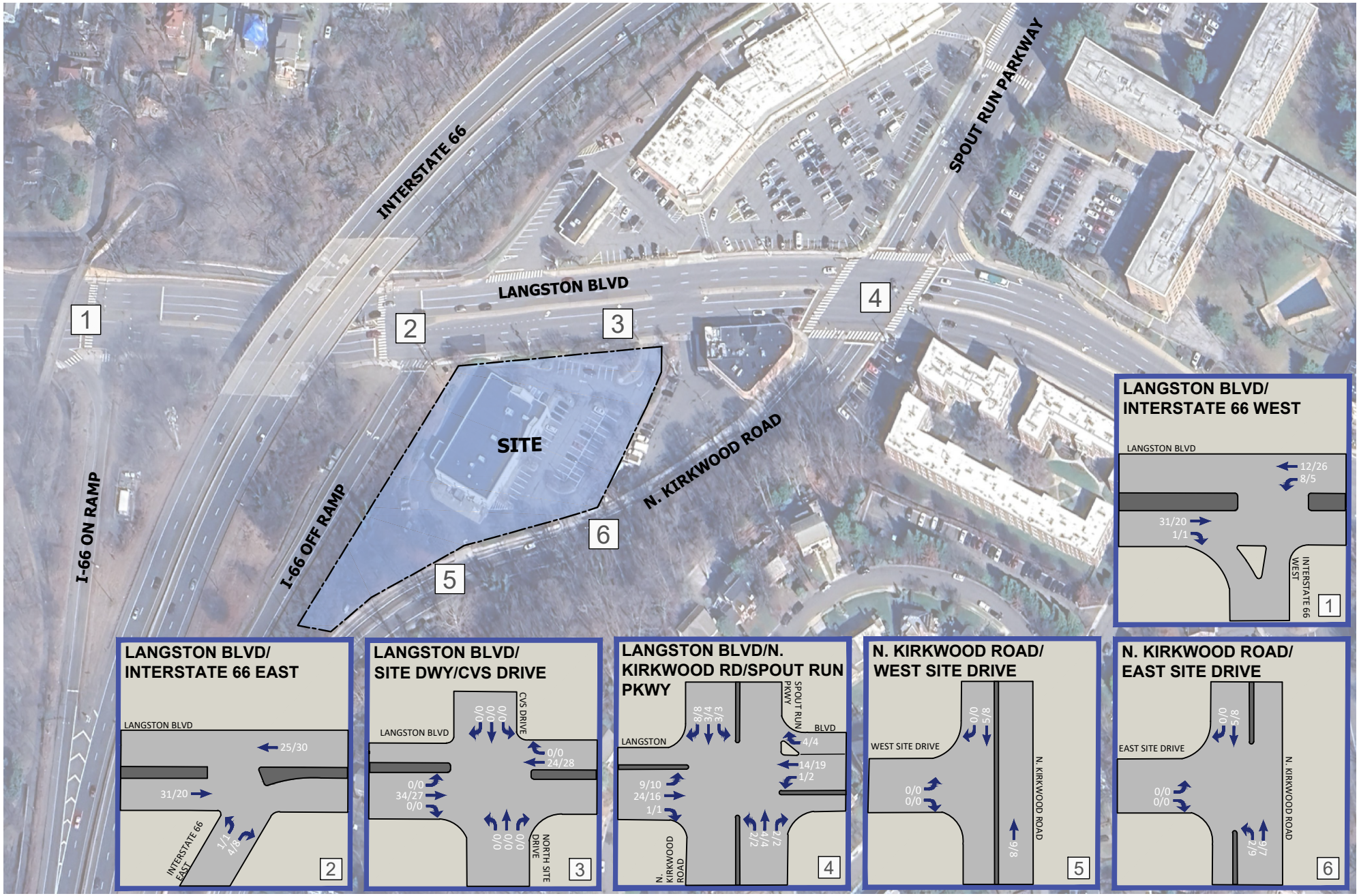


Figure 5-1
Regional Growth (2024-2028)

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

VIKA

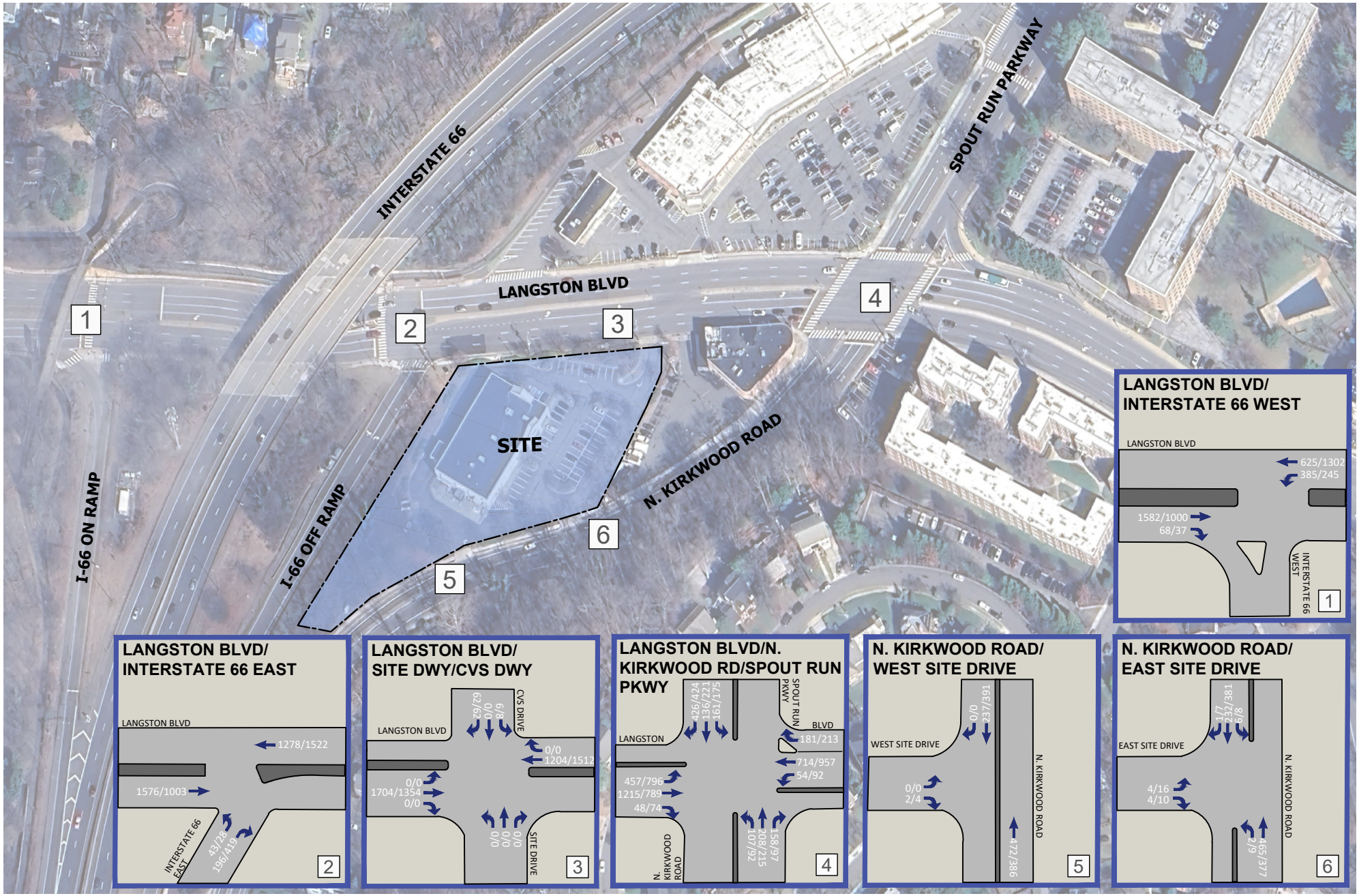


Figure 5-2
Future Peak Hour Traffic Forecasts without Development

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

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

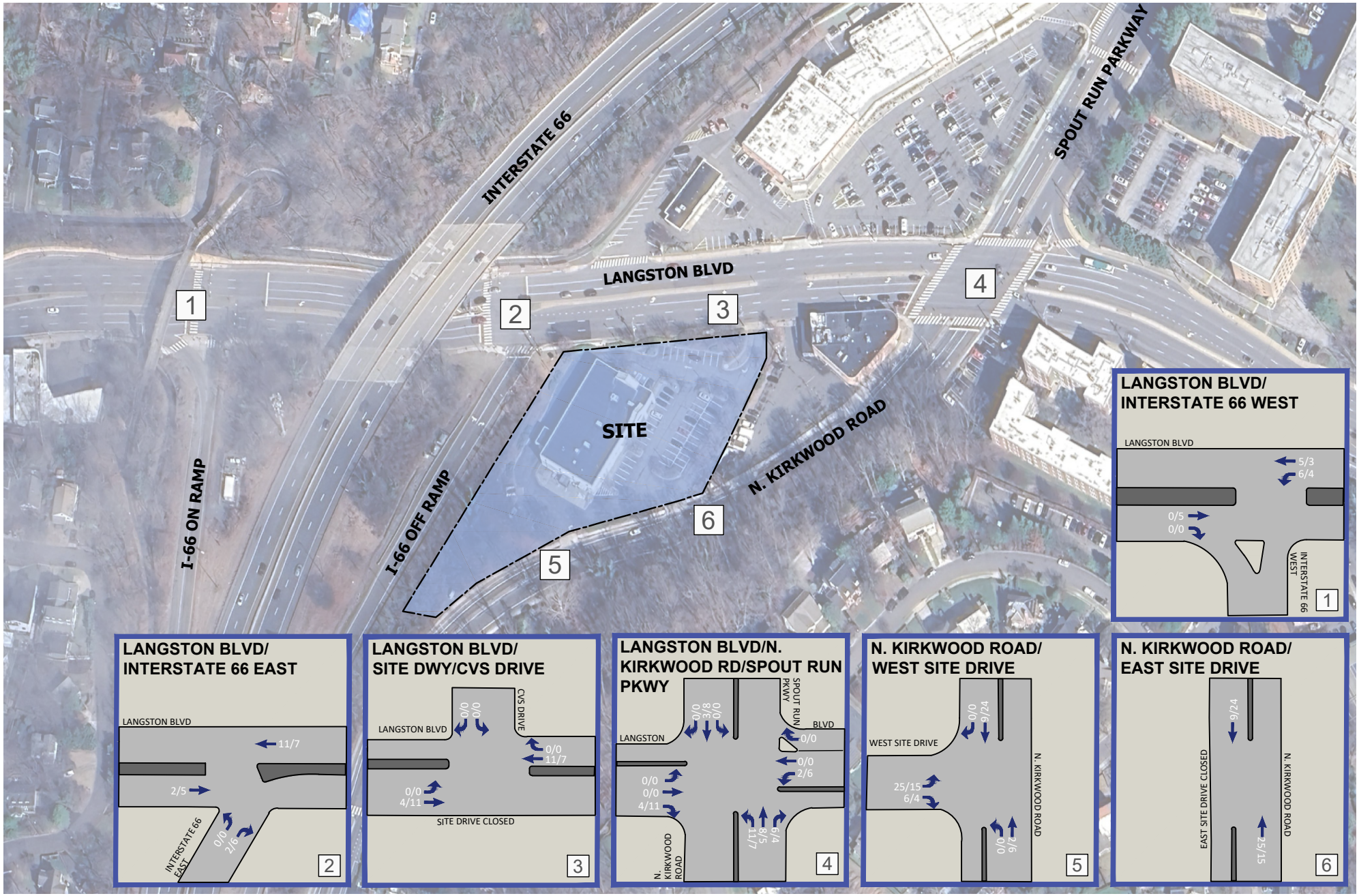


Figure 6-1
Site Peak Hour Traffic Forecasts

AM PEAK HOUR
PM PEAK HOUR
000 / 000

3130 Langston Boulevard
Arlington, Virginia

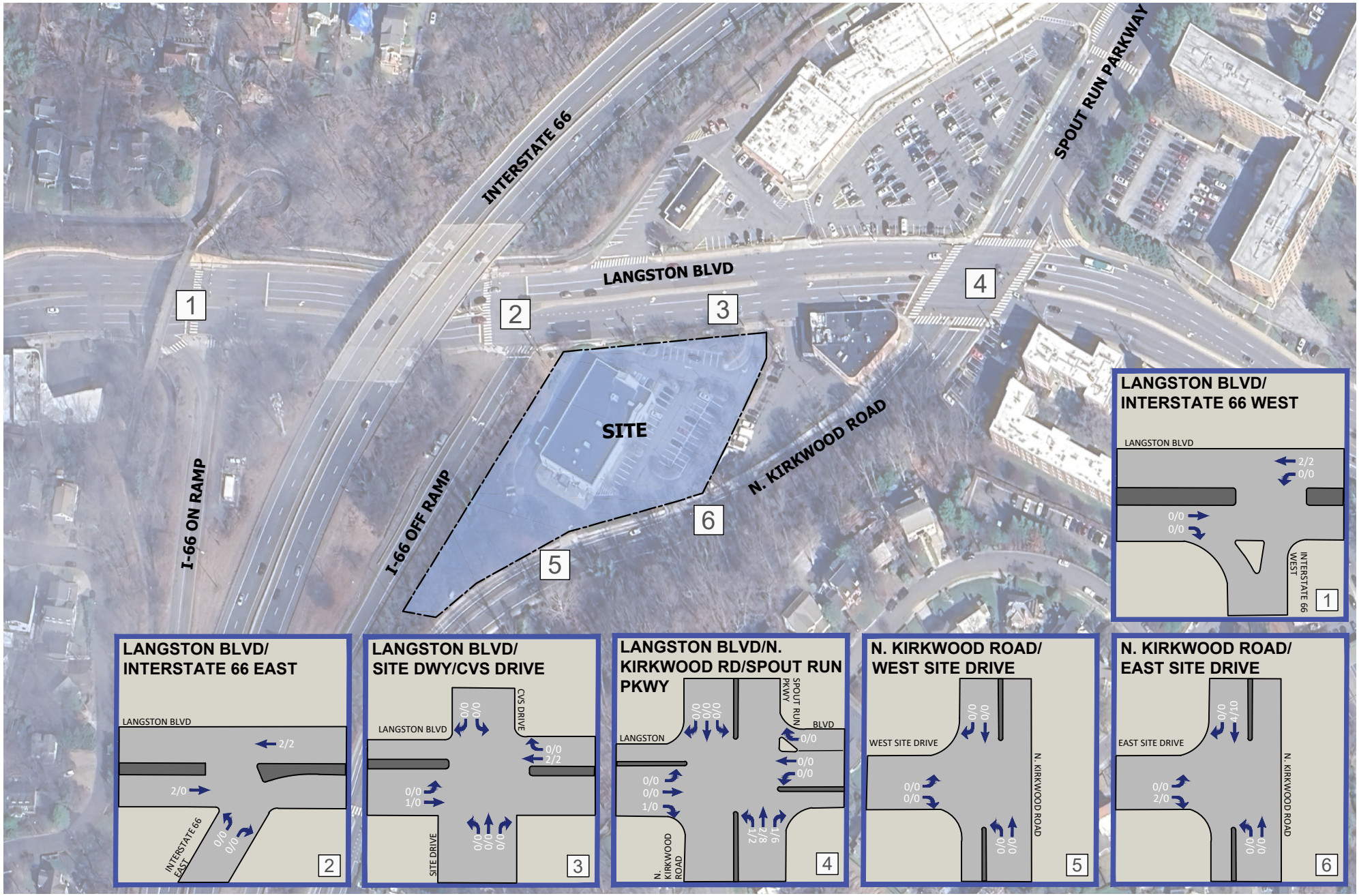


Figure 6-2
Site Trips Removed

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.

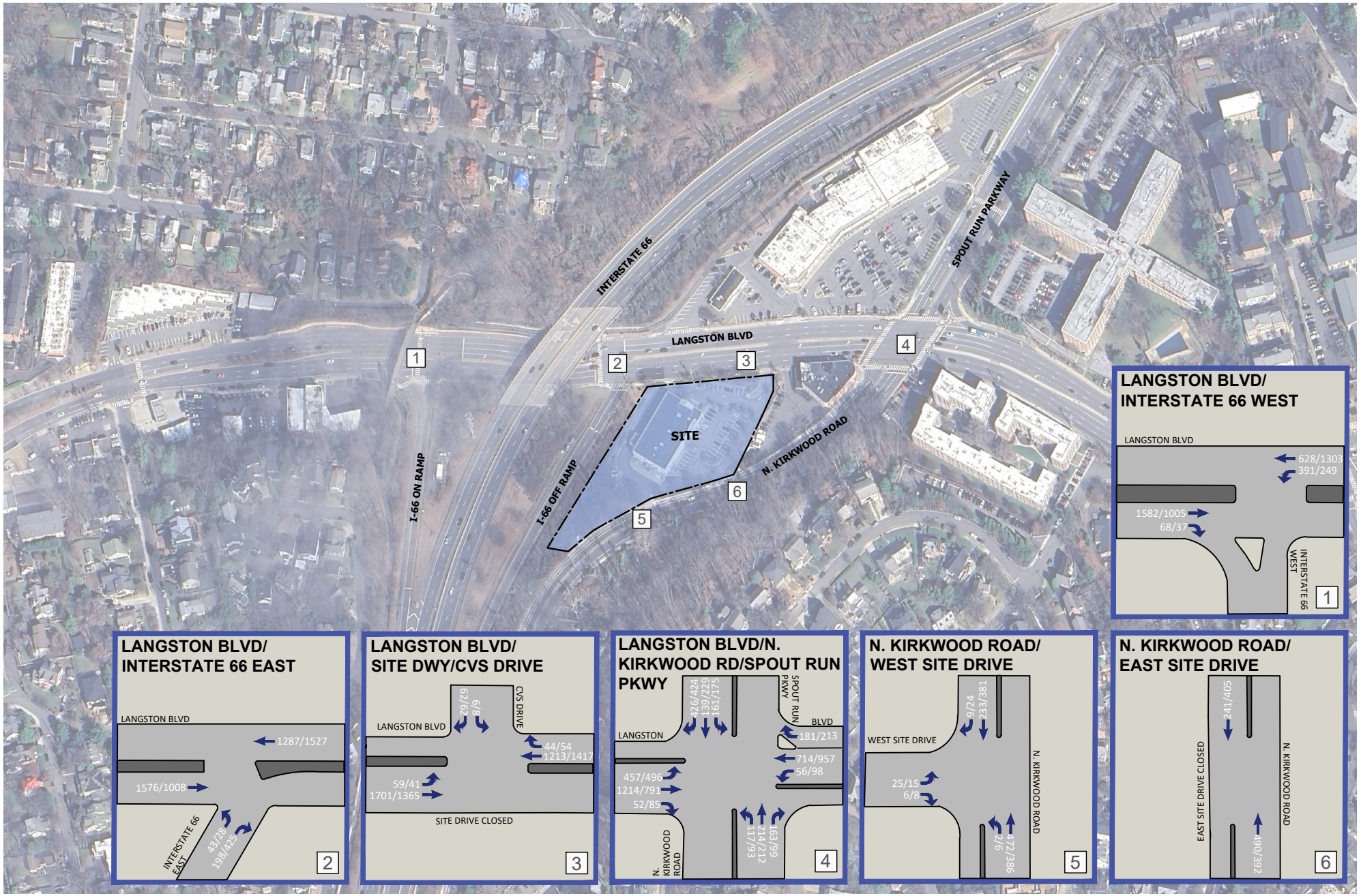


Figure 7-1
Future Peak Hour Traffic Forecasts with Development

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				
WBLTR	-	-	0	-	0	-	0	-	0	**DWY CLOSED**		**DWY CLOSED**	
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.

3130 LANGSTON BOULEVARD

Multimodal Transportation Assessment

Technical Appendix

August 9, 2024

Appendix A

Scoping Agreement

SCOPE OF WORK MEETING FORM
3130 Langston Boulevard
Multimodal Transportation Assessment Base Assumptions

Contact Information	
Consultant Name: Tele: E-mail:	Mike Pinkoske, PTP 703.761.2790 pinkoske@vika.com
Developer/Owner Name: Tele: E-mail:	Rooney Properties, LLC Cassie Guy 571.297.4904 CGuy@RooneyPropertiesLLC.com

Project Information	
Project Name:	3130 Langston Boulevard
Project Location: The site location is shown on **Attachment 1**.	The Property is located in the southeast quadrant of the Langston Boulevard / Interstate 66 Eastbound off ramp and just west of the Langston Boulevard / N. Kirkwood Road intersection. Currently, the site is improved with a single-story brick Walgreen pharmacy with drive-through and associated surface parking. Access to the site is provided via one curb cut on Langston Boulevard and two curb cuts on N. Kirkwood Road. The Property consists of approximately 73,251 square feet or 1.68 acres of land area. The Property is identified as Arlington County RPC No. 15-012-041 and is currently located within an existing C-2 Zoning District.
Project Description: See **Attachment 2** for a copy of the concept plan.	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 (2,256 SF). To minimize traffic impacts along Langston Boulevard the existing driveway would be closed and the two driveways on N. Kirkwood Road would be consolidated. The site would be served by two loading/trash berths and approximately 340 parking spaces. Streetscape improvements consistent with the Langston Boulevard Plan and Master Transportation Plan would be constructed along Langston Boulevard and N. Kirkwood Road. Modifications to the existing median on N. Kirkwood

<table>
<tr><td></td><td colspan="5">Road are proposed to facilitate turning movements into and out of the parking garage and the closure of the northern site driveway and existing median.</td></tr>
<tr><td>Proposed Use / Trip Generation

See Table 1 for the Multimodal Trip Generation</td><td colspan="3"><u>Existing</u>
Pharmacy/Drugstore with Drive-Through – 11,661 SF

<u>Proposed</u>
Multifamily – 276 units
Ground floor amenity / retail equivalent (10,571 SF + 2,256 SF)

The proposal <u>does not meet</u> VDOT Chapter 870.</td><td colspan="2"><u>Proposed ITE Land Use(s)</u>
Multifamily - 221</td></tr>
<tr><td colspan="6">Traffic Impact Analysis Assumptions</td></tr>
<tr><td>Study Period</td><td colspan="2">Existing Year: <u>2024</u></td><td colspan="2">Build-out Year: <u>2028</u></td><td>Design Year: <u>N/A</u></td></tr>
<tr><td rowspan="2">Study Area Boundaries (Attach map)
See Attachment 1</td><td colspan="2">North: Spout Run Parkway</td><td colspan="3">South: N. Kirkwood Road</td></tr>
<tr><td colspan="2">East: Langston Boulevard</td><td colspan="3">West: Langston Boulevard</td></tr>
<tr><td>Consistency With Comprehensive Plan</td><td colspan="5">The Property is guided by two principal planning policy documents, the GLUP and the Langston Boulevard Plan (2023). The proposal has been developed in coordination with these planning documents.</td></tr>
<tr><td>Available Traffic Data (Historical, forecasts)</td><td colspan="5">New weekday AM and PM peak hour traffic counts (vehicular, pedestrian and bikes) will be collected as part of the MMTA.

<u>Estimated VDOT 2022 Average Daily Traffic (ADT):</u>
Langston Boulevard – 26,000
Spout Run Parkway – 15,000
N. Kirkwood Street – 7,200</td></tr>
<tr><td rowspan="4">Trip Distribution
See Attachment 1

*Final site distributions will be confirmed based on existing traffic data.</td><td>Road Name:
Langston Boulevard</td><td>North:</td><td>South:</td><td>East: 20%</td><td>West: 15%</td></tr>
<tr><td>Road Name:
Spout Run Parkway</td><td>North: 25%</td><td>South:</td><td>East:</td><td>West:</td></tr>
<tr><td>Road Name:
N. Kirkwood Street</td><td>North:</td><td>South: 20%</td><td>East:</td><td>West:</td></tr>
<tr><td>Road Name:
Interstate 66</td><td>North:</td><td>South:</td><td>East:</td><td>West: 20%</td></tr>
</table>

<table>
<tr><td>Annual Vehicle Trip Growth Rate:</td><td>To account for planned development outside the immediate study area a growth rate of 0.5 percent will be used, compounded annually.</td><td>Peak Period for Study</td><td>Weekday AM & PM</td></tr>
<tr><td rowspan="3">Study Intersections

See Attachment 1</td><td>1. Langston Blvd / I-66 WB On-ramp</td><td colspan="2">4. Existing site driveways (3) & one (1) future site driveway</td></tr>
<tr><td>2. Langston Blvd / I-66 EB Off-ramp</td><td colspan="2">5.</td></tr>
<tr><td>3. Langston Blvd / N. Kirkwood Rd / Spout Run Pkwy</td><td colspan="2"></td></tr>
<tr><td>Trip Adjustment Factors</td><td>Internal Reduction: ☐ Yes <u>X</u> No Reduction:</td><td colspan="2">Pass-by allowance: ☐ Yes <u>X</u> No Reduction:</td></tr>
<tr><td>Software Methodology</td><td colspan="3">Synchro version 11.1 software will be used for intersection analysis.</td></tr>
<tr><td>Improvement(s) Assumed</td><td colspan="3">Site frontage improvements described above (Project Description).</td></tr>
<tr><td>Background Traffic Studies Considered</td><td colspan="3">Langston Boulevard Study

Arlington County needs assessment of the Custis Trail (ongoing).</td></tr>
<tr><td>Plan Submission</td><td colspan="3"><u>X</u> 4.1 Site Plan Submission ☐ Form Based Code Use Permit
☐ Preliminary/Sketch Plan</td></tr>
<tr><td>Additional Issues to be Addressed</td><td colspan="3"><u>X</u> Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis
☐ Merge analysis <u>X</u> Bike/Ped Accommodations <u>X</u> Intersection(LOS)
<u>X</u> TDM Measures <u>X</u> See Arlington County MMTA Matrix for additional details.</td></tr>
<tr><td>Site Forecast Assumptions</td><td colspan="3">As noted above final site distributions will be confirmed based on existing traffic data.</td></tr>
</table>

ADDITIONAL NOTES:

- See Arlington County MMTA Scoping Addendum (attached) for **Compact MMTAs** that includes additional multimodal requirements/details to be included in the MMTA that are not specifically outlined herein.
- This 4.1.2 Site Plan proposal does ***not*** trigger VDOT 870 trip thresholds of 5,000 total daily trips.
- The study will include a discussion regarding the directions of approach for the site trips.
- Weekday peak hour counts will be conducted from 7am to 10am and from 4pm to 7pm.
- Field measured PHF's will be used if between 0.85 and higher, if lower, a 0.85 PHF will be used. For future conditions a PHF of 0.92 or higher will be used.
- Level of service calculations for existing and future conditions without and with development shall be in accordance with the Highway Capacity Manual (HCM) 2010 methodologies, as computed by Synchro 11 software. Typical Synchro parameters to be utilized in this analysis will be consistent with VDOT's TOSAM and Arlington County standards.
- Study will include a comprehensive discussion of the multimodal transportation options available in the vicinity of the site including Metrorail, bus, capital bikeshare, bikes, and pedestrians consistent with the Arlington County MMTA Scoping Addendum (attached) for **Compact MMTAs**.
- Study will include a comprehensive discussion of the safety analysis of the site, including crash data and summary tables consistent with the Arlington **County MMTA** Scoping Addendum (attached) for compact MMTAs.
- Include discussion and calculation of person trips generated by the proposal broken out into the various mode shares based on census data.

SIGNED: _____ DATE: 6/28/2024
Applicant or Consultant

PRINT NAME: Michael Pinkoske, PTP
Applicant or Consultant

SIGNED: _____ DATE: _____
Local Government Representative

PRINT NAME: _____
Local Government Representative

ATTACHMENT 1

Study Intersections

% Directional Distribution

INTERSTATE 66

LANGSTON BOULEVARD

N. KIRKWOOD ROAD

SPOUT RUN PARKWAY

SITE

1

2

3

15%

25%

20%

20%

20%

ATTACHMENT 2

LANGSTON BLVD - ROUTE 29/211
(VARIABLE WIDTH PUBLIC ROW)

NOTE:
ARCHITECTURAL PLANS, INTERNAL PARKING LAYOUTS, PERSPECTIVES, ELEVATIONS AND SECTIONS ARE CONCEPTUAL AND SUBJECT TO REVISION IN FINAL DEVELOPMENT PLAN AND SITE PLAN APPLICATIONS. BUILDING DESIGN AND MATERIALS ARE SUBJECT TO CHANGE.

ROUTE 66 OFF-RAMP
(VARIABLE WIDTH PUBLIC ROW)

RESIDENTIAL LOBBY
1,901 S.F.

FSE

NFA : 15,754 S.F.

GFA : 16,534 S.F.

BUILDING AMENITIES/
RETAIL EQUIVALENT
10,571 S.F.

RETAIL/
RETAIL EQUIVALENT
2,256 SF

NFA : 5,608 S.F.
GFA : 5,956 S.F.

POSSIBLE
LOCATION
BUILDING UTILITY

SECONDARY
LOBBY
868 S.F.

ELEV.

TRASH
COLLECTION

LOADING /
TRASH

BIKE SPACE

59 PARKING SPACES

RAMP UP 3.0 %

RAMP UP± 6.4 %

DN 7.6%

DN 5.9 %

UP 5.9 %

23'-0"

59'-0"

34'-0"

MAISONETTE

UNIT 1
1ST FLOOR

UNIT 2
1ST FLOOR

UNIT 3
1ST FLOOR

UNIT 4
1ST FLOOR

UNIT 5
1ST FLOOR

UNIT 6
1ST FLOOR

FOOTPRINT
56,030 S.F.

NFA : 4,466 S.F.
GFA : 4,852 S.F.

CONC S/W

178.40'
177.54'
176.65'
177.25'
177.92'
178'-0"
178.69'
179.41'
179.44'
177.5'
176.4'
176.14'
176.0'
176.75'

NORTH KIRKWOOD ROAD
(VARIABLE WIDTH PUBLIC ROW)

1 PARKING / GROUND FLOOR LEVEL - GF
1/16" = 1'-0"

1/16" = 1'-0"
0' 4' 8' 16' 32' 64'

dcs DESIGN
DAVIS CARTER SCOTT Ltd
Architecture
Interior Architecture
Land Planning
8614 Westwood Center Dr.
Suite 800
Tysons, Virginia 22182
P 703.556.9275
F 703.821.6976
www.dcsdesign.com

ROONEY PROPERTIES

Rooney Properties LLC
3330 Washington Blvd
UNIT 220
Arlington, VA 22201
P 703. 204 . 1400
https://rooneypropertiesllc.com/

PRINT DATE 05/07/2024

ISSUE DATE

REVISION DATE

PROJECT TITLE
3130 LANGSTON BOULEVARD
ARLINGTON, VA 22201

4.1 CONCEPT SUBMISSION

PROJECT NO. 322158.00

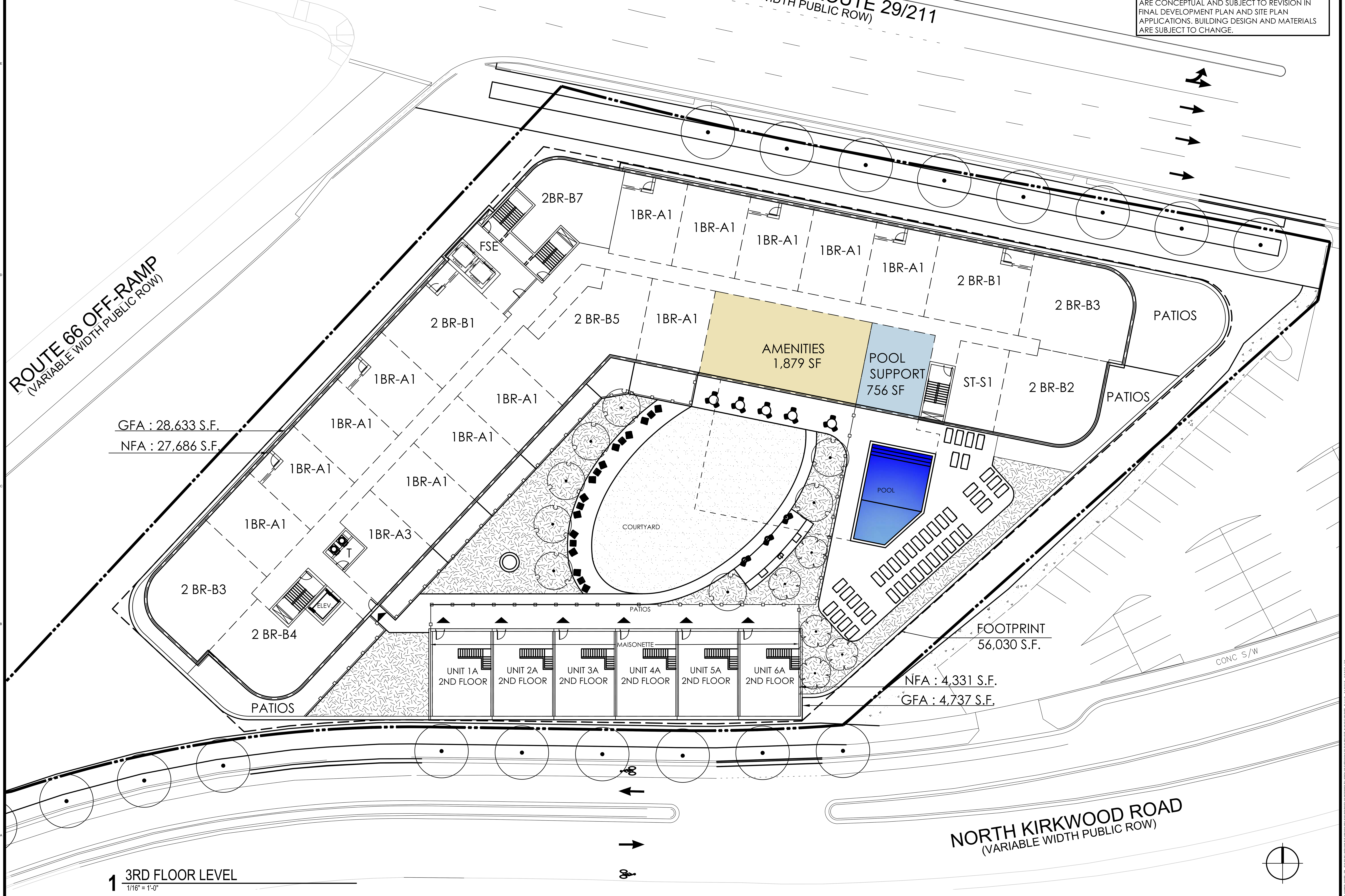
DRAWING TITLE
PARKING GROUND FLOOR LEVEL GF

DRAWN BY RM
QC CHECKED BY RV
CA REVIEWED BY

DRAWING NUMBER
A-02

ATTACHMENT 2

NOTE:
ARCHITECTURAL PLANS, INTERNAL PARKING LAYOUTS, PERSPECTIVES, ELEVATIONS AND SECTIONS ARE CONCEPTUAL AND SUBJECT TO REVISION IN FINAL DEVELOPMENT PLAN AND SITE PLAN APPLICATIONS. BUILDING DESIGN AND MATERIALS ARE SUBJECT TO CHANGE.



1 3RD FLOOR LEVEL
1/16" = 1'-0"

1/16" = 1'-0"
0' 4' 8' 16' 32' 64'

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Urban, Ltd. – M:\JF\322158.00\01_Drawings\05_CAD\07_Sheets\322158.00 –A1–A7 Floor plans.dwg [A–05] May 13, 2024 – 1:08pm rmoher

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PRINT DATE 05/07/2024
ISSUE DATE
REVISION DATE

PROJECT TITLE
3130 LANGSTON BOULEVARD
ARLINGTON, VA 22201
4.1 CONCEPT SUBMISSION
PROJECT NO. 322158.00

DRAWING TITLE
3RD FLOOR LEVEL

DRAWN BY RM
QC CHECKED BY RV
CA REVIEWED BY

DRAWING NUMBER
A-05

Table 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			Daily	Weekday AM Peak Hour				Weekday PM Peak Hour				Daily			
				In	Out	Total	In	Out	Total		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

ARLINGTON VIRGINIA

Division of Transportation and Development
Environmental Services

PRE-SCOPE OF WORK FORM ADDENDUM
Multimodal Transportation Assessment (MMTA) Assumptions
To Accompany VDOT Pre-Scope Form 7.08

The applicant is responsible for entering the relevant information and submitting this Addendum plus a completed VDOT Pre-Scope Form 7.08 to Arlington County and VDOT as required by Arlington County's Administrative Regulations 4.1/4.2 and Virginia State Code. The completed form shall be submitted to appropriate County and VDOT staff at least 3 days in advance of the scoping meeting to finalize study details and requirements.

CONTACT INFORMATION	
Consultant Name:	Michael Pinkoske
Tele:	703.761.2790
Email:	pinkoske@vika.com
Developer/Owner Name:	Cassie Guy
Tele:	571.297.4904
Email:	CGuy@RooneyPropertiesLLC.com

PROJECT INFORMATION			
Project Name:	3130 Langston Boulevard	Site Plan/SPLN #:	N/A
Project Location:	Arlington, County		

ESTIMATED TRIP GENERATION FOR PROPOSED DEVELOPMENT – PM PEAK HOUR
(Project may excluded up to 10,000 square feet of ground floor locally serving retail in trip generation estimates for scoping)

Mode	PM Peak Hour			Daily
	In	Out	Total	Total
Total Person Trips	63 ppl/hr	39 ppl/hr	102 ppl/hr	1,525 ppl
- Auto Trips	30 veh/hr	19 veh/hr	**49 veh/hr**	1415 veh
- Transit Trips	24 ppl/hr	15 ppl/hr	39 ppl/hr	580 ppl
- Bike Trips	2 ppl/hr	1 ppl/hr	3 ppl/hr	33 ppl
- Walk Trips	2 ppl/hr	2 ppl/hr	4 ppl/hr	66 ppl

MULTIMODAL TRANSPORTATION ASSESSMENT (MMTA) REQUIRED STUDY SCOPE
(Specific scoping requirements identified in later sections below, scoping ranges provided as guidance and exact scope to be agreed upon conclusion of scoping meeting)

MMTA Study Level	**Overview**	**Compact**	**Standard**	**Comprehensive**
	☐	☒	☐	☐
Vehicle Trip Range (PM) Peak Hour	0 - 15 veh/hr	16 - 50 veh/hr	51 - 175 veh/hr	176+ veh/hr

MMTA Study Level	**Overview** ☐ 0 - 15 veh/hr	**Compact** ☒ 16 - 50 veh/hr	**Standard** ☐ 51 - 175 veh/hr	**Comprehensive** ☐ 176+ veh/hr
BACKGROUND				
Existing transportation facilities (general)	☐	☒	☐	☐
Existing Walk, Bike and Transit Scores	☐	☒	☐	☐
Historical Transportation Census Data for the site		☐	☐	☐
MULTIMODAL TRANSPORTATION FACILITIES ASSESSMENT				
Transit Studies and Maps to Include				
Service Map	☐ ¼ mile	☒ ¼ mile	☐ ½ mile	☐ > ½ mile
Locations accessible by transit in 15min and 30min of travel time		☒	☐	☐
Bus stop inventory and amenity review			☐	☐
Transit ridership history (Metrorail)			☐	☐
Pedestrian Studies and Maps to Include				
Existing pedestrian facilities	☐ Site frontage[1]	☒ 2 block radius	☐ ¼ mile	☐ ½ mile
Master Transportation Plan and sector plan sidewalk recommendation review	☐ Site frontage[1]	☒ 2 block radius	☐ ¼ mile	☐ ½ mile
Locations accessible by 10, 20, 30 min walk		☐	☐	☐
Pedestrian routes to key neighborhood destinations within ¼ mile		☒	☐	☐
Bicycle Network Studies and Maps to Include				
Existing and future bicycle facilities maps within ½ mile	☐	☒	☐	☐
Master Transportation Plan recommendations within ½ mile		☒	☐	☐
Locations accessible by 10, 20, 30 min bike ride		☒	☐	☐
Bicycle Level of Traffic Stress within ½ mile		☒	☐	☐
Existing and proposed bike parking (On street visitor spaces and secure bike parking with development.)		☒ Site frontage[1]	☐ Site frontage[1]	☐ 2 Block radius
Shared Mobility				
Maps and summary tables for bike share, car share, scooters, others		☒	☐	☐
SAFETY				
Crash history review and analysis Summary of the most recent 3 years of data along Langston Boulevard, Spout Run Parkway & N. Kirkwood Street		☒	☐	☐
OTHER				
Street Cross Sections (Existing and Proposed)	☐	☒	☐	☐
Transportation Demand Management (TDM) proposal/recommendations.	☐	☒	☐	☐
Curb space inventory/On-street parking review		☒ Site Frontage[1]	☐ 2 Block radius	☐ ¼ mile

[1] Site frontage including opposite side of street.

ADDITIONAL TRANSPORTATION STUDY/SUBMISSIONS		
Additional Transportation Studies	☐ VDOT Chapter 870 Traffic Study. (See completed VDOT Form 7.08 attached.)	☒ N/A
	☐ Multimodal Micro Simulation of Transportation Network Identify study limits and attachment with study scoping details.	

DATA COLLECTION		
Pedestrian and Bike Count Locations	☒ At Traffic Impact Study intersections. (See completed VDOT Form 7.08 attached.)	☒ N/A
	☐ Additional pedestrian or bicycle counts required: Enter additional count locations and/or periods here.	

NOTES AND ASSUMPTIONS	
Planned Multimodal Network Changes[2] • Roadway • Transit • Pedestrian • Bicycle Not associated with proposed development.	Streetscape and roadway improvements envisioned in the Plan Langston Boulevard Plan. Modification to Upton Street.
Additional Notes or Assumptions	

SIGNED: _____ DATE: May 15, 2024

Applicant or Consultant

PRINT NAME: Michael Pinkoske, PTP

Applicant or Consultant

SIGNED: _____ DATE: Click or tap to enter a date.

Arlington County Representative

PRINT NAME: Printed Name Here

Arlington County Representative

[2] Planned improvements not associated with proposed development.

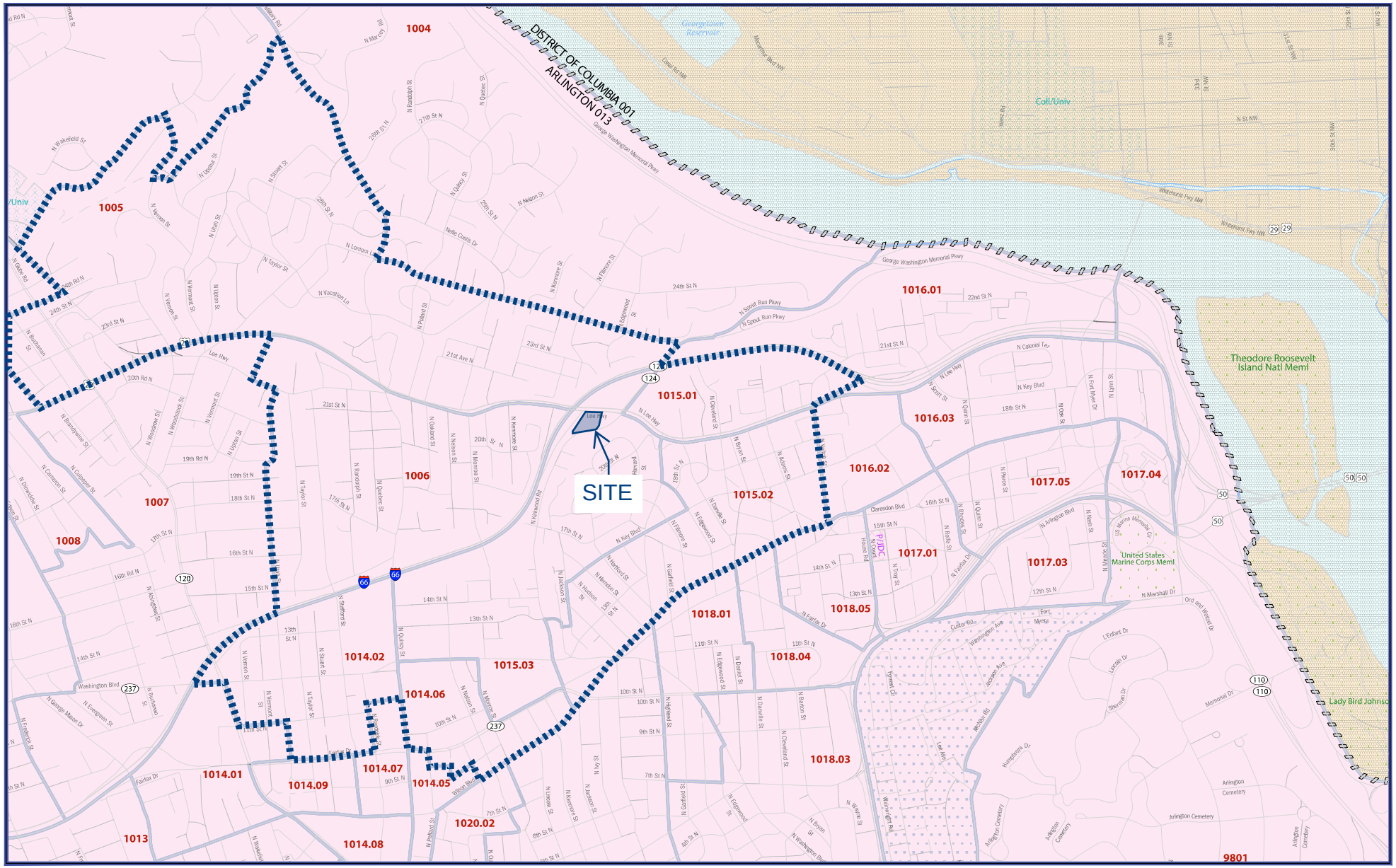
Appendix B

Multimodal Information

Means of Transportation to Work by Vehicles Available

Note: The table shown may have been modified by user selections. Some information may be missing.

DATA NOTES	
TABLE ID:	B08141
SURVEY/PROGRAM:	American Community Survey
VINTAGE:	2022
DATASET:	ACSDT5Y2022
PRODUCT:	ACS 5-Year Estimates Detailed Tables
UNIVERSE:	Workers 16 years and over in households
MLA:	U.S. Census Bureau. "Means of Transportation to Work by Vehicles Available." American Community Survey, ACS 5-Year Estimates Detailed Tables, Table B08141, 2022, https://data.census.gov/table/ACSDT5Y2022.B08141?text=B08141&t=Transportation&g=1400000US51013100500,51013100600,51013101402,51013101406,51013101500,51013101502,51013101503&y=2022. Accessed on June 20, 2024.
FTP URL:	None
API URL:	https://api.census.gov/data/2022/acs/acs5
USER SELECTIONS	
TOPICS	Transportation
GEOS	Census Tract 1015.03; Arlington County; Virginia; Census Tract 1015.02; Arlington County; Virginia; Census Tract 1015, Arlington County, Virginia; Census Tract 1005; Arlington County; Virginia; Census Tract 1006; Arlington County; Virginia; Census Tract 1014.06; Arlington County; Virginia; Census Tract 1014.02; Arlington County; Virginia
VINTAGES	2022
EXCLUDED COLUMNS	None
APPLIED FILTERS	None
APPLIED SORTS	None
PIVOT & GROUPING	
PIVOT COLUMNS	None
PIVOT MODE	Off
ROW GROUPS	None
VALUE COLUMNS	None
WEB ADDRESS	https://data.census.gov/table/ACSDT5Y2022.B08141?text=B08141&t=Transportation&g=1400000US51013100500,51013100600,51013101402,51013101406,51013101500,51013101502,51013101503&y=2022
TABLE NOTES	
	Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, the decennial census is the official source of population totals for April 1st of each decennial year. In between censuses, the Census Bureau's Population Estimates Program produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.
	Information about the American Community Survey (ACS) can be found on the ACS website. Supporting documentation including code lists, subject definitions, data accuracy, and statistical testing, and a full list of ACS tables and table shells (without estimates) can be found on the Technical Documentation section of the ACS website. Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.
	Source: U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates
	Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.
	Workers include members of the Armed Forces and civilians who were at work last week.
	Several means of transportation to work categories were updated in 2019. For more information, see: Change to Means of Transportation.
	The 2018-2022 American Community Survey (ACS) data generally reflect the March 2020 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas. In certain instances, the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineation lists due to differences in the effective dates of the geographic entities.
	Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on 2020 Census data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.
	Explanation of Symbols:- The estimate could not be computed because there were an insufficient number of sample observations. For a ratio of medians estimate, one or both of the median estimates falls in the lowest interval or highest interval of an open-ended distribution. For a 5-year median estimate, the margin of error associated with a median was larger than the median itself.N The estimate or margin of error cannot be displayed because there were an insufficient number of sample cases in the selected geographic area. (X) The estimate or margin of error is not applicable or not available.median- The median falls in the lowest interval of an open-ended distribution (for example "2,500-")median+ The median falls in the highest interval of an open-ended distribution (for example "250,000+").** The margin of error could not be computed because there were an insufficient number of sample observations.*** The margin of error could not be computed because the median falls in the lowest interval or highest interval of an open-ended distribution.***** A margin of error is not appropriate because the corresponding estimate is controlled to an independent population or housing estimate. Effectively, the corresponding estimate has no sampling error and the margin of error may be treated as zero.
COLUMN NOTES	None



Q:\PROJECTS\8574\8574B\TRANSPORTATION\CADD\8574B GRAPHICS.DWG

Census Tracts

3130 Langston Boulevard
Arlington, Virginia

VIKA

	Census Tract 1005; Arlington County; Virginia		Census Tract 1006; Arlington County; Virginia		Census Tract 1014.02; Arlington County; Virginia		Census Tract 1014.06; Arlington County; Virginia		Census Tract 1015.02; Arlington County; Virginia		Census Tract 1015.03; Arlington County; Virginia		Census Tract 1015, Arlington County, Virginia		Total	
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Percentage
Total:	2,373	±265	1,720	±231	1,706	±242	2,357	±295	2,046	±321	1,216	±340	5,336	±382	**16754**	
No vehicle available	49	±46	6	±10	57	±46	673	±221	154	±94	0	±13	447	±179		
1 vehicle available	359	±131	623	±195	799	±148	1,092	±256	819	±222	413	±186	2,454	±396		
2 vehicles available	1,471	±233	817	±239	625	±159	530	±218	838	±307	455	±148	1,794	±408		
3 or more vehicles available	494	±177	274	±114	225	±181	62	±89	235	±186	348	±296	641	±221		
Car, truck, or van - drove alone:	1,189	±249	923	±183	566	±144	504	±178	620	±193	420	±149	2,091	±319	**6313**	**37.60%**
No vehicle available	31	±30	0	±13	0	±13	0	±13	0	±13	0	±13	21	±32		
1 vehicle available	138	±69	283	±156	208	±75	260	±121	230	±151	78	±63	912	±229		
2 vehicles available	754	±201	457	±161	305	±119	213	±125	274	±134	193	±70	812	±238		
3 or more vehicles available	266	±151	183	±82	53	±47	31	±44	116	±122	149	±128	346	±169		
Car, truck, or van - carpooled:	159	±87	78	±55	20	±24	68	±108	81	±81	31	±32	133	±74	**570**	**3.40%**
No vehicle available	0	±13	0	±13	0	±13	0	±13	0	±13	0	±13	0	±17		
1 vehicle available	39	±46	47	±45	20	±24	0	±13	0	±13	14	±24	32	±36		
2 vehicles available	120	±69	31	±38	0	±13	68	±108	64	±78	0	±13	52	±44		
3 or more vehicles available	0	±13	0	±13	0	±13	0	±13	17	±30	17	±21	49	±42		
Public transportation (excluding taxicab):	134	±66	205	±99	352	±98	581	±171	507	±180	301	±191	2,082	±336	**4162**	**24.80%**
No vehicle available	18	±24	0	±13	6	±9	189	±116	100	±75	0	±13	384	±162		
1 vehicle available	35	±41	70	±56	156	±60	303	±135	234	±119	137	±158	1,034	±273		
2 vehicles available	61	±48	98	±60	140	±69	89	±81	173	±131	99	±66	556	±245		
3 or more vehicles available	20	±23	37	±54	50	±44	0	±13	0	±13	65	±77	108	±72		
Walked:	16	±17	96	±65	168	±104	266	±107	101	±66	47	±48	308	±113	**1002**	**5.98%**
No vehicle available	0	±13	0	±13	0	±13	154	±72	0	±13	0	±13	42	±41		
1 vehicle available	7	±11	32	±38	88	±51	53	±63	35	±36	0	±13	116	±73		
2 vehicles available	9	±13	49	±45	14	±16	59	±54	40	±37	36	±46	115	±69		
3 or more vehicles available	0	±13	15	±18	66	±92	0	±13	26	±40	11	±18	35	±42		
Taxicab, motorcycle, bicycle, or other means:	134	±65	96	±59	36	±23	16	±26	86	±58	17	±23	298	±155	**683**	**4.08%**
No vehicle available	0	±13	0	±13	14	±15	0	±13	0	±13	0	±13	0	±17		
1 vehicle available	45	±36	46	±46	0	±13	16	±26	34	±37	17	±23	220	±139		
2 vehicles available	79	±61	31	±25	22	±19	0	±13	52	±49	0	±13	78	±69		
3 or more vehicles available	10	±16	19	±21	0	±13	0	±13	0	±13	0	±13	0	±17		
Worked from home:	741	±149	322	±144	564	±153	922	±210	651	±190	400	±150	424	±157	**4024**	**24.02%**
No vehicle available	0	±13	6	±10	37	±41	330	±193	54	±60	0	±13	0	±17		
1 vehicle available	95	±63	145	±68	327	±127	460	±167	286	±131	167	±83	140	±77		
2 vehicles available	448	±128	151	±109	144	±70	101	±71	235	±103	127	±84	181	±123		
3 or more vehicles available	198	±79	20	±25	56	±49	31	±45	76	±75	106	±112	103	±78		

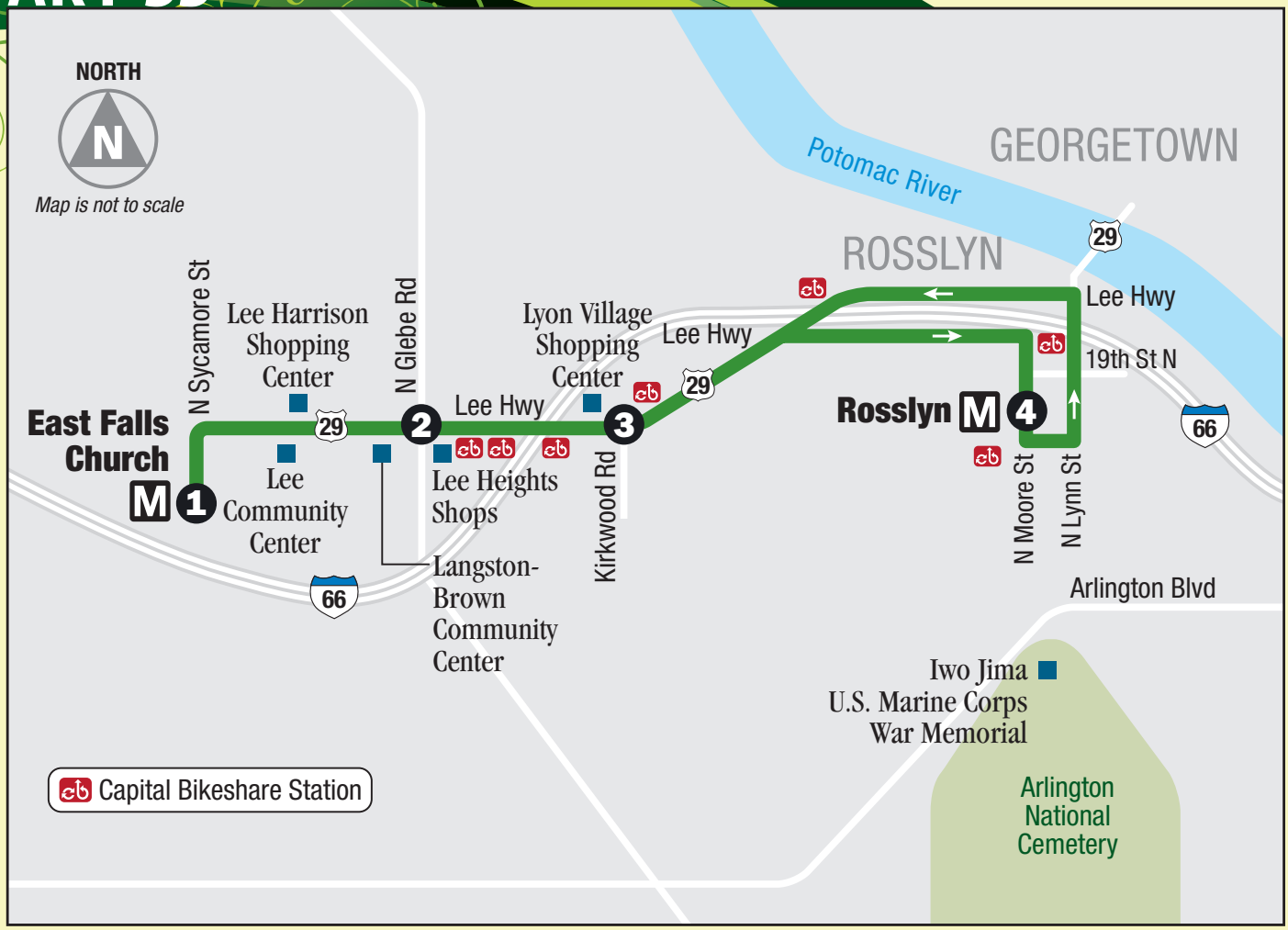
East Falls Church-Lee Highway-Rosslyn

ART 55

ARLINGTON VIRGINIA | DEPARTMENT OF ENVIRONMENTAL SERVICES

ART arlington transit

Effective August, 2020



ART 55 FARES	Cash Fare	Fare w/ SmarTrip Card	Transfers Using SmarTrip Card*	
			ART to Metrorail or Metrorail to ART	ART to ART or ART to/from Metrobus
Adults	$2.00	$2.00	50¢ discount	Free
Senior Citizens (ages 65+)	$1.00	$1.00	50¢ discount	Free
People w/Disabilities (w/WMATA ID or Medicare card)	$1.00	$1.00	50¢ discount	Free
K-12 Students (w/school ID)	$1.00	K-12 students receive the $1.00 student fare only when paying with cash, a green iRide token or a Student iRide SmarTrip card. Transfer costs between ART and other transit systems may vary for using the Student iRide SmarTrip card.		

*TRANSFERS MUST BE MADE WITHIN 2 HOURS.

Regular Fares can also be paid with a 7 Day Regional Bus Pass (loaded on SmarTrip), a gold ART token, or a green iRide token. You can buy tokens or purchase SmarTrip cards and add value or a 7 day pass to them at any Commuter Store or Mobile Commuter Store, or online at commuterdirect.com.

TARIFAS ART 55	Tarifa Regular	Tarifa con SmarTrip	Transbordos usando tarjeta SmarTrip*	
			ART a Metrorail o Metrorail a ART	ART a ART o ART a/desde Metrobus
Adultos	$2.00	$2.00	50¢ de descuento	gratis
Adultos mayores (65 años a más)	$1.00	$1.00	50¢ de descuento	gratis
Personas con discapacidad (con identificación WMATA o tarjeta Medicare)	$1.00	$1.00	50¢ de descuento	gratis
Estudiantes jardín a 12 grado (con ID estudiante)	$1.00	Estudiantes desde jardín infante hasta 12 grado pagan tarifa de estudiante de $1 en ART cuando pagan en efectivo, con tarjeta iRide SmarTrip color verde o iRide token color verde. Costo de transbordos entre ART y otros servicios de transporte pueden variar con tarjeta iRide SmarTrip.		

*TRANSBORDOS DEBEN HACERSE DENTRO DE DOS HORAS.

Las tarifas regulares también se pueden pagar con un Pase de Bus Regional de 7 Días (cargado en SmarTrip), un token dorado ART o un token verde iRide. Puede comprar pases o tarjetas SmarTrip y cargarles dinero o un pase de 7 días en cualquier tienda Commuter Store o Mobile Commuter Store, o en Internet en commuterdirect.com (en inglés).

ART 55

Monday–Friday
Eastbound

Lunes–Viernes
Dirección Este

East Falls Church Ⓜ	Lee Highway & Glebe Rd	Lee Highway & Kirkwood Rd	Rosslyn Ⓜ
1	2	3	4
5:00	5:09	5:15	5:30
5:15	5:24	5:30	5:45
5:30	5:39	5:45	6:00
5:45	5:54	6:00	6:15
5:57	6:06	6:12	6:27
6:12	6:21	6:27	6:42
6:24	6:33	6:39	6:54
6:36	6:45	6:51	7:06
6:48	6:57	7:03	7:18
7:00	7:09	7:15	7:30
7:12	7:21	7:27	7:42
7:24	7:33	7:39	7:54
7:36	7:45	7:51	8:06
7:48	7:57	8:03	8:18
8:00	8:09	8:15	8:30
8:12	8:21	8:27	8:42
8:24	8:33	8:39	8:54
8:36	8:45	8:51	9:06
8:48	8:57	9:03	9:18
9:00	9:09	9:15	9:30
9:15	9:24	9:30	9:37
9:30	9:39	9:45	9:52
9:45	9:54	10:00	10:07
10:00	10:09	10:15	10:22
10:15	10:24	10:30	10:37
10:30	10:39	10:45	10:52
10:45	10:54	11:00	11:07
11:00	11:09	11:15	11:22
11:15	11:24	11:30	11:37
11:30	11:39	11:45	11:52
11:45	11:54	**12:00**	**12:07**
12:00	**12:09**	**12:15**	**12:22**
12:15	**12:24**	**12:30**	**12:37**
12:30	**12:39**	**12:45**	**12:52**
12:45	**12:54**	**1:00**	**1:07**
1:00	**1:09**	**1:15**	**1:22**
1:15	**1:24**	**1:30**	**1:37**
1:30	**1:39**	**1:45**	**1:52**
1:45	**1:54**	**2:00**	**2:07**
2:00	**2:09**	**2:15**	**2:22**
2:15	**2:24**	**2:30**	**2:37**
2:30	**2:39**	**2:45**	**2:52**
2:45	**2:54**	**3:00**	**3:07**
2:57	**3:06**	**3:12**	**3:21**
3:09	**3:18**	**3:24**	**3:33**
3:21	**3:30**	**3:36**	**3:45**
3:33	**3:42**	**3:48**	**3:57**
3:45	**3:54**	**4:00**	**4:09**
3:57	**4:06**	**4:12**	**4:21**
4:09	**4:18**	**4:24**	**4:33**
4:21	**4:30**	**4:36**	**4:45**
4:33	**4:42**	**4:48**	**4:57**
4:45	**4:54**	**5:00**	**5:09**
4:57	**5:06**	**5:12**	**5:21**
5:09	**5:18**	**5:24**	**5:33**
5:21	**5:30**	**5:36**	**5:45**
5:33	**5:42**	**5:48**	**5:57**
5:45	**5:54**	**6:00**	**6:09**
5:57	**6:06**	**6:12**	**6:21**
6:09	**6:18**	**6:24**	**6:33**
6:21	**6:30**	**6:36**	**6:45**
6:36	**6:45**	**6:51**	**7:00**
6:51	**7:00**	**7:06**	**7:15**
7:06	**7:15**	**7:21**	**7:28**
7:21	**7:30**	**7:36**	**7:43**
7:36	**7:45**	**7:51**	**7:58**
8:06	**8:15**	**8:21**	**8:28**
8:36	**8:45**	**8:51**	**8:58**
9:06	**9:15**	**9:21**	**9:28**
9:36	**9:45**	**9:51**	**9:58**
10:06	**10:15**	**10:21**	**10:28**
10:36	**10:45**	**10:51**	**10:58**
11:06	**11:15**	**11:21**	**11:28**
11:36	**11:45**	**11:51**	**11:58**
12:06	12:15	12:21	12:28
12:48	12:57	1:03	1:10

Bold Shaded numerals are **PM Times**

Números sombreados en negrita son **horas PM**

ART 55

Monday–Friday
Westbound

Lunes–Viernes
Dirección Oeste

Rosslyn Ⓜ	Lee Highway & Spout Run Pkwy	Lee Highway & Glebe Rd	East Falls Church Ⓜ
4	3	2	1
5:35	5:43	5:50	5:59
5:50	5:58	6:05	6:14
6:05	6:13	6:20	6:29
6:20	6:28	6:35	6:44
6:32	6:40	6:47	6:56
6:44	6:52	6:59	7:08
6:56	7:04	7:11	7:20
7:08	7:16	7:23	7:32
7:20	7:28	7:35	7:44
7:32	7:40	7:47	7:56
7:44	7:52	7:59	8:08
7:56	8:04	8:11	8:20
8:08	8:16	8:23	8:32
8:20	8:28	8:35	8:44
8:32	8:40	8:47	8:56
8:44	8:52	8:59	9:08
8:56	9:04	9:11	9:20
9:11	9:19	9:26	9:35
9:26	9:34	9:41	9:50
9:41	9:49	9:56	10:05
9:56	10:04	10:11	10:20
10:11	10:19	10:26	10:35
10:26	10:34	10:41	10:50
10:41	10:49	10:56	11:05
10:56	11:04	11:11	11:20
11:11	11:19	11:26	11:35
11:26	11:34	11:41	11:50
11:41	11:49	11:56	**12:05**
11:56	**12:04**	**12:11**	**12:20**
12:11	**12:19**	**12:26**	**12:35**
12:26	**12:34**	**12:41**	**12:50**
12:41	**12:49**	**12:56**	**1:05**
12:56	**1:04**	**1:11**	**1:20**
1:11	**1:19**	**1:26**	**1:35**
1:26	**1:34**	**1:41**	**1:50**
1:41	**1:49**	**1:56**	**2:05**
1:56	**2:04**	**2:11**	**2:20**
2:11	**2:19**	**2:26**	**2:35**
2:26	**2:34**	**2:41**	**2:50**
2:41	**2:49**	**2:56**	**3:05**
2:56	**3:04**	**3:11**	**3:20**
3:11	**3:19**	**3:26**	**3:35**
3:26	**3:34**	**3:42**	**3:51**
3:38	**3:46**	**3:54**	**4:03**
3:50	**3:58**	**4:06**	**4:15**
4:02	**4:10**	**4:18**	**4:27**
4:14	**4:22**	**4:30**	**4:39**
4:26	**4:34**	**4:42**	**4:51**
4:38	**4:46**	**4:54**	**5:03**
4:50	**4:58**	**5:06**	**5:15**
5:02	**5:10**	**5:18**	**5:27**
5:14	**5:22**	**5:30**	**5:39**
5:26	**5:34**	**5:42**	**5:51**
5:38	**5:46**	**5:54**	**6:03**
5:50	**5:58**	**6:06**	**6:15**
6:02	**6:10**	**6:18**	**6:27**
6:14	**6:22**	**6:30**	**6:39**
6:26	**6:34**	**6:42**	**6:51**
6:38	**6:46**	**6:54**	**7:03**
6:50	**6:58**	**7:06**	**7:15**
7:05	**7:13**	**7:21**	**7:30**
7:20	**7:28**	**7:35**	**7:44**
7:35	**7:43**	**7:50**	**7:59**
7:50	**7:58**	**8:05**	**8:14**
8:05	**8:13**	**8:20**	**8:29**
8:35	**8:43**	**8:50**	**8:59**
9:05	**9:13**	**9:20**	**9:29**
9:35	**9:43**	**9:50**	**9:59**
10:05	**10:13**	**10:20**	**10:29**
10:35	**10:43**	**10:50**	**10:59**
11:05	**11:13**	**11:20**	**11:29**
11:35	**11:43**	**11:50**	**11:59**
12:05	12:13	12:20	12:29
12:35	12:43	12:50	12:59
1:15	1:23	1:30	1:39

Bold Shaded numerals are **PM Times**

Números sombreados en negrita son **horas PM**

ART 55

Saturday
Eastbound

Sábado
Dirección Este

East Falls Church M (1)	Lee Highway & Glebe Rd (2)	Lee Highway & Kirkwood Rd (3)	Rosslyn M (4)
5:45	5:54	6:01	6:08
6:05	6:14	6:21	6:28
6:25	6:34	6:41	6:48
6:45	6:54	7:01	7:08
7:05	7:14	7:21	7:28
7:25	7:34	7:41	7:48
7:45	7:54	8:01	8:08
8:05	8:14	8:21	8:28
8:25	8:34	8:41	8:48
8:45	8:54	9:01	9:08
9:05	9:14	9:21	9:28
9:25	9:34	9:41	9:48
9:45	9:54	10:01	10:08
10:05	10:14	10:21	10:28
10:25	10:34	10:41	10:48
10:45	10:54	11:01	11:08
11:05	11:14	11:21	11:28
11:25	11:34	11:41	11:48
11:45	11:54	**12:01**	**12:08**
12:05	**12:14**	**12:21**	**12:28**
12:25	**12:34**	**12:41**	**12:48**
12:45	**12:54**	**1:01**	**1:08**
1:05	**1:14**	**1:21**	**1:28**
1:25	**1:34**	**1:41**	**1:48**
1:45	**1:54**	**2:01**	**2:08**
2:05	**2:14**	**2:21**	**2:28**
2:25	**2:34**	**2:41**	**2:48**
2:45	**2:54**	**3:01**	**3:08**
3:05	**3:14**	**3:21**	**3:28**
3:25	**3:34**	**3:41**	**3:48**
3:45	**3:54**	**4:01**	**4:08**
4:05	**4:14**	**4:21**	**4:28**
4:25	**4:34**	**4:41**	**4:48**
4:45	**4:54**	**5:01**	**5:08**
5:05	**5:14**	**5:21**	**5:28**
5:25	**5:34**	**5:41**	**5:48**
5:45	**5:54**	**6:01**	**6:08**
6:05	**6:14**	**6:21**	**6:28**
6:25	**6:34**	**6:41**	**6:48**
6:45	**6:54**	**7:01**	**7:08**
7:05	**7:14**	**7:21**	**7:28**
7:25	**7:34**	**7:41**	**7:48**
7:45	**7:54**	**8:01**	**8:08**
8:15	**8:24**	**8:31**	**8:38**
8:45	**8:54**	**9:01**	**9:08**
9:15	**9:24**	**9:31**	**9:38**
9:45	**9:54**	**10:01**	**10:08**
10:15	**10:24**	**10:31**	**10:38**
10:45	**10:54**	**11:01**	**11:08**
11:15	**11:24**	**11:31**	**11:38**
11:45	**11:54**	12:01	12:08
12:15	12:24	12:31	12:38

Bold Shaded numerals are **PM Times**

Números sombreados en negrita son **horas PM**

ART 55

Saturday
Westbound

Sábado
Dirección Oeste

Rosslyn M (4)	Lee Highway & Spout Run Pkwy (3)	Lee Highway & Glebe Rd (2)	East Falls Church M (1)
6:15	6:24	6:32	6:42
6:35	6:44	6:52	7:02
6:55	7:04	7:12	7:22
7:15	7:24	7:32	7:42
7:35	7:44	7:52	8:02
7:55	8:04	8:12	8:22
8:15	8:24	8:32	8:42
8:35	8:44	8:52	9:02
8:55	9:04	9:12	9:22
9:15	9:24	9:32	9:42
9:35	9:44	9:52	10:02
9:55	10:04	10:12	10:22
10:15	10:24	10:32	10:42
10:35	10:44	10:52	11:02
10:55	11:04	11:12	11:22
11:15	11:24	11:32	11:42
11:35	11:44	11:52	**12:02**
11:55	**12:04**	**12:12**	**12:22**
12:15	**12:24**	**12:32**	**12:42**
12:35	**12:44**	**12:52**	**1:02**
12:55	**1:04**	**1:12**	**1:22**
1:15	**1:24**	**1:32**	**1:42**
1:35	**1:44**	**1:52**	**2:02**
1:55	**2:04**	**2:12**	**2:22**
2:15	**2:24**	**2:32**	**2:42**
2:35	**2:44**	**2:52**	**3:02**
2:55	**3:04**	**3:12**	**3:22**
3:15	**3:24**	**3:32**	**3:42**
3:35	**3:44**	**3:52**	**4:02**
3:55	**4:04**	**4:12**	**4:22**
4:15	**4:24**	**4:32**	**4:42**
4:35	**4:44**	**4:52**	**5:02**
4:55	**5:04**	**5:12**	**5:22**
5:15	**5:24**	**5:32**	**5:42**
5:35	**5:44**	**5:52**	**6:02**
5:55	**6:04**	**6:12**	**6:22**
6:15	**6:24**	**6:32**	**6:42**
6:35	**6:44**	**6:52**	**7:02**
6:55	**7:04**	**7:12**	**7:22**
7:15	**7:24**	**7:32**	**7:42**
7:35	**7:44**	**7:52**	**8:02**
7:55	**8:04**	**8:12**	**8:22**
8:15	**8:24**	**8:32**	**8:42**
8:45	**8:54**	**9:02**	**9:12**
9:15	**9:24**	**9:32**	**9:42**
9:45	**9:54**	**10:02**	**10:12**
10:15	**10:24**	**10:32**	**10:42**
10:45	**10:54**	**11:02**	**11:12**
11:15	**11:24**	**11:32**	**11:42**
11:45	**11:54**	12:02	12:12
12:15	12:24	12:32	12:42
12:45	12:54	1:02	1:12

Bold Shaded numerals are **PM Times**

Números sombreados en negrita son **horas PM**

ART 55

Sunday
Eastbound

Domingo
Dirección Este

East Falls Church Ⓜ 1	Lee Highway & Glebe Rd 2	Lee Highway & Kirkwood Rd 3	Rosslyn Ⓜ 4
6:20	6:29	6:36	6:43
6:50	6:59	7:06	7:13
7:20	7:29	7:36	7:43
7:50	7:59	8:06	8:13
8:20	8:29	8:36	8:43
8:50	8:59	9:06	9:13
9:20	9:29	9:36	9:43
9:50	9:59	10:06	10:13
10:20	10:29	10:36	10:43
10:50	10:59	11:06	11:13
11:20	11:29	11:36	11:43
11:50	11:59	**12:06**	**12:13**
12:20	**12:29**	**12:36**	**12:43**
12:50	**12:59**	**1:06**	**1:13**
1:20	**1:29**	**1:36**	**1:43**
1:50	**1:59**	**2:06**	**2:13**
2:20	**2:29**	**2:36**	**2:43**
2:50	**2:59**	**3:06**	**3:13**
3:20	**3:29**	**3:36**	**3:43**
3:50	**3:59**	**4:06**	**4:13**
4:20	**4:29**	**4:36**	**4:43**
4:50	**4:59**	**5:06**	**5:13**
5:20	**5:29**	**5:36**	**5:43**
5:50	**5:59**	**6:06**	**6:13**
6:20	**6:29**	**6:36**	**6:43**
6:50	**6:59**	**7:06**	**7:13**
7:20	**7:29**	**7:36**	**7:43**
7:50	**7:59**	**8:06**	**8:13**
8:20	**8:29**	**8:36**	**8:43**
8:50	**8:59**	**9:06**	**9:13**
9:20	**9:29**	**9:36**	**9:43**
9:50	**9:59**	**10:06**	**10:13**
10:20	**10:29**	**10:36**	**10:43**
10:50	**10:59**	**11:06**	**11:13**
11:20	**11:29**	**11:36**	**11:43**

Bold Shaded numerals are **PM Times**

Números sombreados en negrita son **horas PM**

ART 55

Sunday
Westbound

Domingo
Dirección Oeste

Rosslyn Ⓜ 4	Lee Highway & Spout Run Pkwy 3	Lee Highway & Glebe Rd 2	East Falls Church Ⓜ 1
6:50	7:00	7:08	7:17
7:20	7:30	7:38	7:47
7:50	8:00	8:08	8:17
8:20	8:30	8:38	8:47
8:50	9:00	9:08	9:17
9:20	9:30	9:38	9:47
9:50	10:00	10:08	10:17
10:20	10:30	10:38	10:47
10:50	11:00	11:08	11:17
11:20	11:30	11:38	11:47
11:50	**12:00**	**12:08**	**12:17**
12:20	**12:30**	**12:38**	**12:47**
12:50	**1:00**	**1:08**	**1:17**
1:20	**1:30**	**1:38**	**1:47**
1:50	**2:00**	**2:08**	**2:17**
2:20	**2:30**	**2:38**	**2:47**
2:50	**3:00**	**3:08**	**3:17**
3:20	**3:30**	**3:38**	**3:47**
3:50	**4:00**	**4:08**	**4:17**
4:20	**4:30**	**4:38**	**4:47**
4:50	**5:00**	**5:08**	**5:17**
5:20	**5:30**	**5:38**	**5:47**
5:50	**6:00**	**6:08**	**6:17**
6:20	**6:30**	**6:38**	**6:47**
6:50	**7:00**	**7:08**	**7:17**
7:20	**7:30**	**7:38**	**7:47**
7:50	**8:00**	**8:08**	**8:17**
8:20	**8:30**	**8:38**	**8:47**
8:50	**9:00**	**9:08**	**9:17**
9:20	**9:30**	**9:38**	**9:47**
9:50	**10:00**	**10:08**	**10:17**
10:20	**10:30**	**10:38**	**10:47**
10:50	**11:00**	**11:08**	**11:17**
11:20	**11:30**	**11:38**	**11:47**
11:50	12:00	12:08	12:17

Bold Shaded numerals are **PM Times**

Números sombreados en negrita son **horas PM**

How to use this timetable

- Use the map to find the stops closest to where you will get on and off the bus.
- Select the schedule (Weekday, Saturday, Sunday) for when you will travel. Along the top of the schedule, find the stop at or nearest the point where you will get on the bus. Follow that column down to the time you want to leave.
- Use the same method to find the times the bus is scheduled to arrive at the stop where you will get off the bus.
- If the bus stop is not listed, use the time shown for the bus stop before it as the time to wait at the stop.
- The end-of-the-line or last stop is listed in ALL CAPS on the schedule.

Cómo Usar este Horario

- Use este mapa para localizar las paradas más cercanas a donde se subirá y bajará del autobús.
- Seleccione el horario (Entre semana, sábado, domingo) de cuando viajará. A lo largo de la parte superior del horario, localice la parada o el punto más cercano a la parada en la que se subirá al autobús. Siga esa columna hacia abajo hasta la hora en la que desee salir.
- Utilice el mismo método para localizar las horas en que el autobús está programado para llegar a la parada en donde desea bajarse del autobús.
- Si la parada del autobús no está listada use la hora que se muestra en la parada anterior como la hora de espera en la parada.
- El final de la ruta o la última parada del autobús aparece en letras MAYÚSCULAS en el horario.

English-Español Effective 12-17-23

3F,Y

Langston Boulevard - McPherson Square Line

metrobus

Serves these locations-
Brinda servicio a estas ubicaciones

- East Falls Church station
- Lee Heights (3Y)
- Waverly Hills (3Y)
- Cherrydale (3Y)
- Rosslyn (3Y)
- Farragut West station (3Y)
- Farragut North station (3Y)
- McPherson Sq station

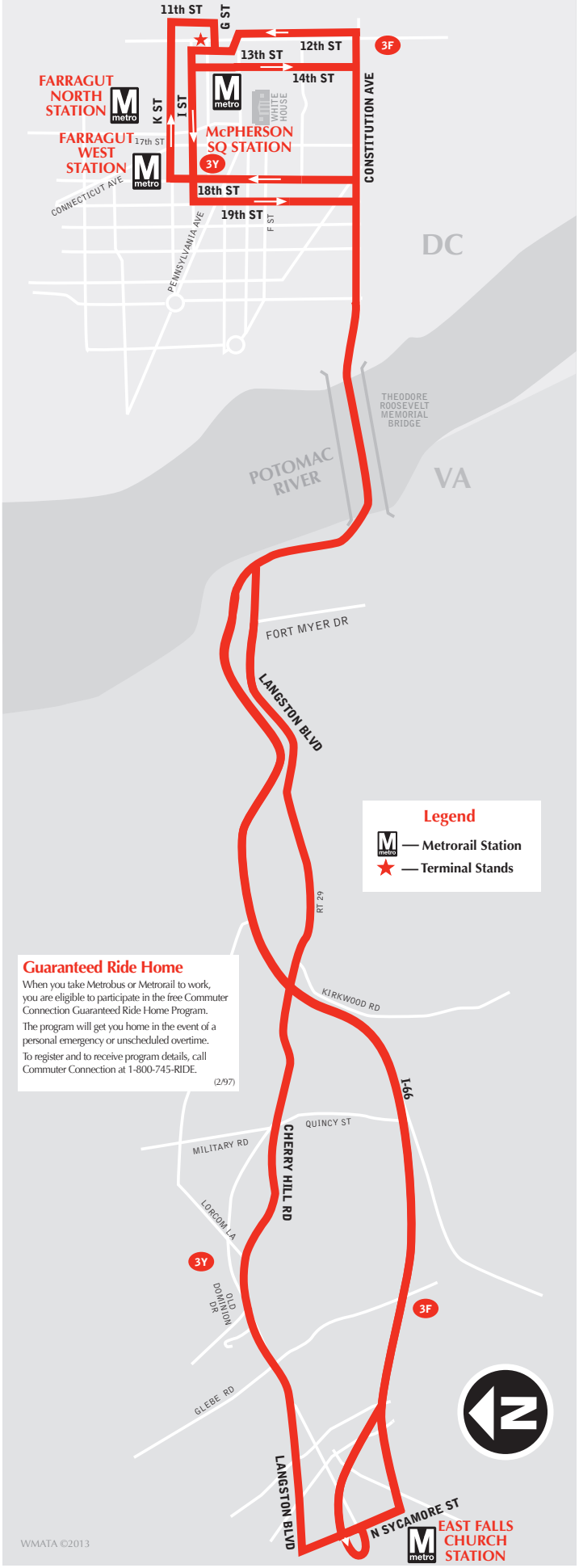
www.wmata.com
Information Anytime 202-637-7000 TTY 202-962-2033

Washington Metropolitan Area Transit Authority

A District of Columbia, Maryland and Virginia Transit Partnership

3F, Y
Langston Boulevard-McPherson Square Line

For route and schedule information
Call 202-637-7000
www.wmata.com



Guaranteed Ride Home

When you take Metrobus or Metrorail to work, you are eligible to participate in the free Commuter Connection Guaranteed Ride Home Program.

The program will get you home in the event of a personal emergency or unscheduled overtime.

To register and to receive program details, call Commuter Connection at 1-800-745-RIDE.

(2/97)

3F,Y

Langston Blvd -
McPherson Square Line

Effective Sunday, December 17, 2023
A partir del domingo, 17 de deciembre de 2023

Eastbound To McPherson Square station

Monday thru Friday — De Lunes a viernes

Route Number	East Falls Church (Metro)	Langston Blvd. & Glebe Rd.	Langston Blvd. & Kirkwood Rd.	Langston Blvd. & Fort Myer Dr. (Rosslyn)	18th St. & Pennsylvania Ave. NW	K & 17th Sts. NW (Farragut North & Farragut West)	13th & G Sts. NW
AM Service — Servicio matutino							
3Y	5:45	5:54	6:02	6:09	6:17	6:22	6:32
3Y	6:10	6:19	6:27	6:34	6:42	6:47	6:57
3Y	6:35	6:44	6:52	6:59	7:07	7:12	7:22
3Y	7:00	7:11	7:21	7:29	7:40	7:45	7:55
3Y	7:25	7:36	7:46	7:54	8:05	8:10	8:20
3Y	7:50	8:01	8:12	8:21	8:33	8:39	8:49
3Y	8:20	8:31	8:42	8:51	9:03	9:09	9:19
PM Service — Servicio vesertino							
3F	4:57	-	-	-	-	-	5:27
3F	5:27	-	-	-	-	-	5:57
3F	5:57	-	-	-	-	-	6:27

On five Federal holidays, Juneteenth, Columbus Day, Veterans' Day, Martin Luther King, Jr. Day, and Presidents' Day, this route will have no service.
Esta ruta no prestará servicio durante los cinco días festivos de Juneteenth, Columbus Day, Veterans Day, Martin Luther King Jr. Day, y Presidents' Day.

Westbound To East Falls Church station

Monday thru Friday — De Lunes a viernes

Route Number	13th & H Sts. NW	19th & F Sts. NW	Langston Blvd. & Fort Myer Dr. (Rosslyn)	Langston Blvd. & Spout Run Pkwy.	Langston Blvd. & Glebe Rd.	EAST FALLS CHURCH (Metro)
AM Service — Servicio matutino						
3F	6:35	-	-	-	-	6:55
3F	6:59	-	-	-	-	7:19
3F	7:24	-	-	-	-	7:44
3F	7:57	-	-	-	-	8:17
PM Service — Servicio vesertino						
3Y	4:15	4:24	4:30	4:37	4:46	4:52
3Y	4:45	4:54	5:00	5:07	5:16	5:22
3Y	5:15	5:24	5:30	5:37	5:46	5:52
3Y	5:45	5:55	6:02	6:10	6:13	6:18
3Y	6:15	6:22	6:29	6:38	6:48	6:53
3Y	6:45	6:52	6:59	7:08	7:18	7:23

On five Federal holidays, Juneteenth, Columbus Day, Veterans' Day, Martin Luther King, Jr. Day, and Presidents' Day, this route will have no service.
Esta ruta no prestará servicio durante los cinco días festivos de Juneteenth, Columbus Day, Veterans Day, Martin Luther King Jr. Day, y Presidents' Day.

Appendix C

Peak Hour Vehicular & Pedestrian Counts Drop-off Queues

Prepared by National Data & Surveying Services

I-66/Custis Memorial Pkwy W Ramp & US 29/Langston Blvd

Peak Hour Turning Movement Count

ID: 24-260112-001
City: Arlington

Day: Thursday
Date: 5/30/2024

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NONE	NONE
05:00 PM - 06:00 PM	4:00 PM - 07:00 PM

SOUTHBOUND (I-66/Custis Memorial Pkwy W Ramp)

	Right	Thru	Left	U-Turn	Exit
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
% HT	0	0	0	0	

EASTBOUND (US 29/Langston Blvd)

	AM	NOON	PM	% HT
Exit	913	0	1276	
U-Turn	0	0	0	0
Left	0	0	0	0
Thru	1551	0	980	2.5
Right	67	0	36	0.5

WESTBOUND (US 29/Langston Blvd)

	PM	NOON	AM	% HT
Right	0	0	0	0
Thru	1276	0	913	3
Left	240	0	377	1
U-Turn	3	0	2	0
Exit	983	0	1553	

NORTHBOUND (I-66/Custis Memorial Pkwy W Ramp)

	Exit	U-Turn	Left	Thru	Right
% HT		0	0	0	0
PM	276	0	0	0	0
NOON	0	0	0	0	0
AM	444	0	0	0	0

CONTROL

Signalized

	AM	NOON	PM
TEV	2910	0	2535
PHF	0.92		0.93

Cars / HT

Movement	Cars (AM)	Cars (NOON)	Cars (PM)	HT (AM)	HT (NOON)	HT (PM)
SB Right	0	0	0	0	0	0
SB Thru	0	0	0	0	0	0
SB Left	0	0	0	0	0	0
EB Left	0	0	0	0	0	0
EB Thru	1510	0	967	41	0	13
EB Right	65	0	36	2	0	0
WB Right	0	0	0	0	0	0
WB Thru	881	0	1261	32	0	15
WB Left	376	0	235	1	0	5
NB Left	0	0	0	0	0	0
NB Thru	0	0	0	0	0	0
NB Right	0	0	0	0	0	0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	Eastbound	0	0	0
North	Westbound	0	0	0
West	Southbound	0	0	0
West	Northbound	2	0	0
East	Southbound	0	0	0
East	Northbound	0	0	0
South	Eastbound	8	0	12
South	Westbound	3	0	4
NW corner (diagonal)		0	0	0
NE corner (diagonal)		0	0	0
SW corner (diagonal)		0	0	0
SE corner (diagonal)		0	0	0

Prepared by National Data & Surveying Services

I-66/Custis Memorial Pkwy E Ramp & US 29/Langston Blvd

Peak Hour Turning Movement Count

ID: 24-260112-002
City: Arlington

Day: Thursday
Date: 5/30/2024

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NONE	NONE
05:00 PM - 06:00 PM	4:00 PM - 07:00 PM

SOUTHBOUND — I-66/Custis Memorial Pkwy E Ramp

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND — US 29/Langston Blvd

AM	NOON	PM	
1295	0	1519	⇦
0	0	0	↶ 0
0	0	0	↱ 0
1545	0	983	→ 3
0	0	0	↴ 0
AM	NOON	PM	

WESTBOUND — US 29/Langston Blvd

PM	NOON	AM	
0	0	0	0 ↰
1492	0	1253	3 ←
0	0	0	0 ↙
0	0	0	0 ↶
1394	0	1737	⇨
PM	NOON	AM	

NORTHBOUND — I-66/Custis Memorial Pkwy E Ramp

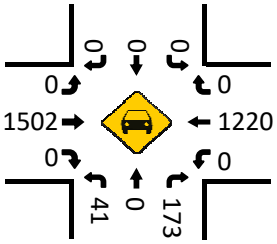
PM	0	0	27	0	411	PM
NOON	0	0	0	0	0	NOON
AM	0	0	42	0	192	AM
	⇩	0	0.5	0	1.5	

CONTROL

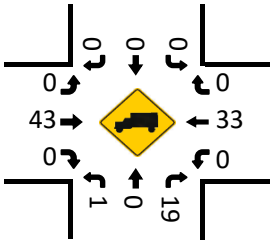
Signalized

TEV	3032 AM	0 NOON	2913 PM
PHF	0.93		0.94

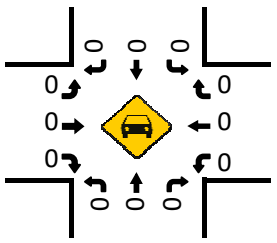
Cars (AM)



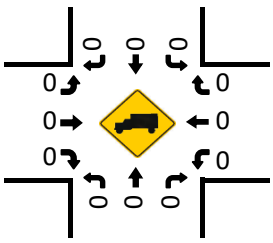
HT (AM)



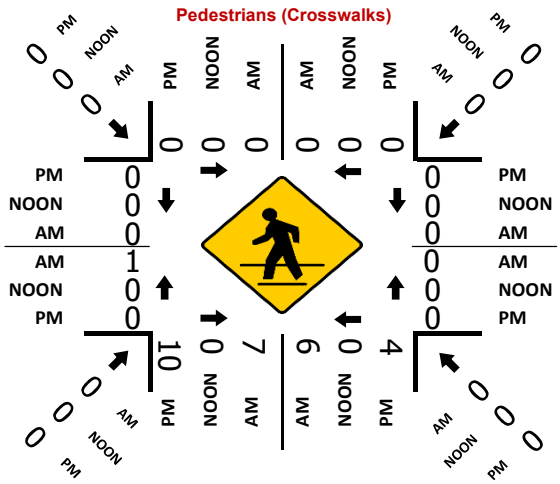
Cars (NOON)



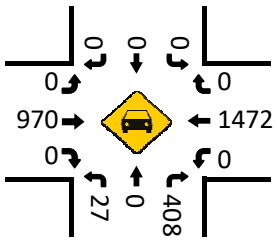
HT (NOON)



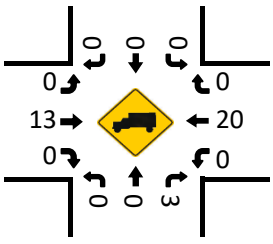
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Walgreens/CVS Pharmacy Dwy & US 29/Langston Blvd

Peak Hour Turning Movement Count

ID: 24-260112-003
City: Arlington

Day: Thursday
Date: 5/30/2024

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NONE	NONE
05:15 PM - 06:15 PM	4:00 PM - 07:00 PM

SOUTHBOUND — Walgreens/CVS Pharmacy Dwy

AM	62	0	6	0	103 AM
NOON	0	0	0	0	0 NOON
PM	62	0	8	0	95 PM

EASTBOUND — US 29/Langston Blvd

AM	NOON	PM	
1242	0	1448	
0	0	2	0
59	0	41	1
1670	0	1327	3
0	0	5	0

WESTBOUND — US 29/Langston Blvd

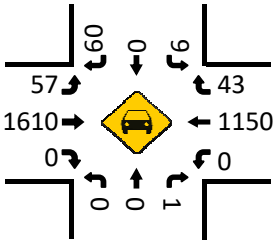
PM	NOON	AM	
54	0	44	0
1384	0	1180	3
0	0	0	0
0	0	0	0
1337	0	1677	

NORTHBOUND — Walgreens/CVS Pharmacy Dwy

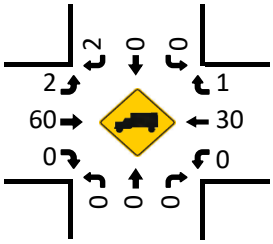
PM	5	0	0	0	2 PM
NOON	0	0	0	0	0 NOON
AM	0	0	0	0	1 AM

CONTROL			
No Control			
TEV	3022 AM	0 NOON	2885 PM
PHF	0.95		0.93

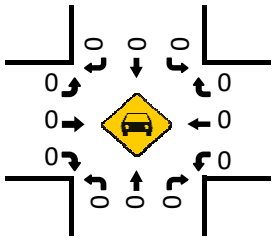
Cars (AM)



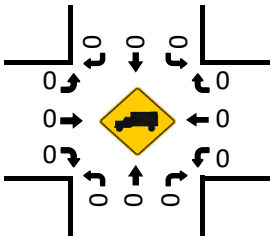
HT (AM)



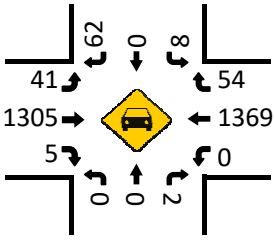
Cars (NOON)



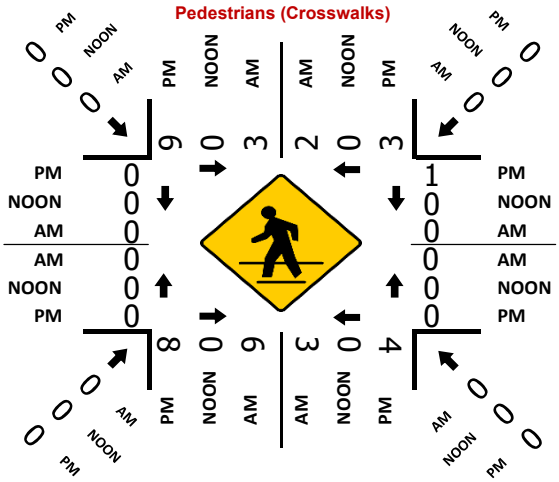
HT (NOON)



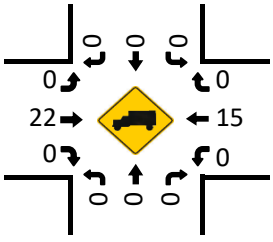
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



Prepared by National Data & Surveying Services

N Kirkwood Rd/Spout Run Pkwy & US 29/Langston Blvd

Peak Hour Turning Movement Count

ID: 24-260112-004
City: Arlington

Day: Thursday
Date: 5/30/2024

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 7:00 AM - 10:00 AM
NOON: NONE
PM: 4:00 PM - 07:00 PM

SOUTHBOUND (N Kirkwood Rd/Spout Run Pkwy)

AM	418	133	158	0	829	AM
NOON	0	0	0	0	0	NOON
PM	416	217	171	1	907	PM

EASTBOUND (US 29/Langston Blvd)

AM	NOON	PM		
1223	0	1444		
0	0	0	0	
448	0	486	1	
1191	0	775	3	
47	0	73	0	
AM	NOON	PM		

WESTBOUND (US 29/Langston Blvd)

	PM	NOON	AM
1	209	0	177
3	938	0	700
1	90	0	53
0	0	0	0
	1041	0	1504
	PM	NOON	AM

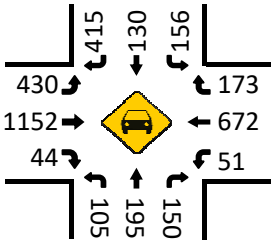
NORTHBOUND (N Kirkwood Rd/Spout Run Pkwy)

PM	380	0	90	211	95	PM
NOON	0	0	0	0	0	NOON
AM	233	0	105	204	155	AM

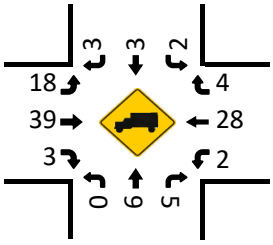
0	1	2	0

CONTROL			
Signalized			
TEV	3789	0	3772
	AM	NOON	PM
PHF	0.96		0.95

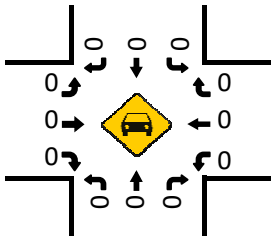
Cars (AM)



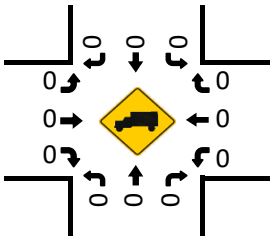
HT (AM)



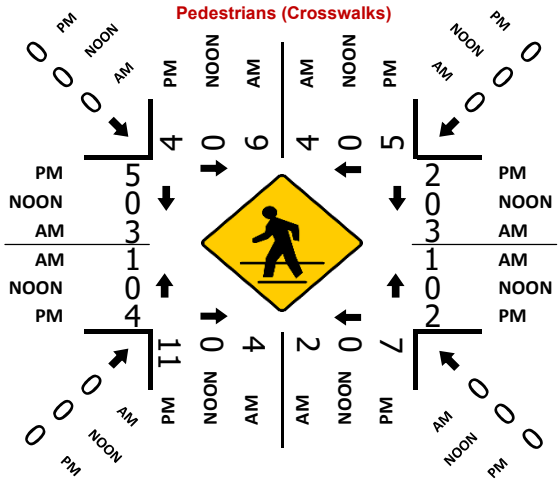
Cars (NOON)



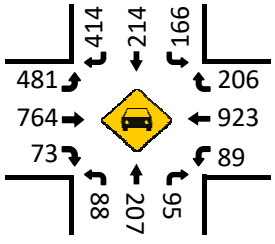
HT (NOON)



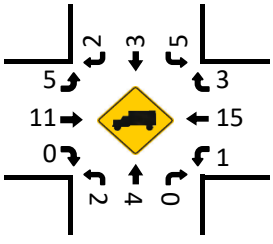
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

N Kirkwood Rd & Walgreens N Dwy

Peak Hour Turning Movement Count

ID: 24-260112-005
City: Arlington

Day: Thursday
Date: 5/30/2024

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NONE	NONE
04:45 PM - 05:45 PM	4:00 PM - 07:00 PM

SOUTHBOUND (N Kirkwood Rd)

AM	6	227	0	1	461	AM
NOON	0	0	0	0	0	NOON
PM	7	373	0	8	394	PM

EASTBOUND (Walgreens N Dwy)

AM	NOON	PM	
8	0	16	
0	0	0	0
4	0	16	0
0	0	0	1
4	0	10	0

WESTBOUND (Walgreens N Dwy)

	PM	NOON	AM
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
	0	0	0

NORTHBOUND (N Kirkwood Rd)

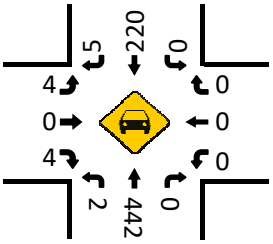
PM	383	0	9	370	0	PM
NOON	0	0	0	0	0	NOON
AM	231	0	2	456	0	AM

CONTROL

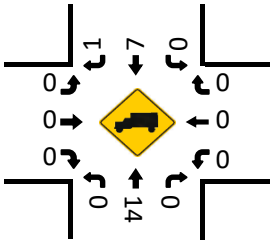
No Control

TEV	700 AM	0 NOON	793 PM
PHF	0.93		0.89

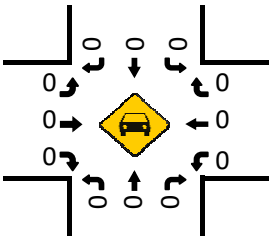
Cars (AM)



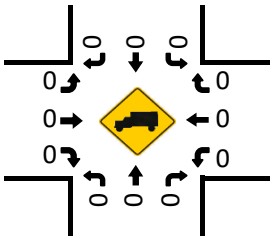
HT (AM)



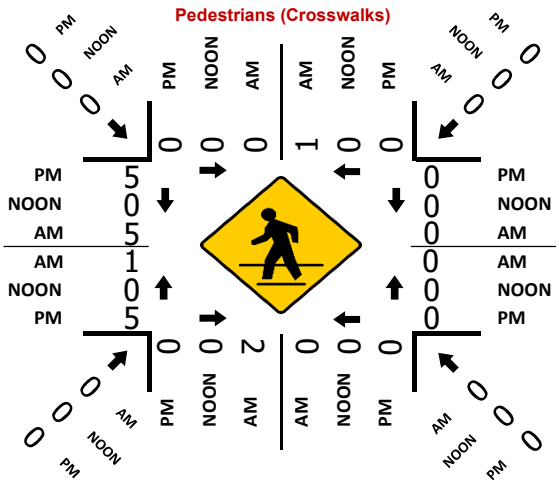
Cars (NOON)



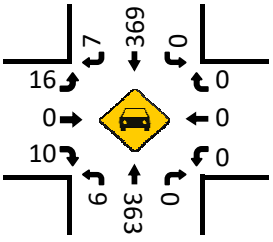
HT (NOON)



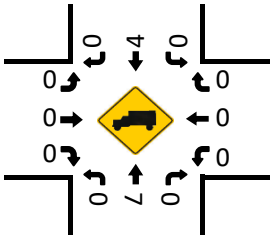
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

N Kirkwood Rd & Walgreens S Dwy

Peak Hour Turning Movement Count

ID: 24-260112-006
City: Arlington

Day: Thursday
Date: 5/30/2024

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NONE	NONE
04:45 PM - 05:45 PM	4:00 PM - 07:00 PM

SOUTHBOUND (N Kirkwood Rd)

	L	T	R	U	Total	
AM	0	232	0	0	463	AM
NOON	0	0	0	0	0	NOON
PM	0	383	0	0	378	PM

EASTBOUND (Walgreens S Dwy)

	L	T	R	U	Total	
AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

WESTBOUND (Walgreens S Dwy)

	L	T	R	U	Total	
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

NORTHBOUND (N Kirkwood Rd)

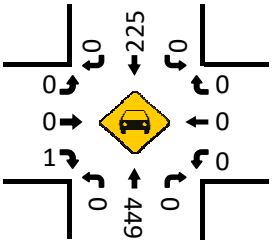
	L	T	R	U	Total	
PM	387	0	0	378	0	PM
NOON	0	0	0	0	0	NOON
AM	234	0	0	463	0	AM

CONTROL

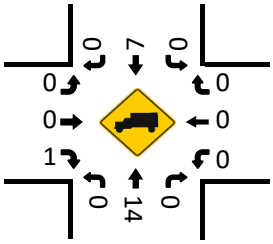
No Control

TEV	697 AM	0 NOON	765 PM
PHF	0.92		0.91

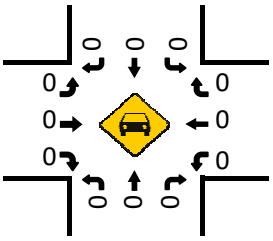
Cars (AM)



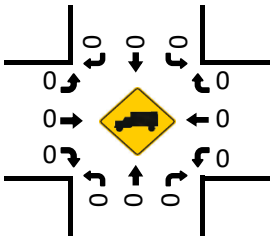
HT (AM)



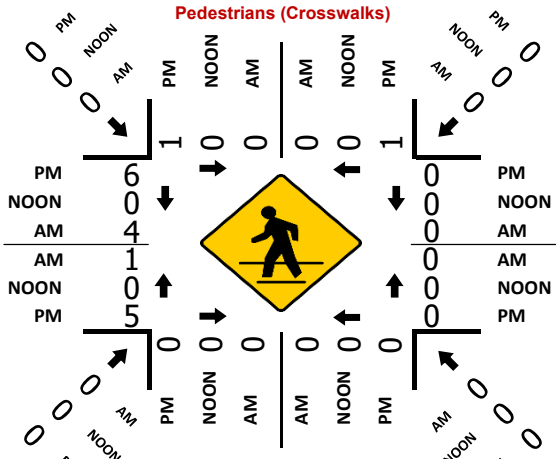
Cars (NOON)



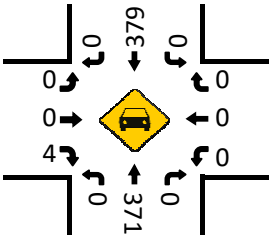
HT (NOON)



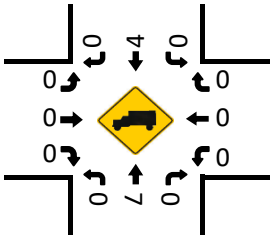
Pedestrians (Crosswalks)



Cars (PM)

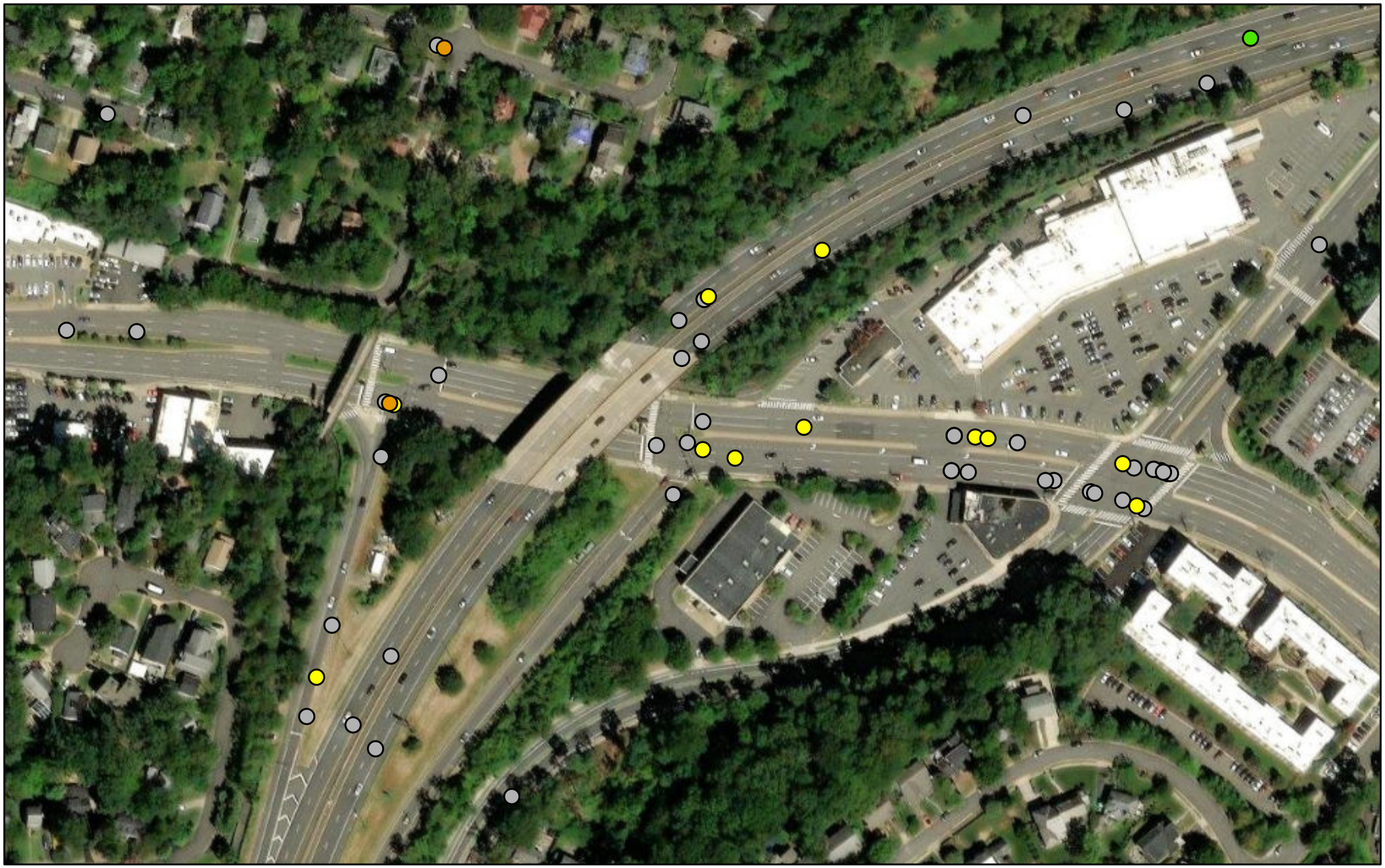


HT (PM)



Longitude	Latitude	Object ID	Document Number	Crash Year	Crash Date	Crash Time	Crash Severity	Persons Injured	Pedestrians Killed	Pedestrians Injured	Vehicle Count	Collision Type	Relation to Roadway	Work Zone Related	First Harmful Event	First Harmfil Event Location	Intersection Analysis	VDOT District	Physical Jurisdiction	FAC
-77.09983285	38.89615425	767543	223455058	2022	2022/12/10 05:00:00+00	20:25	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.0998111	38.89614969	942807	231105378	2023	2023/04/20 04:00:00+00	13:05	A. Severe Injury	2	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09978936	38.89614513	763701	220115048	2022	2022/01/10 05:00:00+00	21:05	B. Visible Injury	2	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09957729	38.89625712	776058	220655122	2022	2022/03/06 05:00:00+00	11:39	PDO. Property Damage Only	0	0	0	2	1. Rear End	1. Main-Line Roadway	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09853398	38.89599596	853523	222635352	2022	2022/09/20 04:00:00+00	18:48	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09838254	38.89600619	984590	233575123	2023	2023/12/23 05:00:00+00	9:52	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09831204	38.89608047	851543	221275063	2022	2022/05/07 04:00:00+00	1:10	PDO. Property Damage Only	0	0	0	2	2. Angle	8. Non-Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09830902	38.89597802	945879	231965080	2023	2023/07/15 04:00:00+00	8:05	B. Visible Injury	2	0	0	2	2. Angle	1. Main-Line Roadway	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09815683	38.89594633	847495	222145269	2022	2022/08/01 04:00:00+00	15:16	B. Visible Injury	2	0	0	2	2. Angle	ntersection Related - Within 150	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.0984504	38.89581235	953344	232765433	2023	2023/10/03 04:00:00+00	17:19	PDO. Property Damage Only	0	0	0	2	1. Rear End	ntersection Related - Within 150	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	1-One-Way Undivided
-77.09782133	38.89606097	865070	230025345	2023	2023/01/02 05:00:00+00	20:24	B. Visible Injury	2	0	0	2	2. Angle	ntersection Related - Within 150	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09710537	38.89602857	929955	232645394	2023	2023/09/21 04:00:00+00	17:11	PDO. Property Damage Only	0	0	0	2	3. Head On	1. Main-Line Roadway	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.0971156	38.89589768	1011073	240135006	2024	2024/01/12 05:00:00+00	17:00	PDO. Property Damage Only	0	0	0	2	2. Angle	ntersection Related - Outside 150	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09700314	38.89602314	792892	220185198	2022	2022/01/18 05:00:00+00	8:00	B. Visible Injury	2	0	0	2	2. Angle	ntersection Related - Within 150	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.097036	38.89589385	880446	230765219	2023	2023/03/17 04:00:00+00	S	PDO. Property Damage Only	0	0	0	2	1. Rear End	3. Driveway, Alley-Access - Relate	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.0969419	38.89601833	803016	222345389	2022	2022/08/22 04:00:00+00	14:35	B. Visible Injury	2	0	0	2	2. Angle	1. Main-Line Roadway	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09679914	38.89600554	901028	231585138	2023	2023/06/07 04:00:00+00	10:25	PDO. Property Damage Only	0	0	0	2	4. Sideswipe - Same Direction	8. Non-Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09666332	38.89586438	984059	230615147	2023	2023/03/22 04:00:00+00	9:04	PDO. Property Damage Only	0	0	0	3	1. Rear End	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09662424	38.89585966	761237	223635391	2022	2022/12/29 05:00:00+00	16:51	PDO. Property Damage Only	0	0	0	2	1. Rear End	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09645133	38.89582117	762449	220885240	2022	2022/03/29 04:00:00+00	15:14	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09643213	38.89581683	927858	232075371	2023	2023/07/26 04:00:00+00	16:35	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09629772	38.89578644	988795	232575174	2023	2023/09/14 04:00:00+00	9:47	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09619374	38.89575517	753046	220995108	2022	2022/04/03 04:00:00+00	12:12	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09629343	38.89592714	901107	232365327	2023	2023/08/24 04:00:00+00	14:27	B. Visible Injury	1	0	0	2	2. Angle	1. Main-Line Roadway	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09623847	38.89590696	890668	230855341	2023	2023/03/26 04:00:00+00	19:48	PDO. Property Damage Only	0	0	0	2	3. Head On	1. Main-Line Roadway	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09614716	38.89590321	833956	220805204	2022	2022/03/17 04:00:00+00	16:44	B. Visible Injury	1	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09614716	38.89590321	929949	233205235	2023	2023/11/16 05:00:00+00	11:55	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09611301	38.89589689	891322	233465473	2023	2023/12/11 05:00:00+00	12:34	B. Visible Injury	2	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09611301	38.89589689	998225	240435043	2024	2024/02/11 05:00:00+00	23:25	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09609593	38.89589372	1010362	240885313	2024	2024/03/28 04:00:00+00	16:48	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09607895	38.89589027	775362	223505435	2022	2022/12/16 05:00:00+00	15:30	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	20. Motor Vehicle In Transport	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided
-77.09606197	38.89588681	933863	231405102	2023	2023/05/20 04:00:00+00	10:19	PDO. Property Damage Only	0	0	0	2	2. Angle	9. Within Intersection	2. No	22. Bicycle	1. On Roadway	VDOT Intersection	9. Northern Virginia	000. Arlington County	4-Two-Way Divided

3130 Langston Boulevard Crash Data - VDOT



8/8/2024

Crash Data - CrashData Basic

- A. Severe Injury
- B. Visible Injury
- C. Nonvisible Injury
- PDO. Property Damage Only

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

60cm Resolution Metadata

1:2,895

0 0.02 0.04 0.07 mi

0 0.03 0.06 0.12 km

Maxar, Microsoft

Appendix D

LOS Descriptions

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	$\leq$10.0
B	> 10.0 and $\leq$20.0
C	> 20.0 and $\leq$ 35.0
D	> 35.0 and $\leq$ 55.0
E	> 55.0 and $\leq$ 80.0
F	>80.0

LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Table 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

Appendix E

Existing Conditions Synchro Worksheet

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	1618	379	913
v/c Ratio	0.67	0.86	0.20
Control Delay	12.1	37.3	0.1
Queue Delay	0.0	0.0	0.0
Total Delay	12.1	37.3	0.1
Queue Length 50th (ft)	139	82	0
Queue Length 95th (ft)	186	#240	0
Internal Link Dist (ft)	451		351
Turn Bay Length (ft)		185	
Base Capacity (vph)	2411	481	4679
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.67	0.79	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1551	67	379	913	0	0
Future Volume (vph)	1551	67	379	913	0	0
Ideal Flow (vphpl)	1750	1750	1650	1775	1900	1900
Grade (%)	-3%			3%	0%	
Total Lost time (s)	7.5		7.5	7.5		
Lane Util. Factor	0.91		1.00	0.91		
Frpb, ped/bikes	1.00		1.00	1.00		
Flpb, ped/bikes	1.00		1.00	1.00		
Frt	0.99		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4706		1513	4679		
Flt Permitted	1.00		0.11	1.00		
Satd. Flow (perm)	4706		179	4679		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1551	67	379	913	0	0
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	1610	0	379	913	0	0
Confl. Peds. (#/hr)		64	64		2	
Confl. Bikes (#/hr)		2				
Turn Type	NA		pm+pt	NA		
Protected Phases	2		1	6		
Permitted Phases			6			
Actuated Green, G (s)	28.1		47.5	55.0		
Effective Green, g (s)	28.1		47.5	55.0		
Actuated g/C Ratio	0.51		0.86	1.00		
Clearance Time (s)	7.5		7.5	7.5		
Vehicle Extension (s)	0.2		2.0	0.2		
Lane Grp Cap (vph)	2404		443	4679		
v/s Ratio Prot	0.34		c0.18	0.20		
v/s Ratio Perm			c0.55			
v/c Ratio	0.67		0.86	0.20		
Uniform Delay, d1	10.0		13.3	0.0		
Progression Factor	1.00		1.65	1.00		
Incremental Delay, d2	1.5		13.9	0.1		
Delay (s)	11.5		35.8	0.1		
Level of Service	B		D	A		
Approach Delay (s)	11.5			10.6	0.0	
Approach LOS	B			B	A	

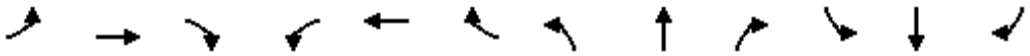
Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1545	1253	42	192
v/c Ratio	0.40	0.33	0.18	0.16
Control Delay	4.6	6.5	20.0	2.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.6	6.5	20.0	2.1
Queue Length 50th (ft)	0	4	13	0
Queue Length 95th (ft)	100	265	27	30
Internal Link Dist (ft)	351	246	341	
Turn Bay Length (ft)			275	
Base Capacity (vph)	3841	3818	513	1217
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.33	0.08	0.16

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1545	0	0	1253	42	192
Future Volume (vph)	1545	0	0	1253	42	192
Ideal Flow (vphpl)	1775	1775	1775	1775	1700	1700
Lane Width	12	12	12	12	12	14
Grade (%)	-3%			0%	-4%	
Total Lost time (s)	6.0			5.0	8.5	6.0
Lane Util. Factor	0.91			0.91	1.00	0.95
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4764			4694	1615	1464
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4764			4694	1615	1464
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1545	0	0	1253	42	192
RTOR Reduction (vph)	0	0	0	0	0	68
Lane Group Flow (vph)	1545	0	0	1253	42	124
Confl. Peds. (#/hr)		56	56		2	
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	9	0	9	9	0	0
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases						2
Actuated Green, G (s)	35.6			36.6	4.9	35.6
Effective Green, g (s)	35.6			36.6	4.9	35.6
Actuated g/C Ratio	0.65			0.67	0.09	0.65
Clearance Time (s)	6.0			5.0	8.5	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	3083			3123	143	947
v/s Ratio Prot	c0.32			0.27	c0.03	
v/s Ratio Perm						0.08
v/c Ratio	0.50			0.40	0.29	0.13
Uniform Delay, d1	5.1			4.2	23.4	3.7
Progression Factor	0.80			1.48	1.00	1.00
Incremental Delay, d2	0.4			0.4	0.4	0.3
Delay (s)	4.5			6.6	23.8	4.0
Level of Service	A			A	C	A
Approach Delay (s)	4.5			6.6	7.6	
Approach LOS	A			A	A	

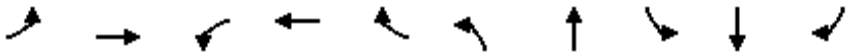
Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	1670	0	0	1180	44	0	0	1	6	0	62
Future Volume (Veh/h)	59	1670	0	0	1180	44	0	0	1	6	0	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	59	1670	0	0	1180	44	0	0	1	6	0	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		326			265							
pX, platoon unblocked	0.90			0.84			0.90	0.90	0.84	0.90	0.90	0.90
vC, conflicting volume	1224			1670			2243	3012	557	1878	2990	415
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	850			1150			1209	2067	0	801	2043	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			100	100	100	97	100	94
cM capacity (veh/h)	704			510			109	44	916	231	46	973

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	59	668	668	334	295	590	339	1	68
Volume Left	59	0	0	0	0	0	0	0	6
Volume Right	0	0	0	0	0	0	44	1	62
cSH	704	1700	1700	1700	510	1700	1700	916	758
Volume to Capacity	0.08	0.39	0.39	0.20	0.00	0.35	0.20	0.00	0.09
Queue Length 95th (ft)	7	0	0	0	0	0	0	0	7
Control Delay (s)	10.6	0.0	0.0	0.0	0.0	0.0	0.0	8.9	10.2
Lane LOS	B							A	B
Approach Delay (s)	0.4				0.0			8.9	10.2
Approach LOS								A	B

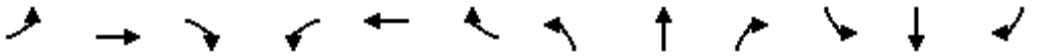
Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	65.3%	ICU Level of Service		C
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	448	1238	53	700	177	105	359	158	133	418
v/c Ratio	0.91	0.43	0.41	0.40	0.27	0.40	0.51	0.86	0.33	0.66
Control Delay	47.9	13.8	42.5	27.7	5.7	36.8	37.1	75.2	33.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	13.8	42.5	27.7	5.7	36.8	37.1	75.2	33.8	8.1
Queue Length 50th (ft)	217	170	28	132	0	62	114	106	76	0
Queue Length 95th (ft)	#399	198	#91	195	52	100	140	170	115	73
Internal Link Dist (ft)		185		533			445		1180	
Turn Bay Length (ft)	500		250		165	100		135		
Base Capacity (vph)	490	2902	130	1748	650	367	981	259	572	727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.43	0.41	0.40	0.27	0.29	0.37	0.61	0.23	0.57

Intersection Summary

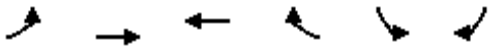
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	448	1191	47	53	700	177	105	204	155	158	133	418
Future Volume (vph)	448	1191	47	53	700	177	105	204	155	158	133	418
Ideal Flow (vphpl)	1650	1700	1750	1650	1700	1750	1650	1750	1750	1650	1750	1700
Lane Width	12	13	12	13	12	13	12	12	13	11	11	11
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		0.98	1.00	1.00	0.98	1.00		0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1533	4594		1539	4641	1433	1502	2841		1476	1658	1313
Flt Permitted	0.28	1.00		0.21	1.00	1.00	0.67	1.00		0.48	1.00	1.00
Satd. Flow (perm)	455	4594		347	4641	1433	1063	2841		751	1658	1313
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	448	1191	47	53	700	177	105	204	155	158	133	418
RTOR Reduction (vph)	0	3	0	0	0	110	0	0	0	0	0	315
Lane Group Flow (vph)	448	1235	0	53	700	67	105	359	0	158	133	103
Confl. Peds. (#/hr)	32		73	73		32	31		12	12		31
Confl. Bikes (#/hr)			1			1						3
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	2	0	0	0	0
Parking (#/hr)								0	0			
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	69.4	69.4		41.4	41.4	41.4	27.1	27.1		27.1	27.1	27.1
Effective Green, g (s)	69.4	69.4		41.4	41.4	41.4	27.1	27.1		27.1	27.1	27.1
Actuated g/C Ratio	0.63	0.63		0.38	0.38	0.38	0.25	0.25		0.25	0.25	0.25
Clearance Time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	492	2898		130	1746	539	261	699		185	408	323
v/s Ratio Prot	c0.17	0.27			0.15			0.13			0.08	
v/s Ratio Perm	c0.40			0.15		0.05	0.10			c0.21		0.08
v/c Ratio	0.91	0.43		0.41	0.40	0.12	0.40	0.51		0.85	0.33	0.32
Uniform Delay, d1	13.1	10.2		25.3	25.2	22.4	34.7	35.8		39.6	34.0	33.9
Progression Factor	1.77	1.17		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.1	0.4		9.2	0.7	0.5	1.0	0.6		29.8	0.5	0.6
Delay (s)	43.2	12.4		34.5	25.9	22.9	35.7	36.4		69.3	34.4	34.5
Level of Service	D	B		C	C	C	D	D		E	C	C
Approach Delay (s)		20.6			25.8			36.2			42.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	104.2%	ICU Level of Service	G

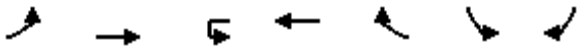
Analysis Period (min)	15
c Critical Lane Group	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	463	232	0	0	2
Future Volume (Veh/h)	0	463	232	0	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	463	232	0	0	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			671			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	232				695	232
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172				657	172
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1341				410	832

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	463	232	2
Volume Left	0	0	0
Volume Right	0	0	2
cSH	1341	1700	832
Volume to Capacity	0.00	0.14	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	9.3
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	2	456	1	227	6	4	4
Future Volume (Veh/h)	2	456	1	227	6	4	4
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	456	0	227	6	4	4
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				525			
pX, platoon unblocked	0.95		0.00			0.95	0.95
vC, conflicting volume	233		0			690	230
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	162		0			645	159
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			99	100
cM capacity (veh/h)	1342		0			413	839

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	458	233	8
Volume Left	2	0	4
Volume Right	0	6	4
cSH	1342	1700	554
Volume to Capacity	0.00	0.14	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	0.0	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	1016	243	1276
v/c Ratio	0.29	0.53	0.36
Control Delay	4.4	5.9	4.9
Queue Delay	0.0	0.0	0.3
Total Delay	4.4	5.9	5.1
Queue Length 50th (ft)	54	3	74
Queue Length 95th (ft)	105	5	141
Internal Link Dist (ft)	451		351
Turn Bay Length (ft)		185	
Base Capacity (vph)	3558	753	3537
Starvation Cap Reductn	0	0	1393
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.29	0.32	0.60

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	980	36	243	1276	0	0
Future Volume (vph)	980	36	243	1276	0	0
Ideal Flow (vphpl)	1750	1750	1650	1775	1900	1900
Grade (%)	-3%			3%	0%	
Total Lost time (s)	7.5		7.5	7.5		
Lane Util. Factor	0.91		1.00	0.91		
Frpb, ped/bikes	0.99		1.00	1.00		
Flpb, ped/bikes	1.00		0.99	1.00		
Frt	0.99		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4702		1502	4679		
Flt Permitted	1.00		0.27	1.00		
Satd. Flow (perm)	4702		427	4679		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	980	36	243	1276	0	0
RTOR Reduction (vph)	2	0	0	0	0	0
Lane Group Flow (vph)	1014	0	243	1276	0	0
Confl. Peds. (#/hr)		64	64		2	
Confl. Bikes (#/hr)		2				
Turn Type	NA		pm+pt	NA		
Protected Phases	2		1	6		
Permitted Phases			6			
Actuated Green, G (s)	75.6		85.0	75.6		
Effective Green, g (s)	75.6		85.0	75.6		
Actuated g/C Ratio	0.76		0.85	0.76		
Clearance Time (s)	7.5		7.5	7.5		
Vehicle Extension (s)	0.2		2.0	0.2		
Lane Grp Cap (vph)	3554		464	3537		
v/s Ratio Prot	0.22		c0.05	0.27		
v/s Ratio Perm			c0.40			
v/c Ratio	0.29		0.52	0.36		
Uniform Delay, d1	3.8		1.3	4.1		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	0.2		0.5	0.3		
Delay (s)	4.0		1.8	4.4		
Level of Service	A		A	A		
Approach Delay (s)	4.0			4.0	0.0	
Approach LOS	A			A	A	

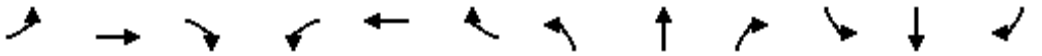
Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	983	1492	27	411
v/c Ratio	0.25	0.38	0.16	0.32
Control Delay	4.9	4.0	39.4	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.9	4.0	39.4	1.7
Queue Length 50th (ft)	46	48	18	0
Queue Length 95th (ft)	161	167	33	45
Internal Link Dist (ft)	351	246	341	
Turn Bay Length (ft)			275	
Base Capacity (vph)	3948	3917	546	1283
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.38	0.05	0.32

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	983	0	0	1492	27	411
Future Volume (vph)	983	0	0	1492	27	411
Ideal Flow (vphpl)	1775	1775	1775	1775	1700	1700
Lane Width	12	12	12	12	12	14
Grade (%)	-3%			0%	-4%	
Total Lost time (s)	6.0			5.0	8.5	6.0
Lane Util. Factor	0.91			0.91	1.00	0.95
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4764			4694	1615	1464
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4764			4694	1615	1464
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	983	0	0	1492	27	411
RTOR Reduction (vph)	0	0	0	0	0	93
Lane Group Flow (vph)	983	0	0	1492	27	318
Confl. Peds. (#/hr)		56	56		2	
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	9	0	9	9	0	0
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases						2
Actuated Green, G (s)	81.2			82.2	9.3	81.2
Effective Green, g (s)	81.2			82.2	9.3	81.2
Actuated g/C Ratio	0.77			0.78	0.09	0.77
Clearance Time (s)	6.0			5.0	8.5	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	3684			3674	143	1132
v/s Ratio Prot	0.21			c0.32	c0.02	
v/s Ratio Perm						0.22
v/c Ratio	0.27			0.41	0.19	0.28
Uniform Delay, d1	3.4			3.6	44.4	3.4
Progression Factor	1.00			0.73	1.00	1.00
Incremental Delay, d2	0.2			0.3	0.2	0.6
Delay (s)	3.6			3.0	44.6	4.1
Level of Service	A			A	D	A
Approach Delay (s)	3.6			3.0	6.6	
Approach LOS	A			A	A	

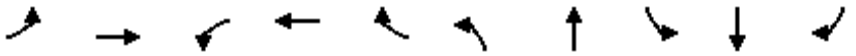
Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1327	5	0	1384	54	0	0	2	8	0	62
Future Volume (Veh/h)	41	1327	5	0	1384	54	0	0	2	8	0	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	1327	5	0	1384	54	0	0	2	8	0	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		326			265							
pX, platoon unblocked	0.86			0.95			0.88	0.88	0.95	0.88	0.88	0.86
vC, conflicting volume	1438			1332			1935	2850	445	1937	2825	488
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	945			1183			1254	2289	254	1257	2261	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			100	100	100	93	100	93
cM capacity (veh/h)	622			560			101	32	712	107	33	934

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	41	531	531	270	346	692	400	2	70
Volume Left	41	0	0	0	0	0	0	0	8
Volume Right	0	0	0	5	0	0	54	2	62
cSH	622	1700	1700	1700	560	1700	1700	712	496
Volume to Capacity	0.07	0.31	0.31	0.16	0.00	0.41	0.24	0.00	0.14
Queue Length 95th (ft)	5	0	0	0	0	0	0	0	12
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	0.0	0.0	10.1	13.5
Lane LOS	B							B	B
Approach Delay (s)	0.3				0.0			10.1	13.5
Approach LOS								B	B

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	51.7%	ICU Level of Service		A
Analysis Period (min)	15			

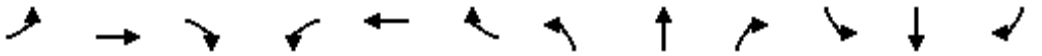


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	486	848	90	938	209	90	306	172	217	416
v/c Ratio	1.34	0.30	0.42	0.48	0.29	0.42	0.42	0.79	0.52	0.71
Control Delay	189.1	7.8	33.6	25.1	4.8	36.3	33.2	59.8	36.3	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	189.1	7.8	33.6	25.1	4.8	36.3	33.2	59.8	36.3	13.7
Queue Length 50th (ft)	~314	88	42	165	0	51	90	108	125	42
Queue Length 95th (ft)	#529	54	#117	246	52	85	111	165	170	132
Internal Link Dist (ft)		185		533			445		1180	
Turn Bay Length (ft)	500		250		165	100		135		
Base Capacity (vph)	364	2804	213	1935	720	307	1047	309	600	691
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.30	0.42	0.48	0.29	0.29	0.29	0.56	0.36	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

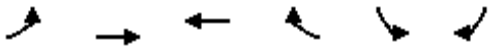
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	486	775	73	90	938	209	90	211	95	172	217	416
Future Volume (vph)	486	775	73	90	938	209	90	211	95	172	217	416
Ideal Flow (vphpl)	1650	1700	1750	1650	1700	1750	1650	1750	1750	1650	1750	1700
Lane Width	12	13	12	13	12	13	12	12	13	11	11	11
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		0.96	1.00	1.00	0.98	1.00		0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1535	4532		1517	4641	1435	1509	2895		1476	1658	1315
Flt Permitted	0.21	1.00		0.32	1.00	1.00	0.54	1.00		0.55	1.00	1.00
Satd. Flow (perm)	334	4532		513	4641	1435	850	2895		856	1658	1315
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	486	775	73	90	938	209	90	211	95	172	217	416
RTOR Reduction (vph)	0	8	0	0	0	122	0	0	0	0	0	251
Lane Group Flow (vph)	486	840	0	90	938	87	90	306	0	172	217	165
Confl. Peds. (#/hr)	32		73	73		32	31		12	12		31
Confl. Bikes (#/hr)			1			1						3
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	3	0	0	0	0
Parking (#/hr)								0	0			
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	64.8	64.8		43.8	43.8	43.8	26.7	26.7		26.7	26.7	26.7
Effective Green, g (s)	64.8	64.8		43.8	43.8	43.8	26.7	26.7		26.7	26.7	26.7
Actuated g/C Ratio	0.62	0.62		0.42	0.42	0.42	0.25	0.25		0.25	0.25	0.25
Clearance Time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	366	2796		213	1935	598	216	736		217	421	334
v/s Ratio Prot	c0.18	0.19			0.20			0.11			0.13	
v/s Ratio Perm	c0.64			0.18		0.06	0.11			c0.20		0.13
v/c Ratio	1.33	0.30		0.42	0.48	0.15	0.42	0.42		0.79	0.52	0.49
Uniform Delay, d1	16.8	9.4		21.7	22.4	19.0	32.7	32.6		36.6	33.6	33.4
Progression Factor	1.18	0.72		1.00	1.00	1.00	1.01	1.01		1.00	1.00	1.00
Incremental Delay, d2	165.0	0.3		6.0	0.9	0.5	1.3	0.4		17.7	1.1	1.1
Delay (s)	184.7	7.1		27.7	23.2	19.5	34.3	33.4		54.3	34.7	34.5
Level of Service	F	A		C	C	B	C	C		D	C	C
Approach Delay (s)		71.8			22.9			33.6			38.8	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	107.5%	ICU Level of Service	G

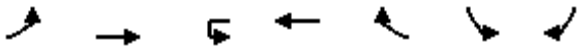
Analysis Period (min)	15
c Critical Lane Group	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	378	383	0	0	4
Future Volume (Veh/h)	0	378	383	0	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	378	383	0	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			671			
pX, platoon unblocked	0.91				0.91	0.91
vC, conflicting volume	383				761	383
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	275				690	275
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1174				375	696

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	378	383	4
Volume Left	0	0	0
Volume Right	0	0	4
cSH	1174	1700	696
Volume to Capacity	0.00	0.23	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	10.2
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.2
Approach LOS			B

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		30.2%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	9	370	8	373	7	16	10
Future Volume (Veh/h)	9	370	8	373	7	16	10
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	9	370	0	373	7	16	10
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				525			
pX, platoon unblocked	0.90		0.00			0.90	0.90
vC, conflicting volume	380		0			764	376
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	257		0			684	254
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	99		0			96	99
cM capacity (veh/h)	1178		0			371	708

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	379	380	26
Volume Left	9	0	16
Volume Right	0	7	10
cSH	1178	1700	454
Volume to Capacity	0.01	0.22	0.06
Queue Length 95th (ft)	1	0	5
Control Delay (s)	0.3	0.0	13.4
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	13.4
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix F

2028 Future Conditions without Development Synchro Worksheet

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	1650	385	625
v/c Ratio	0.69	0.86	0.13
Control Delay	12.4	37.9	0.1
Queue Delay	0.0	0.0	0.0
Total Delay	12.4	37.9	0.1
Queue Length 50th (ft)	143	94	0
Queue Length 95th (ft)	192	#242	0
Internal Link Dist (ft)	451		351
Turn Bay Length (ft)		185	
Base Capacity (vph)	2400	482	4679
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.69	0.80	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1582	68	385	625	0	0
Future Volume (vph)	1582	68	385	625	0	0
Ideal Flow (vphpl)	1750	1750	1650	1775	1900	1900
Grade (%)	-3%			3%	0%	
Total Lost time (s)	7.5		7.5	7.5		
Lane Util. Factor	0.91		1.00	0.91		
Frpb, ped/bikes	1.00		1.00	1.00		
Flpb, ped/bikes	1.00		1.00	1.00		
Frt	0.99		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4706		1513	4679		
Flt Permitted	1.00		0.11	1.00		
Satd. Flow (perm)	4706		179	4679		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1582	68	385	625	0	0
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	1642	0	385	625	0	0
Confl. Peds. (#/hr)		64	64		2	
Confl. Bikes (#/hr)		2				
Turn Type	NA		pm+pt	NA		
Protected Phases	2		1	6		
Permitted Phases			6			
Actuated Green, G (s)	28.0		47.5	55.0		
Effective Green, g (s)	28.0		47.5	55.0		
Actuated g/C Ratio	0.51		0.86	1.00		
Clearance Time (s)	7.5		7.5	7.5		
Vehicle Extension (s)	0.2		2.0	0.2		
Lane Grp Cap (vph)	2395		445	4679		
v/s Ratio Prot	0.35		c0.19	0.13		
v/s Ratio Perm			c0.56			
v/c Ratio	0.69		0.87	0.13		
Uniform Delay, d1	10.2		13.4	0.0		
Progression Factor	1.00		1.65	1.00		
Incremental Delay, d2	1.6		15.0	0.1		
Delay (s)	11.8		37.2	0.1		
Level of Service	B		D	A		
Approach Delay (s)	11.8			14.2	0.0	
Approach LOS	B			B	A	

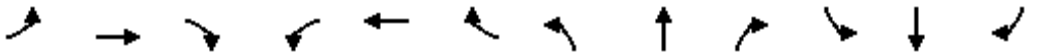
Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1576	1278	43	196
v/c Ratio	0.41	0.33	0.18	0.16
Control Delay	4.8	6.5	20.0	2.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.8	6.5	20.0	2.1
Queue Length 50th (ft)	0	5	13	0
Queue Length 95th (ft)	104	271	28	31
Internal Link Dist (ft)	351	246	341	
Turn Bay Length (ft)			275	
Base Capacity (vph)	3841	3818	513	1218
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.33	0.08	0.16

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1576	0	0	1278	43	196
Future Volume (vph)	1576	0	0	1278	43	196
Ideal Flow (vphpl)	1775	1775	1775	1775	1700	1700
Lane Width	12	12	12	12	12	14
Grade (%)	-3%			0%	-4%	
Total Lost time (s)	6.0			5.0	8.5	6.0
Lane Util. Factor	0.91			0.91	1.00	0.95
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4764			4694	1615	1464
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4764			4694	1615	1464
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1576	0	0	1278	43	196
RTOR Reduction (vph)	0	0	0	0	0	69
Lane Group Flow (vph)	1576	0	0	1278	43	127
Confl. Peds. (#/hr)		56	56		2	
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	9	0	9	9	0	0
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases						2
Actuated Green, G (s)	35.6			36.6	4.9	35.6
Effective Green, g (s)	35.6			36.6	4.9	35.6
Actuated g/C Ratio	0.65			0.67	0.09	0.65
Clearance Time (s)	6.0			5.0	8.5	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	3083			3123	143	947
v/s Ratio Prot	c0.33			0.27	c0.03	
v/s Ratio Perm						0.09
v/c Ratio	0.51			0.41	0.30	0.13
Uniform Delay, d1	5.1			4.2	23.4	3.7
Progression Factor	0.83			1.48	1.00	1.00
Incremental Delay, d2	0.4			0.4	0.4	0.3
Delay (s)	4.7			6.6	23.9	4.0
Level of Service	A			A	C	A
Approach Delay (s)	4.7			6.6	7.6	
Approach LOS	A			A	A	

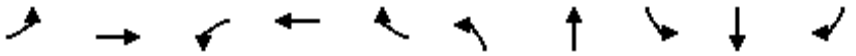
Intersection Summary			
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	1704	0	0	1204	44	0	0	1	6	0	62
Future Volume (Veh/h)	59	1704	0	0	1204	44	0	0	1	6	0	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	59	1704	0	0	1204	44	0	0	1	6	0	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		326			265							
pX, platoon unblocked	0.89			0.84			0.89	0.89	0.84	0.89	0.89	0.89
vC, conflicting volume	1248			1704			2285	3070	568	1913	3048	423
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	862			1169			1216	2095	0	799	2071	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			100	100	100	97	100	94
cM capacity (veh/h)	693			498			107	42	910	230	44	969

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	59	682	682	341	301	602	345	1	68
Volume Left	59	0	0	0	0	0	0	0	6
Volume Right	0	0	0	0	0	0	44	1	62
cSH	693	1700	1700	1700	498	1700	1700	910	756
Volume to Capacity	0.09	0.40	0.40	0.20	0.00	0.35	0.20	0.00	0.09
Queue Length 95th (ft)	7	0	0	0	0	0	0	0	7
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	0.0	0.0	9.0	10.2
Lane LOS	B							A	B
Approach Delay (s)	0.4				0.0			9.0	10.2
Approach LOS								A	B

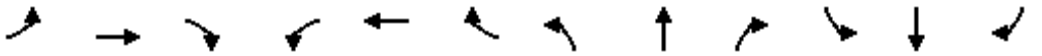
Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	65.3%	ICU Level of Service		C
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	457	1263	54	714	181	107	366	161	136	426
v/c Ratio	0.95	0.44	0.43	0.41	0.28	0.40	0.51	0.87	0.33	0.66
Control Delay	54.7	14.2	44.8	28.3	5.7	36.4	36.7	76.0	33.5	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	14.2	44.8	28.3	5.7	36.4	36.7	76.0	33.5	8.0
Queue Length 50th (ft)	228	174	29	137	0	62	115	108	78	0
Queue Length 95th (ft)	#421	202	#95	200	53	102	143	175	117	74
Internal Link Dist (ft)		185		533			445		1180	
Turn Bay Length (ft)	500		250		165	100		135		
Base Capacity (vph)	482	2878	125	1723	646	366	981	256	572	732
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.44	0.43	0.41	0.28	0.29	0.37	0.63	0.24	0.58

Intersection Summary

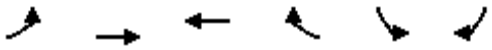
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	457	1215	48	54	714	181	107	208	158	161	136	426
Future Volume (vph)	457	1215	48	54	714	181	107	208	158	161	136	426
Ideal Flow (vphpl)	1650	1700	1750	1650	1700	1750	1650	1750	1750	1650	1750	1700
Lane Width	12	13	12	13	12	13	12	12	13	11	11	11
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		0.98	1.00	1.00	0.98	1.00		0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1533	4594		1540	4641	1433	1503	2841		1477	1658	1313
Flt Permitted	0.27	1.00		0.21	1.00	1.00	0.67	1.00		0.48	1.00	1.00
Satd. Flow (perm)	443	4594		338	4641	1433	1060	2841		743	1658	1313
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	457	1215	48	54	714	181	107	208	158	161	136	426
RTOR Reduction (vph)	0	3	0	0	0	114	0	0	0	0	0	319
Lane Group Flow (vph)	457	1260	0	54	714	67	107	366	0	161	136	107
Confl. Peds. (#/hr)	32		73	73		32	31		12	12		31
Confl. Bikes (#/hr)			1			1						3
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	2	0	0	0	0
Parking (#/hr)								0	0			
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	68.9	68.9		40.9	40.9	40.9	27.6	27.6		27.6	27.6	27.6
Effective Green, g (s)	68.9	68.9		40.9	40.9	40.9	27.6	27.6		27.6	27.6	27.6
Actuated g/C Ratio	0.63	0.63		0.37	0.37	0.37	0.25	0.25		0.25	0.25	0.25
Clearance Time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	485	2877		125	1725	532	265	712		186	416	329
v/s Ratio Prot	c0.18	0.27			0.15			0.13			0.08	
v/s Ratio Perm	c0.41			0.16		0.05	0.10			c0.22		0.08
v/c Ratio	0.94	0.44		0.43	0.41	0.13	0.40	0.51		0.87	0.33	0.32
Uniform Delay, d1	14.6	10.6		25.9	25.7	22.8	34.3	35.4		39.4	33.6	33.6
Progression Factor	1.75	1.16		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	25.9	0.5		10.5	0.7	0.5	1.0	0.6		31.7	0.5	0.6
Delay (s)	51.5	12.8		36.4	26.4	23.3	35.3	36.1		71.1	34.1	34.2
Level of Service	D	B		D	C	C	D	D		E	C	C
Approach Delay (s)		23.0			26.4			35.9			42.4	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	105.0%	ICU Level of Service	G

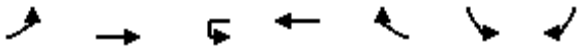
Analysis Period (min)	15
c Critical Lane Group	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	472	237	0	0	2
Future Volume (Veh/h)	0	472	237	0	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	472	237	0	0	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			671			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	237				709	237
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176				670	176
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1336				402	827

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	472	237	2
Volume Left	0	0	0
Volume Right	0	0	2
cSH	1336	1700	827
Volume to Capacity	0.00	0.14	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	9.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		34.8%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	2	465	1	232	6	4	4
Future Volume (Veh/h)	2	465	1	232	6	4	4
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	465	0	232	6	4	4
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				525			
pX, platoon unblocked	0.95		0.00			0.95	0.95
vC, conflicting volume	238		0			704	235
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	165		0			658	162
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	100		0			99	100
cM capacity (veh/h)	1336		0			405	835

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	467	238	8
Volume Left	2	0	4
Volume Right	0	6	4
cSH	1336	1700	545
Volume to Capacity	0.00	0.14	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	11.7
Lane LOS	A		B
Approach Delay (s)	0.0	0.0	11.7
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	1037	245	1302
v/c Ratio	0.29	0.54	0.37
Control Delay	4.6	6.2	5.1
Queue Delay	0.0	0.0	0.3
Total Delay	4.6	6.2	5.4
Queue Length 50th (ft)	57	3	79
Queue Length 95th (ft)	110	5	147
Internal Link Dist (ft)	451		351
Turn Bay Length (ft)		185	
Base Capacity (vph)	3542	747	3521
Starvation Cap Reductn	0	0	1363
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.29	0.33	0.60

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1000	37	245	1302	0	0
Future Volume (vph)	1000	37	245	1302	0	0
Ideal Flow (vphpl)	1750	1750	1650	1775	1900	1900
Grade (%)	-3%			3%	0%	
Total Lost time (s)	7.5		7.5	7.5		
Lane Util. Factor	0.91		1.00	0.91		
Frpb, ped/bikes	0.99		1.00	1.00		
Flpb, ped/bikes	1.00		0.99	1.00		
Frt	0.99		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4702		1502	4679		
Flt Permitted	1.00		0.26	1.00		
Satd. Flow (perm)	4702		417	4679		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1000	37	245	1302	0	0
RTOR Reduction (vph)	2	0	0	0	0	0
Lane Group Flow (vph)	1035	0	245	1302	0	0
Confl. Peds. (#/hr)		64	64		2	
Confl. Bikes (#/hr)		2				
Turn Type	NA		pm+pt	NA		
Protected Phases	2		1	6		
Permitted Phases			6			
Actuated Green, G (s)	75.3		85.0	75.3		
Effective Green, g (s)	75.3		85.0	75.3		
Actuated g/C Ratio	0.75		0.85	0.75		
Clearance Time (s)	7.5		7.5	7.5		
Vehicle Extension (s)	0.2		2.0	0.2		
Lane Grp Cap (vph)	3540		459	3523		
v/s Ratio Prot	0.22		c0.05	0.28		
v/s Ratio Perm			c0.40			
v/c Ratio	0.29		0.53	0.37		
Uniform Delay, d1	3.9		1.3	4.2		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	0.2		0.6	0.3		
Delay (s)	4.1		1.9	4.5		
Level of Service	A		A	A		
Approach Delay (s)	4.1			4.1	0.0	
Approach LOS	A			A	A	

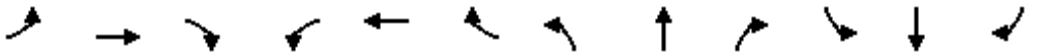
Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1003	1522	28	419
v/c Ratio	0.25	0.39	0.16	0.33
Control Delay	4.9	4.2	39.5	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.9	4.2	39.5	1.7
Queue Length 50th (ft)	47	49	18	0
Queue Length 95th (ft)	165	175	34	45
Internal Link Dist (ft)	351	246	341	
Turn Bay Length (ft)			275	
Base Capacity (vph)	3947	3916	546	1285
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.39	0.05	0.33

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1003	0	0	1522	28	419
Future Volume (vph)	1003	0	0	1522	28	419
Ideal Flow (vphpl)	1775	1775	1775	1775	1700	1700
Lane Width	12	12	12	12	12	14
Grade (%)	-3%			0%	-4%	
Total Lost time (s)	6.0			5.0	8.5	6.0
Lane Util. Factor	0.91			0.91	1.00	0.95
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4764			4694	1615	1464
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4764			4694	1615	1464
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1003	0	0	1522	28	419
RTOR Reduction (vph)	0	0	0	0	0	95
Lane Group Flow (vph)	1003	0	0	1522	28	324
Confl. Peds. (#/hr)		56	56		2	
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	9	0	9	9	0	0
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases						2
Actuated Green, G (s)	81.2			82.2	9.3	81.2
Effective Green, g (s)	81.2			82.2	9.3	81.2
Actuated g/C Ratio	0.77			0.78	0.09	0.77
Clearance Time (s)	6.0			5.0	8.5	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	3684			3674	143	1132
v/s Ratio Prot	0.21			c0.32	c0.02	
v/s Ratio Perm						0.22
v/c Ratio	0.27			0.41	0.20	0.29
Uniform Delay, d1	3.4			3.7	44.4	3.5
Progression Factor	1.00			0.75	1.00	1.00
Incremental Delay, d2	0.2			0.3	0.2	0.6
Delay (s)	3.6			3.1	44.6	4.1
Level of Service	A			A	D	A
Approach Delay (s)	3.6			3.1	6.6	
Approach LOS	A			A	A	

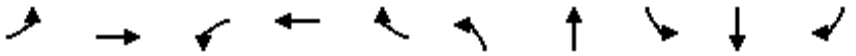
Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1354	5	0	1412	54	0	0	2	8	0	62
Future Volume (Veh/h)	41	1354	5	0	1412	54	0	0	2	8	0	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	1354	5	0	1412	54	0	0	2	8	0	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		326			265							
pX, platoon unblocked	0.86			0.95			0.88	0.88	0.95	0.88	0.88	0.86
vC, conflicting volume	1466			1359			1971	2904	454	1974	2880	498
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	959			1205			1268	2329	255	1272	2301	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			100	100	100	92	100	93
cM capacity (veh/h)	611			548			98	30	709	104	31	929

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	41	542	542	276	353	706	407	2	70
Volume Left	41	0	0	0	0	0	0	0	8
Volume Right	0	0	0	5	0	0	54	2	62
cSH	611	1700	1700	1700	548	1700	1700	709	487
Volume to Capacity	0.07	0.32	0.32	0.16	0.00	0.42	0.24	0.00	0.14
Queue Length 95th (ft)	5	0	0	0	0	0	0	0	12
Control Delay (s)	11.3	0.0	0.0	0.0	0.0	0.0	0.0	10.1	13.6
Lane LOS	B							B	B
Approach Delay (s)	0.3				0.0			10.1	13.6
Approach LOS								B	B

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	51.7%	ICU Level of Service		A
Analysis Period (min)	15			

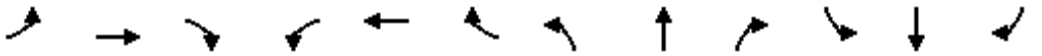


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	496	865	92	957	213	92	312	175	221	424
v/c Ratio	1.39	0.31	0.44	0.50	0.30	0.43	0.42	0.80	0.52	0.72
Control Delay	211.6	8.0	34.8	25.5	4.8	36.4	33.0	61.2	36.1	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	211.6	8.0	34.8	25.5	4.8	36.4	33.0	61.2	36.1	14.4
Queue Length 50th (ft)	~340	92	44	171	0	52	92	110	127	46
Queue Length 95th (ft)	#552	55	#123	252	53	87	113	170	173	140
Internal Link Dist (ft)		185		533			445		1180	
Turn Bay Length (ft)	500		250		165	100		135		
Base Capacity (vph)	357	2790	209	1921	718	304	1047	306	600	691
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.39	0.31	0.44	0.50	0.30	0.30	0.30	0.57	0.37	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

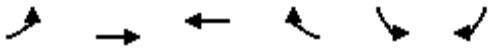
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	496	791	74	92	957	213	92	215	97	175	221	424
Future Volume (vph)	496	791	74	92	957	213	92	215	97	175	221	424
Ideal Flow (vphpl)	1650	1700	1750	1650	1700	1750	1650	1750	1750	1650	1750	1700
Lane Width	12	13	12	13	12	13	12	12	13	11	11	11
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		0.97	1.00	1.00	0.98	1.00		0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1535	4533		1519	4641	1435	1509	2895		1476	1658	1315
Flt Permitted	0.20	1.00		0.32	1.00	1.00	0.53	1.00		0.54	1.00	1.00
Satd. Flow (perm)	322	4533		504	4641	1435	842	2895		847	1658	1315
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	496	791	74	92	957	213	92	215	97	175	221	424
RTOR Reduction (vph)	0	8	0	0	0	125	0	0	0	0	0	250
Lane Group Flow (vph)	496	857	0	92	957	88	92	312	0	175	221	174
Confl. Peds. (#/hr)	32		73	73		32	31		12	12		31
Confl. Bikes (#/hr)			1			1						3
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	3	0	0	0	0
Parking (#/hr)								0	0			
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	64.5	64.5		43.5	43.5	43.5	27.0	27.0		27.0	27.0	27.0
Effective Green, g (s)	64.5	64.5		43.5	43.5	43.5	27.0	27.0		27.0	27.0	27.0
Actuated g/C Ratio	0.61	0.61		0.41	0.41	0.41	0.26	0.26		0.26	0.26	0.26
Clearance Time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	359	2784		208	1922	594	216	744		217	426	338
v/s Ratio Prot	c0.18	0.19			0.21			0.11			0.13	
v/s Ratio Perm	c0.66			0.18		0.06	0.11			c0.21		0.13
v/c Ratio	1.38	0.31		0.44	0.50	0.15	0.43	0.42		0.81	0.52	0.51
Uniform Delay, d1	17.4	9.6		22.1	22.7	19.2	32.5	32.5		36.6	33.4	33.4
Progression Factor	1.18	0.72		1.00	1.00	1.00	1.01	1.01		1.00	1.00	1.00
Incremental Delay, d2	187.9	0.3		6.7	0.9	0.5	1.4	0.4		19.2	1.1	1.3
Delay (s)	208.3	7.2		28.7	23.6	19.7	34.2	33.2		55.8	34.5	34.7
Level of Service	F	A		C	C	B	C	C		E	C	C
Approach Delay (s)		80.5			23.3			33.4			39.2	
Approach LOS		F			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	48.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	108.2%	ICU Level of Service	G

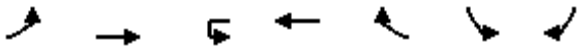
Analysis Period (min)	15
c Critical Lane Group	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	386	391	0	0	4
Future Volume (Veh/h)	0	386	391	0	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	386	391	0	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			671			
pX, platoon unblocked	0.91				0.91	0.91
vC, conflicting volume	391				777	391
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	281				705	281
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1166				366	689

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	386	391	4
Volume Left	0	0	0
Volume Right	0	0	4
cSH	1166	1700	689
Volume to Capacity	0.00	0.23	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	10.3
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.3
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	9	377	8	381	7	16	10
Future Volume (Veh/h)	9	377	8	381	7	16	10
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	9	377	0	381	7	16	10
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None		None			
Median storage veh)							
Upstream signal (ft)				525			
pX, platoon unblocked	0.90		0.00			0.90	0.90
vC, conflicting volume	388		0			780	384
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	263		0			699	260
tC, single (s)	4.1		0.0			6.4	6.2
tC, 2 stage (s)							
tF (s)	2.2		0.0			3.5	3.3
p0 queue free %	99		0			96	99
cM capacity (veh/h)	1170		0			362	701

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	386	388	26
Volume Left	9	0	16
Volume Right	0	7	10
cSH	1170	1700	445
Volume to Capacity	0.01	0.23	0.06
Queue Length 95th (ft)	1	0	5
Control Delay (s)	0.3	0.0	13.6
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	13.6
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix G

2028 Future Conditions with Development Synchro Worksheet

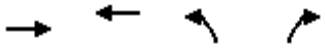
Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	1650	391	628
v/c Ratio	0.69	0.87	0.13
Control Delay	12.5	38.6	0.1
Queue Delay	0.0	0.0	0.0
Total Delay	12.5	38.6	0.1
Queue Length 50th (ft)	143	101	0
Queue Length 95th (ft)	192	#249	0
Internal Link Dist (ft)	451		351
Turn Bay Length (ft)		185	
Base Capacity (vph)	2388	482	4679
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.69	0.81	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1582	68	391	628	0	0
Future Volume (vph)	1582	68	391	628	0	0
Ideal Flow (vphpl)	1750	1750	1650	1775	1900	1900
Grade (%)	-3%			3%	0%	
Total Lost time (s)	7.5		7.5	7.5		
Lane Util. Factor	0.91		1.00	0.91		
Frpb, ped/bikes	1.00		1.00	1.00		
Flpb, ped/bikes	1.00		1.00	1.00		
Frt	0.99		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4706		1513	4679		
Flt Permitted	1.00		0.11	1.00		
Satd. Flow (perm)	4706		180	4679		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1582	68	391	628	0	0
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	1642	0	391	628	0	0
Confl. Peds. (#/hr)		64	64		2	
Confl. Bikes (#/hr)		2				
Turn Type	NA		pm+pt	NA		
Protected Phases	2		1	6		
Permitted Phases			6			
Actuated Green, G (s)	27.8		47.5	55.0		
Effective Green, g (s)	27.8		47.5	55.0		
Actuated g/C Ratio	0.51		0.86	1.00		
Clearance Time (s)	7.5		7.5	7.5		
Vehicle Extension (s)	0.2		2.0	0.2		
Lane Grp Cap (vph)	2378		451	4679		
v/s Ratio Prot	0.35		c0.19	0.13		
v/s Ratio Perm			c0.55			
v/c Ratio	0.69		0.87	0.13		
Uniform Delay, d1	10.3		13.5	0.0		
Progression Factor	1.00		1.64	1.00		
Incremental Delay, d2	1.7		15.0	0.1		
Delay (s)	12.0		37.0	0.1		
Level of Service	B		D	A		
Approach Delay (s)	12.0			14.2	0.0	
Approach LOS	B			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

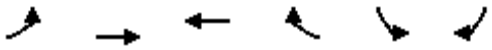


Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1576	1287	43	198
v/c Ratio	0.41	0.34	0.18	0.16
Control Delay	4.8	6.5	20.0	2.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.8	6.5	20.0	2.1
Queue Length 50th (ft)	0	5	13	0
Queue Length 95th (ft)	104	271	28	31
Internal Link Dist (ft)	351	246	341	
Turn Bay Length (ft)			275	
Base Capacity (vph)	3841	3818	513	1218
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.34	0.08	0.16

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1576	0	0	1287	43	198
Future Volume (vph)	1576	0	0	1287	43	198
Ideal Flow (vphpl)	1775	1775	1775	1775	1700	1700
Lane Width	12	12	12	12	12	14
Grade (%)	-3%			0%	-4%	
Total Lost time (s)	6.0			5.0	8.5	6.0
Lane Util. Factor	0.91			0.91	1.00	0.95
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4764			4694	1615	1464
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4764			4694	1615	1464
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1576	0	0	1287	43	198
RTOR Reduction (vph)	0	0	0	0	0	70
Lane Group Flow (vph)	1576	0	0	1287	43	128
Confl. Peds. (#/hr)		56	56		2	
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	9	0	9	9	0	0
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases						2
Actuated Green, G (s)	35.6			36.6	4.9	35.6
Effective Green, g (s)	35.6			36.6	4.9	35.6
Actuated g/C Ratio	0.65			0.67	0.09	0.65
Clearance Time (s)	6.0			5.0	8.5	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	3083			3123	143	947
v/s Ratio Prot	c0.33			0.27	c0.03	
v/s Ratio Perm						0.09
v/c Ratio	0.51			0.41	0.30	0.14
Uniform Delay, d1	5.1			4.2	23.4	3.7
Progression Factor	0.83			1.46	1.00	1.00
Incremental Delay, d2	0.4			0.4	0.4	0.3
Delay (s)	4.7			6.6	23.9	4.0
Level of Service	A			A	C	A
Approach Delay (s)	4.7			6.6	7.6	
Approach LOS	A			A	A	

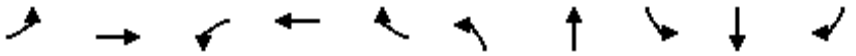
Intersection Summary			
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	1707	1213	44	6	62
Future Volume (Veh/h)	59	1707	1213	44	6	62
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	59	1707	1213	44	6	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		326	265			
pX, platoon unblocked	0.89				0.89	0.89
vC, conflicting volume	1257				1922	426
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	870				806	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				98	94
cM capacity (veh/h)	688				261	969

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1
Volume Total	59	569	569	569	485	485	287	68
Volume Left	59	0	0	0	0	0	0	6
Volume Right	0	0	0	0	0	0	44	62
cSH	688	1700	1700	1700	1700	1700	1700	782
Volume to Capacity	0.09	0.33	0.33	0.33	0.29	0.29	0.17	0.09
Queue Length 95th (ft)	7	0	0	0	0	0	0	7
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	0.0	0.0	10.0
Lane LOS	B							B
Approach Delay (s)	0.4				0.0			10.0
Approach LOS								B

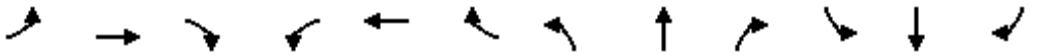
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	457	1266	56	714	181	117	377	161	139	426
v/c Ratio	0.95	0.44	0.45	0.42	0.28	0.44	0.52	0.88	0.33	0.65
Control Delay	55.7	14.4	46.1	28.5	5.7	37.3	36.7	77.9	33.4	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	14.4	46.1	28.5	5.7	37.3	36.7	77.9	33.4	7.9
Queue Length 50th (ft)	229	174	30	138	0	69	118	108	79	0
Queue Length 95th (ft)	#421	202	#98	200	53	111	147	#178	119	74
Internal Link Dist (ft)		185		533			588		1180	
Turn Bay Length (ft)	500		250		165	100		135		
Base Capacity (vph)	480	2865	124	1712	642	365	981	251	572	732
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.44	0.45	0.42	0.28	0.32	0.38	0.64	0.24	0.58

Intersection Summary

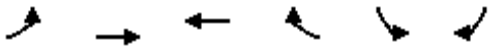
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	457	1214	52	56	714	181	117	214	163	161	139	426
Future Volume (vph)	457	1214	52	56	714	181	117	214	163	161	139	426
Ideal Flow (vphpl)	1650	1700	1750	1650	1700	1750	1650	1750	1750	1650	1750	1700
Lane Width	12	13	12	13	12	13	12	12	13	11	11	11
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		0.98	1.00	1.00	0.98	1.00		0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1533	4590		1540	4641	1433	1503	2841		1477	1658	1313
Flt Permitted	0.27	1.00		0.21	1.00	1.00	0.67	1.00		0.47	1.00	1.00
Satd. Flow (perm)	441	4590		337	4641	1433	1057	2841		727	1658	1313
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	457	1214	52	56	714	181	117	214	163	161	139	426
RTOR Reduction (vph)	0	3	0	0	0	114	0	0	0	0	0	318
Lane Group Flow (vph)	457	1263	0	56	714	67	117	377	0	161	139	108
Confl. Peds. (#/hr)	32		73	73		32	31		12	12		31
Confl. Bikes (#/hr)			1			1						3
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	2	0	0	0	0
Parking (#/hr)								0	0			
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	68.6	68.6		40.6	40.6	40.6	27.9	27.9		27.9	27.9	27.9
Effective Green, g (s)	68.6	68.6		40.6	40.6	40.6	27.9	27.9		27.9	27.9	27.9
Actuated g/C Ratio	0.62	0.62		0.37	0.37	0.37	0.25	0.25		0.25	0.25	0.25
Clearance Time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	483	2862		124	1712	528	268	720		184	420	333
v/s Ratio Prot	c0.18	0.28			0.15			0.13			0.08	
v/s Ratio Perm	c0.41			0.17		0.05	0.11			c0.22		0.08
v/c Ratio	0.95	0.44		0.45	0.42	0.13	0.44	0.52		0.88	0.33	0.32
Uniform Delay, d1	14.9	10.7		26.3	25.9	23.0	34.5	35.3		39.4	33.4	33.4
Progression Factor	1.74	1.16		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	26.6	0.5		11.4	0.8	0.5	1.1	0.7		33.9	0.5	0.6
Delay (s)	52.6	12.9		37.7	26.6	23.5	35.6	36.0		73.2	33.9	34.0
Level of Service	D	B		D	C	C	D	D		E	C	C
Approach Delay (s)		23.4			26.7			35.9			42.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	105.7%	ICU Level of Service	G

Analysis Period (min)	15
c Critical Lane Group	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	472	233	9	25	6
Future Volume (Veh/h)	2	472	233	9	25	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	472	233	9	25	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			668			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	242				714	238
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	177				673	173
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	99
cM capacity (veh/h)	1330				399	828

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	474	242	31
Volume Left	2	0	25
Volume Right	0	9	6
cSH	1330	1700	444
Volume to Capacity	0.00	0.14	0.07
Queue Length 95th (ft)	0	0	6
Control Delay (s)	0.0	0.0	13.7
Lane LOS	A		B
Approach Delay (s)	0.0	0.0	13.7
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	1042	249	1303
v/c Ratio	0.30	0.55	0.37
Control Delay	4.7	6.4	5.2
Queue Delay	0.0	0.0	0.3
Total Delay	4.7	6.4	5.5
Queue Length 50th (ft)	59	3	81
Queue Length 95th (ft)	112	5	150
Internal Link Dist (ft)	451		351
Turn Bay Length (ft)		185	
Base Capacity (vph)	3529	747	3508
Starvation Cap Reductn	0	0	1349
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.30	0.33	0.60

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1005	37	249	1303	0	0
Future Volume (vph)	1005	37	249	1303	0	0
Ideal Flow (vphpl)	1750	1750	1650	1775	1900	1900
Grade (%)	-3%			3%	0%	
Total Lost time (s)	7.5		7.5	7.5		
Lane Util. Factor	0.91		1.00	0.91		
Frpb, ped/bikes	0.99		1.00	1.00		
Flpb, ped/bikes	1.00		0.99	1.00		
Frt	0.99		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	4702		1503	4679		
Flt Permitted	1.00		0.26	1.00		
Satd. Flow (perm)	4702		415	4679		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1005	37	249	1303	0	0
RTOR Reduction (vph)	2	0	0	0	0	0
Lane Group Flow (vph)	1040	0	249	1303	0	0
Confl. Peds. (#/hr)		64	64		2	
Confl. Bikes (#/hr)		2				
Turn Type	NA		pm+pt	NA		
Protected Phases	2		1	6		
Permitted Phases			6			
Actuated Green, G (s)	75.0		85.0	75.0		
Effective Green, g (s)	75.0		85.0	75.0		
Actuated g/C Ratio	0.75		0.85	0.75		
Clearance Time (s)	7.5		7.5	7.5		
Vehicle Extension (s)	0.2		2.0	0.2		
Lane Grp Cap (vph)	3526		461	3509		
v/s Ratio Prot	0.22		c0.05	0.28		
v/s Ratio Perm			c0.40			
v/c Ratio	0.29		0.54	0.37		
Uniform Delay, d1	4.0		1.3	4.3		
Progression Factor	1.00		1.00	1.00		
Incremental Delay, d2	0.2		0.7	0.3		
Delay (s)	4.2		2.0	4.6		
Level of Service	A		A	A		
Approach Delay (s)	4.2			4.2	0.0	
Approach LOS	A			A	A	

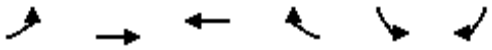
Intersection Summary			
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1008	1527	28	425
v/c Ratio	0.26	0.39	0.16	0.33
Control Delay	4.9	4.2	39.5	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.9	4.2	39.5	1.7
Queue Length 50th (ft)	47	49	18	0
Queue Length 95th (ft)	165	176	34	46
Internal Link Dist (ft)	351	246	341	
Turn Bay Length (ft)			275	
Base Capacity (vph)	3947	3916	546	1286
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.39	0.05	0.33

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1008	0	0	1527	28	425
Future Volume (vph)	1008	0	0	1527	28	425
Ideal Flow (vphpl)	1775	1775	1775	1775	1700	1700
Lane Width	12	12	12	12	12	14
Grade (%)	-3%			0%	-4%	
Total Lost time (s)	6.0			5.0	8.5	6.0
Lane Util. Factor	0.91			0.91	1.00	0.95
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4764			4694	1615	1464
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4764			4694	1615	1464
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1008	0	0	1527	28	425
RTOR Reduction (vph)	0	0	0	0	0	96
Lane Group Flow (vph)	1008	0	0	1527	28	329
Confl. Peds. (#/hr)		56	56		2	
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	9	0	9	9	0	0
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases						2
Actuated Green, G (s)	81.2			82.2	9.3	81.2
Effective Green, g (s)	81.2			82.2	9.3	81.2
Actuated g/C Ratio	0.77			0.78	0.09	0.77
Clearance Time (s)	6.0			5.0	8.5	6.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	3684			3674	143	1132
v/s Ratio Prot	0.21			c0.33	c0.02	
v/s Ratio Perm						0.22
v/c Ratio	0.27			0.42	0.20	0.29
Uniform Delay, d1	3.4			3.7	44.4	3.5
Progression Factor	1.00			0.76	1.00	1.00
Incremental Delay, d2	0.2			0.3	0.2	0.6
Delay (s)	3.6			3.1	44.6	4.1
Level of Service	A			A	D	A
Approach Delay (s)	3.6			3.1	6.6	
Approach LOS	A			A	A	

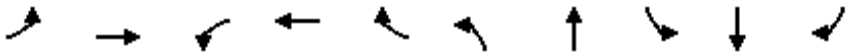
Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	1365	1417	54	8	62
Future Volume (Veh/h)	41	1365	1417	54	8	62
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	1365	1417	54	8	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		326	265			
pX, platoon unblocked	0.86				0.88	0.86
vC, conflicting volume	1471				1981	499
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	964				1278	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				94	93
cM capacity (veh/h)	608				130	929

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1
Volume Total	41	455	455	455	567	567	337	70
Volume Left	41	0	0	0	0	0	0	8
Volume Right	0	0	0	0	0	0	54	62
cSH	608	1700	1700	1700	1700	1700	1700	545
Volume to Capacity	0.07	0.27	0.27	0.27	0.33	0.33	0.20	0.13
Queue Length 95th (ft)	5	0	0	0	0	0	0	11
Control Delay (s)	11.3	0.0	0.0	0.0	0.0	0.0	0.0	12.6
Lane LOS	B							B
Approach Delay (s)	0.3				0.0			12.6
Approach LOS								B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

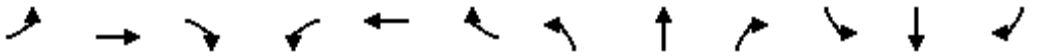


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	496	876	98	957	213	93	311	175	229	424
v/c Ratio	1.39	0.31	0.48	0.50	0.30	0.44	0.42	0.80	0.54	0.72
Control Delay	211.6	8.0	36.4	25.5	4.8	36.8	32.7	61.0	36.7	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	211.6	8.0	36.4	25.5	4.8	36.8	32.7	61.0	36.7	14.4
Queue Length 50th (ft)	~339	93	47	171	0	52	91	110	132	46
Queue Length 95th (ft)	#553	55	#136	252	53	89	113	170	180	140
Internal Link Dist (ft)		185		533			588		1180	
Turn Bay Length (ft)	500		250		165	100		135		
Base Capacity (vph)	357	2782	206	1921	718	296	1046	306	600	691
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.39	0.31	0.48	0.50	0.30	0.31	0.30	0.57	0.38	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

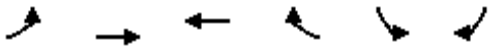
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	496	791	85	98	957	213	93	212	99	175	229	424
Future Volume (vph)	496	791	85	98	957	213	93	212	99	175	229	424
Ideal Flow (vphpl)	1650	1700	1750	1650	1700	1750	1650	1750	1750	1650	1750	1700
Lane Width	12	13	12	13	12	13	12	12	13	11	11	11
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		0.97	1.00	1.00	0.98	1.00		0.99	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1535	4518		1519	4641	1435	1510	2892		1476	1658	1315
Flt Permitted	0.20	1.00		0.31	1.00	1.00	0.52	1.00		0.55	1.00	1.00
Satd. Flow (perm)	322	4518		499	4641	1435	820	2892		848	1658	1315
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	496	791	85	98	957	213	93	212	99	175	229	424
RTOR Reduction (vph)	0	10	0	0	0	125	0	0	0	0	0	250
Lane Group Flow (vph)	496	866	0	98	957	88	93	311	0	175	229	174
Confl. Peds. (#/hr)	32		73	73		32	31		12	12		31
Confl. Bikes (#/hr)			1			1						3
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%	2%	3%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	3	0	0	0	0
Parking (#/hr)								0	0			
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	64.5	64.5		43.5	43.5	43.5	27.0	27.0		27.0	27.0	27.0
Effective Green, g (s)	64.5	64.5		43.5	43.5	43.5	27.0	27.0		27.0	27.0	27.0
Actuated g/C Ratio	0.61	0.61		0.41	0.41	0.41	0.26	0.26		0.26	0.26	0.26
Clearance Time (s)	7.0	6.5		6.5	6.5	6.5	7.0	7.0		7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	359	2775		206	1922	594	210	743		218	426	338
v/s Ratio Prot	c0.18	0.19			0.21			0.11			0.14	
v/s Ratio Perm	c0.66			0.20		0.06	0.11			c0.21		0.13
v/c Ratio	1.38	0.31		0.48	0.50	0.15	0.44	0.42		0.80	0.54	0.51
Uniform Delay, d1	17.4	9.7		22.4	22.7	19.2	32.7	32.5		36.5	33.6	33.4
Progression Factor	1.18	0.72		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	187.9	0.3		7.7	0.9	0.5	1.5	0.4		18.8	1.3	1.3
Delay (s)	208.4	7.3		30.1	23.6	19.7	34.2	32.8		55.4	34.9	34.7
Level of Service	F	A		C	C	B	C	C		E	C	C
Approach Delay (s)		80.0			23.5			33.2			39.1	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	108.5%	ICU Level of Service	G

Analysis Period (min)	15
c Critical Lane Group	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	386	381	24	15	8
Future Volume (Veh/h)	6	386	381	24	15	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	386	381	24	15	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			668			
pX, platoon unblocked	0.90				0.90	0.90
vC, conflicting volume	405				791	393
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	285				714	272
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	1151				357	691

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	392	405	23
Volume Left	6	0	15
Volume Right	0	24	8
cSH	1151	1700	429
Volume to Capacity	0.01	0.24	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.2	0.0	13.9
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	13.9
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

ARLINGTON COUNTY, VIRGINIA
REAL PROPERTY IDENTIFICATION MAP

LANGSTON BLVD.
INTERSTATE 66
U.S. ROUTE 29
SPOUT RUN PKWY.
KIRKWOOD RD.
19TH RD. N.
21ST ST. N.
20TH ST. N.
N. HARVARD ST.
N. HIGHLAND ST.
LANGSTON BLVD.
CRUITT TRACT
LYON VILLAGE SEC. 6
LYON VILLAGE SEC. 9
LYON VILLAGE SEC. 5
KIRKWOOD TERRACE UNIT 5
ARLINGTON COUNTY BOARD
ARLINGTON COUNTY BOARD KIRKWOOD ROAD PARK
PARCEL EE 05057087
ARLINGTON COUNTY BOARD PARCEL DD 05057086 18730 sf
LYON VILLAGE SHOPPING CENTER
15009001 171887 sf
15009003 8322 sf
15009002 2697 sf
CARDINAL HOUSE CONDO.
15007PCE
15007310 THRU 15007542
3141 THRU 3115
3130
3110
3100
15012061 12125 sf
15012041 73251 sf
15012040 12546 sf
15012063 119966 sf
15012062 7480 sf
15012042 8400 sf
15012043 7800 sf
15012044 7800 sf
15012045 7800 sf
15012046 8279 sf
15012047 9446 sf
15012048 11150 sf
15012065 108090 sf
15012038 5821 sf
15012037 5707 sf
15012036 6096 sf
15012032 4801 sf
15011014 12900 sf
15011015 9370 sf
15011016 8635 sf
15011013 14560 sf
15011012 10000 sf
15011011 10000 sf
15011001 10965 sf
15011002 8720 sf
15011003 9285 sf
15013010 19400 sf
15013009 7850 sf
15013008 6150 sf
15 009
15 007
15 012
15 011
05 057
C-2
S-3A
R-6
RA8-18
PT. PARCEL 4
PARCEL C
PARCEL A
PT.19
PT.20
PT.21
PT.726

Pursuant to Section 54.1-402 Code of Virginia:
Any Determination of topography or contours, or any depiction of physical improvements, property lines, or boundaries is for general information only and shall not be used for the design, modification, or construction of improvements to real property or for flood plain determination.

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0 50 100 Feet
SCALE: 1:1,200

ARLINGTON VIRGINIA

N

Map Sheet 43-7