

Transportation Technical Attachments

850 South Capitol (Square 695)

Washington, DC

October 8, 2021

GOROVE SLADE
Transportation Planners and Engineers

CONTENTS

(Note: Click on heading to navigate directly to each section of the Technical Attachments)

- A. Approved Scope
- B. Mode Split and Trip Generation Calculations
- C. Existing Turning Movement Counts
- D. Growth Rate Assumptions
- E. Trip Generation for Background Developments
- F. 5 M Street SW CTR Volume Data Used to Determine Volumes Rerouted by South Capitol Street Corridor Project
- G. Truck Maneuvering Diagrams
- H. Vehicle Level of Service Definitions
- I. Intersection Capacity Analysis – Existing Conditions (2021 Existing Conditions)
- J. Intersection Capacity Analysis – Future Conditions without the Project (2026 Background Conditions)
- K. Intersection Capacity Analysis – Future Conditions with the Project (2026 Total Future Conditions)
- L. Ramp Weaving Analysis – Future Conditions with the Project (2026 Total Future Conditions)

A. Approved Scope

District Department of Transportation (DDOT) Comprehensive Transportation Review (CTR) Scoping Form



The purpose of the Comprehensive Transportation Review (CTR) study is to evaluate potential impacts to the transportation network that can be expected to result from an approved action by the Zoning Commission (ZC), Board of Zoning Adjustment (BZA), Public Space Committee (PSC), a Federal or District agency, or an operational change to the transportation network. The Scoping Form accompanies the *Guidance for Comprehensive Transportation Review* and provides the Applicant an opportunity to propose a scope of work to evaluate the potential transportation impacts of the project.

Directions: The CTR Scoping Form contains study elements that an Applicant is expected to complete in order to determine the scope of the analysis. An Applicant should fill out this *Scoping Form* with a proposed scope of analysis commensurate with the requested action and submit to DDOT for review and concurrence. Accordingly, not all elements and figures identified in the *Scoping Form* are required for every action, and there may be situations where additional analyses and figures may be necessary. Once a completed Scoping Form is submitted, DDOT will provide feedback on the initial parameters of an appropriate analysis scope. DDOT's turnaround times are four (4) weeks for CTRs with a Traffic Impact Analysis (TIA) and three (3) weeks for all other lower tier studies. After the *Scoping Form* has been finalized and agreed to by DDOT, the Applicant is required to expand upon the elements outlined in this Form within the study.

Gorove Slade note: Our comment responses are noted in blue text. Revisions to the originally submitted proposal are highlighted yellow.

Scoping Information

Date(s) Scoping Form Submitted to DDOT: August 25, 2021, September 28, 2021
DDOT Case Manager: Aaron Zimmerman
Date(s) Scoping Form Comments Returned to Applicant: 9/23/21
Date Scoping Form Finalized: September 30, 2021

Project Overview	Proposed Development Program
Project Name: CSX West Parcel (Square 695)	Use(s): Residential
Case Type & No. (ZC, BZA, PSC, etc.): Design review – Case number 21-12	Residential (dwelling units): Approx. 520 DU's
ANC/SMD: 6D07	Retail (square feet): N/A
Applicant/Developer Name: Square 695, LLC 1100 New Jersey Ave SE, Suite 1000, Washington, DC 20003 Attn: Matthew Tsau, mtsau@wcsmith.com	Office (square feet): N/A
Transportation Consultant and Contact Info: Gorove Slade Associates, Inc. 1140 Connecticut Avenue NW, Suite 600, Washington, DC 20036 Erwin Andres, 202-540-1925, ena@goroveslade.com Will Zeid, 571-466-6605, william.zeid@goroveslade.com	Hotel (rooms): N/A
Land Use Counsel and Contact Info: Holland & Knight LLP 800 17th Street N.W., Suite 110, Washington, DC 20006	Other: N/A

Attn: Shane Dettman, shane.dettman@hklaw.com Attn: Leila Batties, leila.batties@hklaw.com	
Site Street Address: 850 South Capitol Street SE, Washington, DC 20003	# of Vehicle Parking Spaces: Approx. 272
Site Square & Block: Square 1600, Lots 31 and 34	# of Carshare spaces: 1
Current Zoning and/or Overlay District: D-5	# of Electric Vehicle Stations: 5
Estimated Date of Hearing: 11/8/2021	# of Bicycle Parking Spaces (long- and short-term)
Small Area Plan (if applicable): N/A	Long-term: 112 required; 112 proposed
Livability Study (if applicable): N/A	Short-term: 26 required; 28 proposed
Within ½ Mile of Metrorail or ¼ mile of Streetcar/Circulator/Priority Bus?: Yes, within ½ mile of Navy Yard and Capitol South Metro stations	Loading Berths/Spaces: Loading berths: 1 required, 1 proposed Loading platforms: 1 required, 1 proposed Service/delivery spaces: 1 required, 1 proposed

Documents to be Submitted to DDOT: Any action requiring a CTR or some other evaluation of on-site or off-site transportation facilities must submit one of the following documents to DDOT. It must be appropriately scoped for the specific action proposed and document all relevant site operations and transportation analyses.

- CTR Study** (100 or person total person trips, or 25 or more peak hour vehicle trips in peak direction, or as deemed necessary by DDOT)
- Transportation Statement** (limited scope based on specifics of project or if Low Impact Development Exemption from CTR and TIA is requested)
- Standalone TIA** (project proposes a change to roadway capacity, operations, or directionality, has a site access challenge, or as deemed necessary by DDOT)
- Other, specify:** _____
- Include one (1) hard copy of final report, PDF of report w/appendices, traffic analysis files, and traffic counts in DDOT-required spreadsheet format (total size of all digital files under 15 MB, if possible)

Existing Site and Description of Action: Describe the type(s) of regulatory approval(s) being requested and any background information on the project relevant to the requested action such as the existing uses, amount of vehicle parking, and other notable proposed changes on-site.

<p>The site is located within Square 695, which is bounded by Virginia Avenue SE to the north, New Jersey Avenue SE to the east, Eye Street SE to the south, and South Capitol Street to the west. Of the two lots that comprise the project site, Lot 34 is currently vacant and Lot 31 is currently improved with a car wash use accessed from Eye Street. The proposed project includes removal of the existing car wash and construction of a new multifamily residential building to include:</p> <ul style="list-style-type: none"> • Approximately 520 dwelling units • Vehicular parking <ul style="list-style-type: none"> ○ Approximately 272 spaces in structured at-grade and above-grade parking facilities within the building, • Bicycle parking <ul style="list-style-type: none"> ○ 112 long-term spaces ○ 28 short-term spaces • Loading <ul style="list-style-type: none"> ○ One (1) 30' x 12' loading berth ○ One (1) loading platform ○ One (1) 20' x 10' service/delivery space
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Prior Related Action(s), Conditions, and Commitments: Note any prior approvals by ZC, BZA, or PSC (Campus Master Plan, First Stage PUD, student/faculty cap, etc.) for the site and list all relevant conditions and proffers still in effect from the previous approval and status of completion. Attach a copy of the Decision section from the previous Zoning Order if still in effect.

The Applicant previously received concept approval from DDOT PSC for the proposed right-in/right-out access from South Capitol Street, which is described in further detail in the Site Access section of this form. At the time that approval was granted, the Applicant controlled only the undeveloped Lot 34 portion of the property, which could only be accessed from South Capitol Street. The Applicant is seeking to maintain this access with the proposed inclusion of Lot 31 which will allow for additional outbound only vehicular access to Eye Street as well as separated pedestrian and bicycle pathways.

Section 1: SITE DESIGN

DDOT reviews the site plan to evaluate consistency with DDOT’s standards, policies, and approach to access as documented in the most recent Design and Engineering Manual (DEM). If the proposal for use of public space is found to be inconsistent with the agency approach, DDOT will note this regardless of its relevance to the action. It is DDOT’s position that issues regarding public space be addressed at the earliest possible opportunity to ensure the highest quality project design and to minimize project delays and the need to re-design a site in the future.

CATEGORY & GUIDELINES	CONSULTANT PROPOSAL	DDOT COMMENTS
<p>Site Access</p> <p>Show site access points for all modes. Include proposed curb cut locations, curb cuts to be closed, access controls (e.g., right-in/out, signalized), sight distances and sight triangles from access points and new intersections, driveway widths and spacing, on- and off-site parking locations, inter-parcel connections, public/private status of driveways, alleys, and streets, and whether easements, dedications, or closures are proposed.</p> <p><i>Access must be located off an adjacent existing or “paper” alley, otherwise off the lower volume street. Note any deviations from curb cut policies (DEM 31.5) w/justification and if Conceptual Approval by the Public Space Committee (PSC) has/is being sought. Subtitle I § 600-603 of ZR16 further restricts where curb cuts can be located.</i></p> <p><i>DDOT will not support curb cut design relief unless there is a clear hardship preventing a project from meeting all DDOT standards and other alternatives have been explored.</i></p> <p><i>All proposed private streets connecting to a public street must be built to DDOT standards and have a public access easement. Design of</i></p>	<p>Pedestrian access is proposed to be provided via primary and secondary lobbies along South Capitol Street, as well as a dedicated pedestrian connection pathway along the site’s access drive connection to Eye Street SE.</p> <p>Bicycle access is proposed to be provided via a dedicated bike lane along the site’s access drive connection to Eye Street SE that will lead to a bike storage room in Level 1 of the garage. The site is located adjacent to the existing bike lanes on Eye Street SW/SE and is located 0.2 miles from the bike lanes on First Street SE and the protected bike lanes on New Jersey Avenue SE.</p> <p>Primary vehicular access to the site will be provided via the proposed right-in/right-out driveway located along northbound South Capitol Street via a new curb cut near the existing curb cut which would be removed. Additional vehicular egress is proposed (for residential traffic only) leaving the site from the garage via the existing connection from Lot 31 to Eye Street. This driveway would be reconfigured to serve outbound residential traffic only as well as provide dedicated pedestrian and bicycle lanes. It is noted that if this driveway were to serve inbound and outbound vehicular traffic, there would not be sufficient space to provide the proposed pedestrian pathway and bicycle lane. The lane could not be widened beyond the existing 20 feet due to the existing building to the west and lot line to the east. Further, it would not be possible for vehicles that turn onto the driveway to turn around without entering the secured parking garage. Therefore, if inbound access were provided along this connection, it could result in a dead-end condition for vehicles that may accidentally turn onto the driveway that do not have access to the secured garage.</p> <ul style="list-style-type: none"> The South Capitol Street access is proposed to be right-in/right-out and will serve the project’s loading facilities, parking garage, and a dedicated pick-up/drop-off area for ride-hailing and deliveries. The proposed South Capitol Street access previously received concept approval from DDOT PSC. The Eye Street SE access is proposed to be one-way southbound, serving only resident egress from the parking garage. This drive aisle is approximately 20-feet wide and would be reconfigured to provide a pedestrian pathway, a bicycle lane and a southbound (egress only) vehicular travel lane. 	<p style="color: red;">DDOT 9.24.21: The CTR should provide relevant information and analysis to support to the curb cut to South Capitol and access/circulation scheme. Applicant must demonstrate how the curb cut would or would not conflict with the future design of the ramps & existing bridge piers, including site lines, and intersection spacing. DDOT’s preference is for site access to be via the lower classification roadway (I Street) with alley access preferable. The proposed alley/driveway accessing the site is wide enough for two opposing vehicles to pass one another and traffic volumes in the alley should be low enough that conflicts with cyclist and pedestrians would be minimal. Please provide additional justification for why access directly to South Capitol Street is needed.</p>

<p><i>driveways and drive aisles on private property must comply with Subtitle C § 711 of ZR16.</i></p>	<p>Loading and deliveries will occur in an internal loading area accessed from the right-in/right-out curb cut on South Capitol Street.</p> <p>The new curb cut along South Capitol Street will be located slightly north of the existing curb cut location, and no new curb cuts from public space are proposed as part of this project from Eye Street SE.</p> <p><input checked="" type="checkbox"/> Scoping Graphic: Project Location Map <input checked="" type="checkbox"/> Scoping Graphic: Site Circulation Plan <input checked="" type="checkbox"/> Scoping Graphic: Plat for Site’s Square and Lot from Office of the Surveyor (if official plat not available, provide plans from SURDOCS)</p>	<p>GS response: An analysis of the South Capitol Street curb cut’s sight lines, interaction with the future and existing bridge piers, and intersection spacing will be provided in the CTR.</p> <p>The South Capitol Street curb cut is needed in order to reduce the Eye Street driveway to one-way outbound only to provide space for dedicated pedestrian and bicycle pathway connections to Eye Street. This reduces vehicle-pedestrian conflicts and provides a safe and efficient route for pedestrians and bikes. Additional discussions and justification will be provided in the CTR.</p> <p>DDOT 9.30.21: Acknowledged. We will continue to discuss site access as we go through Zoning and public space review.</p>																						
<p>Loading</p> <p>Discuss and show the quantity and sizes of loading berths/delivery spaces, trash storage locations, on- and off-site loading locations, turnaround design, nearby commercial loading zones, and anticipated demand, operations, and routing of delivery and trash vehicles. Identify the sizes of trucks anticipated to serve the site and design vehicles to be used in truck turning diagrams. Provide truck turning diagrams in the body of the report not the appendix.</p> <p><i>DDOT requires head-in and head-out truck movements through public space (DEM 31.5) and that direct internal pedestrian connections be provided between retail bays and loading facilities. Note any proposed deviations or requested relief from ZR16 or DDOT standards with justification. If any relief is being sought then a Loading Management Plan (LMP) is required. A template LMP is provided in Appendix E.</i></p>	<p>Loading and deliveries will occur in an internal loading area accessed from the right-in/right-out curb cut on South Capitol Street. Loading vehicles will not be allowed to exit the site via the one-way egress to Eye Street. The loading area will include one (1) 30’ x 12’ loading berth and one (1) 20’ x 10’ service/delivery space.</p> <p>The proposed loading facilities meet ZR16 regulations, as shown below.</p> <table border="1" data-bbox="558 886 1432 1065"> <thead> <tr> <th rowspan="2">Land Use</th> <th rowspan="2">Size</th> <th colspan="2">ZR16 required loading</th> <th colspan="2">Proposed loading</th> </tr> <tr> <th>Berths</th> <th>Service/delivery spaces</th> <th>Berths</th> <th>Service/delivery spaces</th> </tr> </thead> <tbody> <tr> <td>Residential</td> <td>520 du</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Total</td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <p>All loading vehicle maneuvers will occur within the internal loading area, outside of public space. The proposed loading arrangement will accommodate head-in/head-out maneuvers from South Capitol Street. Truck turning diagrams will be provided in the CTR.</p> <p><input checked="" type="checkbox"/> Scoping Graphic: Location of loading area w/ internal building routing <input type="checkbox"/> Scoping Graphic: Truck Turning Diagrams (to/from the site, alley, truck routes)</p>	Land Use	Size	ZR16 required loading		Proposed loading		Berths	Service/delivery spaces	Berths	Service/delivery spaces	Residential	520 du	1	1	1	1	Total		1	1	1	1	<p>DDOT 9.24.21: DDOT acknowledges the Applicant’s proposed loading design. It appears all trucks can maneuver on private property with no backing through public space. However, the proposed loading depends upon access to S. Capitol Street that needs to be supported with analysis.</p> <p>GS response: Justification for the South Capitol Street curb cut will be provided in the CTR. Further,</p> <p>DDOT 9.30.21: Acknowledged. We will continue to discuss site access and loading as we go through Zoning and public space review.</p>
Land Use	Size			ZR16 required loading		Proposed loading																		
		Berths	Service/delivery spaces	Berths	Service/delivery spaces																			
Residential	520 du	1	1	1	1																			
Total		1	1	1	1																			
<p>Vehicle Parking</p> <p>Identify all off-street parking locations (on- and off-site) and justify the amount of on-site vehicle parking, including a comparison to the number of spaces required by ZR16 and any previous approvals. Provide parking calculations and parking ratios by land use, including any eligible ZR16 vehicle parking reductions (i.e.,</p>	<p>The project proposes 272 parking spaces within structured parking within the building. Vehicle parking is not required within Downtown (D) zones per ZR16 11C702.3. However, the project’s ZR16 requirement would otherwise be 172 spaces.</p> <table border="1" data-bbox="558 1409 1562 1507"> <thead> <tr> <th>Land Use</th> <th>Size</th> <th>ZR16 required spaces</th> <th>ZR16 required spaces if outside Downtown zone</th> <th>Proposed spaces</th> <th>Excess spaces</th> </tr> </thead> <tbody> <tr> <td colspan="6"> </td> </tr> </tbody> </table>	Land Use	Size	ZR16 required spaces	ZR16 required spaces if outside Downtown zone	Proposed spaces	Excess spaces							<p>DDOT 9.24.21: DDOT’s preferred parking max for this area in the 2019 Guidelines is 0.40/spaces per unit, which would yield 208 spaces. Update this information in the table to the left.</p>										
Land Use	Size	ZR16 required spaces	ZR16 required spaces if outside Downtown zone	Proposed spaces	Excess spaces																			

<p>within ¼ mile of Priority Bus Route, within ½ mile of Metrorail Station, providing carshare spaces, located within a D zone, etc.).</p> <p><i>Review the DDOT Preferred Parking Rates (Table 2). If the total parking provision proposed exceeds the amount calculated using ratios in that table then the number of spaces should be reduced or substantial TDM / non-auto improvements be provided. If parking provision is significantly out of line with appropriate parking ratios, one way or the other, then mode split and trip generations estimates will be adjusted.</i></p> <p><i>Confirm whether ZR16 TDM Mitigations will be required, per Subtitle C § 707.3, for providing more than double the amount of required vehicle parking. Coordinate with the Zoning Administrator as early in the process as possible for an official determination.</i></p> <p><i>A TDM Plan is required for BZA parking reduction cases, per Subtitle C § 703.4. If relief is being requested from 5 or more spaces, then a Parking Occupancy Study is required (see Multi-Modal section).</i></p>	<table border="1"> <tr> <td>Residential</td> <td>520 du</td> <td>0</td> <td>172</td> <td>272</td> <td>100</td> </tr> <tr> <td>Total</td> <td></td> <td>0</td> <td>172</td> <td>272</td> <td>100</td> </tr> </table> <table border="1"> <thead> <tr> <th>Land Use</th> <th>Size</th> <th>DDOT-preferred maximum parking rate *</th> <th>DDOT-preferred maximum parking spaces</th> <th>Proposed spaces</th> </tr> </thead> <tbody> <tr> <td>Residential</td> <td>520 du</td> <td>0.40 spaces/unit</td> <td>208</td> <td>272</td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td>208</td> <td>272</td> </tr> </tbody> </table> <p>* Rate for developments ¼ to ½ mile from Metrorail OR less than ¼ mile from Priority Transit</p> <p><input checked="" type="checkbox"/> Scoping Table: Parking Calculations with Comparison to ZR16 and DDOT's Preferred Vehicle Parking (Table 2)</p> <p><input type="checkbox"/> Scoping Graphic: Off-Street Parking Locations (both on- and off-site)</p>	Residential	520 du	0	172	272	100	Total		0	172	272	100	Land Use	Size	DDOT-preferred maximum parking rate *	DDOT-preferred maximum parking spaces	Proposed spaces	Residential	520 du	0.40 spaces/unit	208	272	Total			208	272	<p>DDOT 9.24.21: The amount of parking is more substantial than the DDOT would like to see. Why would 296 spaces be needed if the drive mode split is 296 spaces? DDOT encourages the Applicant to reduce the supply of parking if feasibly possible. One way to do this is by making the long-term bicycle room larger. To help offset induced demand from the parking supply, start with an Enhanced TDM plan and additional items, such as physical bike/ped improvements and other TDMs should be included.</p> <p>GS response: The proposed parking supply has been reduced from 296 to 272 in this updated scoping form, which will be reflected in the CTR. The CTR will propose a robust TDM program to include Baseline + Enhanced + Additional measures to mitigate the proposed parking supply.</p> <p>DDOT 9.30.21: Acknowledged. DDOT's comments have been addressed.</p>			
Residential	520 du	0	172	272	100																											
Total		0	172	272	100																											
Land Use	Size	DDOT-preferred maximum parking rate *	DDOT-preferred maximum parking spaces	Proposed spaces																												
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Total			208	272																												
<p>Bicycle Parking</p> <p>Identify the locations of proposed bicycle parking and justify the amount of long- and short-term spaces proposed. Provide a calculation of the number of spaces required by ZR16.</p> <p><i>Long-term bicycle parking spaces must be easily accessible from building lobby or located in the parking garage level closest to the ground floor. Lockers and showers must be included with non-residential long-term bicycle storage rooms, per Subtitle C § 806. Provide calculations for required lockers and showers.</i></p> <p><i>Short-term bicycle parking must be accommodated by installing inverted U-racks along the perimeter of the site in the 'furniture zone' of public space, near the site entrance(s).</i></p>	<p>ZR16 requires 112 long-term and 26 short-term bicycle parking spaces for the project. The project will meet or exceed these requirements. Showers and changing facilities are not required for this project.</p> <table border="1"> <thead> <tr> <th rowspan="2">Land Use</th> <th rowspan="2">Size</th> <th colspan="2">ZR16 bicycle parking rates</th> <th colspan="2">ZR16 required bicycle parking spaces *</th> <th colspan="2">Proposed bicycle parking spaces</th> </tr> <tr> <th>Long-term</th> <th>Short-term</th> <th>Long-term</th> <th>Short-term</th> <th>Long-term</th> <th>Short-term</th> </tr> </thead> <tbody> <tr> <td>Residential</td> <td>520 du</td> <td>1 per 3 DU</td> <td>1 per 20 DU</td> <td>112</td> <td>26</td> <td>112</td> <td>28</td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td></td> <td>112</td> <td>26</td> <td>112</td> <td>28</td> </tr> </tbody> </table> <p>* Note: Rate applied at 50% after first 50 spaces per ZR16 11C802.2</p> <p><input checked="" type="checkbox"/> Scoping Graphic: Locations of internal bicycle parking spaces, routing to these spaces, and related support facilities including locker rooms, showers, storage areas, and service repair rooms</p>	Land Use	Size	ZR16 bicycle parking rates		ZR16 required bicycle parking spaces *		Proposed bicycle parking spaces		Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Residential	520 du	1 per 3 DU	1 per 20 DU	112	26	112	28	Total				112	26	112	28	<p>DDOT 9.24.21: DDOT encourages the Applicant to provide additional long-term bicycle parking than required by ZR16 given that many new buildings have waitlists. Consider converting some vehicle parking to bike parking space. Any additional bike parking over zoning will be credited in the TDM plan and help offset the over-vehicle parked condition.</p> <p>GS response: The Applicant will be proposing to include additional bicycle parking beyond the minimum requirement, with the total amount to be determined at a later date.</p> <p>DDOT 9.30.21: DDOT strongly supports this.</p>
Land Use	Size			ZR16 bicycle parking rates		ZR16 required bicycle parking spaces *		Proposed bicycle parking spaces																								
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Residential	520 du	1 per 3 DU	1 per 20 DU	112	26	112	28																									
Total				112	26	112	28																									
<p>Streetscape and Public Realm</p> <p>Provide a conceptual layout of the streetscape and public realm including at minimum: curb cuts, vaults, sidewalk widths, street trees, grade changes, building projections, short-term bicycle parking, and any existing bus stops. Also provide the permit tracking numbers and PSC</p>	<p>The Applicant will work with DDOT to ensure the design of the public realm meets current standards. A preliminary public space concept will be provided in the CTR.</p>	<p>DDOT 9.24.21: Will continue to coordinate on streetscape and any bike trails along the frontage.</p> <p>GS response: Noted.</p>																														

CSX West Parcel (Square 695) – 8/25/2021, DDOT 9.24.21, GS Responses 9.28.2021, FINAL 9.30.21

<p>hearing date, if known, for any approved public space designs.</p> <p><i>DDOT expects new developments to rehabilitate the streetscape between the curb and property line and meet all public space design standards. Streetscape must meet ADA requirements and ensure nothing impedes accessible curb access or pedestrian circulation.</i></p> <p><i>Note any non-compliant public space elements requiring a DCRA code modification or PSC approval.</i></p> <p><i>A summary of public space best practices is provided in Section 1.5. DDOT standards are documented in the DEM, Public Realm Design Manual, and corridor Streetscape Guidelines (if applicable).</i></p>	<p><input type="checkbox"/> Scoping Graphic: Preliminary Public Space Concept</p>	
<p>Sustainable Transportation Elements</p> <p>Identify all sustainable transportation elements, such as electric vehicle (EV) charging stations and carshare spaces proposed to be included in the project. Electrical conduit should be installed in parking garage so that additional EV stations can be provided later.</p> <p><i>DDOT recommends 1 per 50 vehicle spaces be served by an EV station. DDOT encourages providing car share spaces on-site to reduce the ZR16 parking requirement and support non-car ownership lifestyles.</i></p>	<p>Sustainable transportation elements for this development will be discussed in the CTR. Five (5) electric vehicle charging stations will be included on site.</p>	<p>DDOT 9.24.21: DDOT encourages the Applicant to provide at least 1 station per 50 parking spaces. Also be aware that DCRA/DOEE will start to require 20% of parking spaces be EV ready starting Jan 1, 2022.</p> <p>GS response: This updated scoping form includes 5 electric vehicle charging stations.</p> <p>DDOT 9.30.21: DDOT strongly supports this.</p>
<p>Heritage, Special, and Street Trees</p> <p>Heritage Trees are defined as having a circumference of 100 inches or more and are typically located on private property. They are protected by the District’s Tree Canopy Protection Amendment Act of 2016 and must be preserved if deemed non-hazardous by Urban Forestry Division (UFD). Special Trees are between 44 inches and 99.99 inches in circumference and may be removed with a permit.</p> <p><i>Note whether there are existing Heritage Trees on-site or in adjacent public space. The presence of Heritage Trees will impact site design since they may not be cut down. Work w/the UFD Ward Arborist to determine if there are Heritage or Special Trees on-site that must be preserved</i></p>	<p>The applicant will work with UFD to determine if there are any Heritage or Special Trees on-site. A screenshot from UFD’s street tree website is included in the attachments.</p> <p><input checked="" type="checkbox"/> Scoping Graphic: Street Tree Inventory Study Area</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

<p>and if Tree Preservation or Relocation Plans are required.</p> <p>Conduct an inventory of existing and missing street trees within a 3-block radius of the site (design standards are in DEM 37.5). Identify any opportunities for UFD or the Applicant (as part of the mitigations package) to install missing treeboxes and street trees.</p>	
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Section 2: TRAVEL ASSUMPTIONS

CATEGORY & GUIDELINES	CONSULTANT PROPOSAL	DDOT COMMENTS																																																																					
<p>Mode Split</p> <p>Provide mode split assumptions with sources and justification. Sources of data could include the most recent <i>Census Transportation Planning Products (CTPP)</i> the 2005 WMATA <i>Development-Related Ridership Survey</i>, or previous planning studies and CTRs. Note that the walking mode share will account for internal trip synergies for mixed use developments.</p> <p><i>Adjustments to mode split assumptions may be made, as appropriate, if the number of vehicle parking spaces proposed is significantly lower or higher than expected for the context of the neighborhood.</i></p> <p><i>The agreed upon mode split assumptions may not be revised between scoping and CTR submission without DDOT concurrence.</i></p>	<p>Mode split assumptions are based on CTPP census data, the District of Columbia’s State of the Commute data, and WMATA ridership surveys. The mode split assumptions for the project are as follows:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #006400; color: white;"> <th rowspan="2">Land Use</th> <th colspan="4">Mode</th> </tr> <tr style="background-color: #006400; color: white;"> <th>Drive</th> <th>Transit</th> <th>Bike</th> <th>Walk</th> </tr> </thead> <tbody> <tr style="background-color: #e0e0e0;"> <td>Residential</td> <td>35%</td> <td>40%</td> <td>5%</td> <td>20%</td> </tr> </tbody> </table> <p><input checked="" type="checkbox"/> Scoping Table: Mode Split Assumptions</p>	Land Use	Mode				Drive	Transit	Bike	Walk	Residential	35%	40%	5%	20%	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>																																																							
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	Drive	Transit	Bike	Walk																																																																			
Residential	35%	40%	5%	20%																																																																			
<p>Trip Generation</p> <p>Provide site-generated person trip generation estimates, utilizing the most recent version of ITE <i>Trip Generation Manual</i> or another agreed upon methodology such as manual doorway or driveway counts at similar facilities. Estimates must be provided by mode, type of trip, land use, and development phase during weekday AM and PM commuter peaks, Saturday mid-day peak, and daily totals. CTR must also include existing site trip generation based on observed counts. Modes include transit, bicycle, walk, and automobile.</p> <p><i>DDOT TripsDC tool will be used to determine trip generation estimates for residential-over-retail projects (see Section 2.2.4 for parameters).</i></p> <p><i>Auto occupancy rates by travel purpose published in the 2017 National Household Travel Survey should be used when calculating person</i></p>	<p>Multi-modal trip generation was calculated using ITE <i>Trip Generation</i> 10th Edition rates for Land Use 222 Multifamily Housing (High-Rise) using the mode splits listed above.</p> <p>The ITE trip generation for the proposed project is shown below and included in the attachments.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #006400; color: white;"> <th rowspan="2">Mode</th> <th colspan="3">AM Peak Hour</th> <th colspan="3">PM Peak Hour</th> <th colspan="3">Saturday Peak Hour</th> </tr> <tr style="background-color: #006400; color: white;"> <th>In</th> <th>Out</th> <th>Total</th> <th>In</th> <th>Out</th> <th>Total</th> <th>In</th> <th>Out</th> <th>Total</th> </tr> </thead> <tbody> <tr style="background-color: #ffff00;"> <td>Person trips (ppl/hr)</td> <td>45</td> <td>141</td> <td>186</td> <td>133</td> <td>85</td> <td>218</td> <td>120</td> <td>98</td> <td>218</td> </tr> <tr style="background-color: #e0e0e0;"> <td>Auto (veh/hr)</td> <td>14</td> <td>41</td> <td>55</td> <td>40</td> <td>24</td> <td>64</td> <td>36</td> <td>28</td> <td>64</td> </tr> <tr style="background-color: #e0e0e0;"> <td>Transit (ppl/hr)</td> <td>18</td> <td>56</td> <td>74</td> <td>53</td> <td>34</td> <td>87</td> <td>48</td> <td>39</td> <td>87</td> </tr> <tr style="background-color: #e0e0e0;"> <td>Bike (ppl/hr)</td> <td>2</td> <td>7</td> <td>9</td> <td>7</td> <td>4</td> <td>11</td> <td>6</td> <td>5</td> <td>11</td> </tr> <tr style="background-color: #e0e0e0;"> <td>Walk (ppl/hr)</td> <td>9</td> <td>29</td> <td>38</td> <td>26</td> <td>18</td> <td>44</td> <td>24</td> <td>20</td> <td>44</td> </tr> </tbody> </table> <p><input checked="" type="checkbox"/> Scoping Table: Multi-Modal Trip Gen Summary (w/mode split and applicable reductions, as appropriate)</p>	Mode	AM Peak Hour			PM Peak Hour			Saturday Peak Hour			In	Out	Total	In	Out	Total	In	Out	Total	Person trips (ppl/hr)	45	141	186	133	85	218	120	98	218	Auto (veh/hr)	14	41	55	40	24	64	36	28	64	Transit (ppl/hr)	18	56	74	53	34	87	48	39	87	Bike (ppl/hr)	2	7	9	7	4	11	6	5	11	Walk (ppl/hr)	9	29	38	26	18	44	24	20	44	<p>DDOT 9.24.21: please include a row for person trips (Step 2 from trip gen table) and a column for Saturday peak hour trips.</p> <p>GS response: Noted; the table has been updated.</p> <p>DDOT 9.30.21: DDOT’s comment has been addressed. DDOT notes that the trip generation calcs demonstrate the vehicle and person trip thresholds for a CTR have been triggered.</p>
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<p><i>trips based on suburban vehicle trip data in Trip Generation Manual (see Table 3).</i></p> <p><i>Adjustments to trip generation may be made, as appropriate, if the number of vehicle parking spaces proposed is significantly lower or higher than expected for the context of the neighborhood.</i></p> <p><i>Pass-by rates in the District are minimal and should only apply to major retail-dominant destinations, grocery stores, and gas stations. An adjusted pass-by/diverted trips methodology should be developed if development is not located on a road classified as arterial or higher.</i></p> <p><i>The agreed upon trip generation methodology may not be revised between scoping and CTR submission without DDOT concurrence. Consult the DDOT Case Manager if site plan, development program, land uses, or density changes significantly.</i></p>		
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Section 3: MULTI-MODAL NETWORK EVALUATION

A CTR study is required if the project generates at least 100 peak hour person trips or 25 vehicle trips in the peak direction (highest of inbound or outbound) in any study period. Existing site traffic, pass-by, TDM, internal capture or other reductions may not be taken in the calculation to determine if the project meets these thresholds. However, they may be taken in the TIA, as appropriate, if a study is triggered. Analyses in the Multi-Modal Network Evaluation section are required in all CTRs, unless otherwise specified. A Transportation Statement may only require some of the following sections depending on the specifics of the project and zoning action.

The requirement for a CTR may be waived if site is within ½ mile from Metrorail or ¼ mile from Priority Transit, the total vehicle parking supply below level expected within ¼ mile of Metrorail Station (see Table 2), maximum 100 parking spaces, an Enhanced TDM Plan is implemented, site access and loading design are acceptable, there is a complete pedestrian network in the vicinity of the site, and meets all ZR16 bike parking and locker/shower requirements. Additional criteria may be found in the Low Impact Development Exemption section of *Guidance for CTR*.

CATEGORY & GUIDELINES	CONSULTANT PROPOSAL	DDOT COMMENTS
<p>Strategic Planning Elements</p> <p>Identify relevant planning efforts and demonstrate how the proposed action is consistent with District-wide planning documents, as well as localized studies. Note in scoping form any recommendations from these documents relevant to the development proposal.</p> <p>The evaluation will consider at least the following high level/District-wide documents:</p> <ul style="list-style-type: none"> ● MoveDC and its relevant modal elements ● DDOT Livability Study (relevant to the project) ● OP Small Area Plans (relevant to the project) ● DC Highway Plan (shown on official plat) 	<p>The CTR will consider the suggested studies included in the column to the left in addition to the following studies located near the development:</p> <ul style="list-style-type: none"> ● South Capitol Street Project ● M Street SE-SW Transportation Study ● Navy Yard/Capitol Riverfront Safety Assessment 	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

CSX West Parcel (Square 695) – 8/25/2021, DDOT 9.24.21, GS Responses 9.28.2021, FINAL 9.30.21

<ul style="list-style-type: none"> ● District of Columbia Comprehensive Plan ● Vision Zero Action Plan ● Capital Bikeshare Development Plan ● Washington Metropolitan Area Transit Authority's (WMATA) Metrorail and Metrobus Plans ● DDOT Corridor studies (e.g., Transit Development Plan, Streetscape Design Plans and Guidelines) <p><i>Details on additional relevant plans and studies may be provided by the DDOT Case Manager.</i></p>		
<p>Pedestrian Network</p> <p>Evaluate the condition of the existing pedestrian network and forecast the project's impact. Evaluation must include, at a minimum, critical walking routes, sidewalk widths, network completeness, whether facilities meet DDOT and ADA standards, and whether pedestrian signal timings are adequate (within vehicle study area).</p> <p><i>Study area will include, at a minimum, all roadway segments and multi-use trails within a ¼ mile radius from the site, with a focus on connectivity to Metrorail, transit stops, schools, and major activity centers.</i></p>	<p>The study will review pedestrian walking routes to and from the site along with an assessment of facilities along these walking routes and on all pedestrian facilities within ¼ mile of the site following section 3.2 of DDOT's CTR guidelines, plus additional walking routes to major destinations. The assessment will evaluate whether facilities meet DDOT and ADA standards.</p> <p><input checked="" type="checkbox"/> <i>Scoping Graphic: Pedestrian Study Area w/Walking Routes to Transit, Schools, Activity Centers</i></p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>
<p>Bicycle Network</p> <p>Evaluate the condition of the existing bicycle network and forecast the project's impact, including to Capital Bikeshare (CaBi). Evaluation must include, at a minimum, bicycle network completeness, types of facilities, and adequacy of CaBi locations and availability. Bikeshare station demand data can be obtained from the CaBi Tracker website.</p> <p><i>Study area will include, at a minimum, all roadway segments and multi-use trails within a ½ mile radius from the site, with a focus on connectivity to Metrorail, transit stops, schools, major activity centers, and other bicycle trails or facilities.</i></p> <p><i>Note where bike lanes conflict with access to the site or on-street loading movements associated with the project.</i></p> <p><i>If a CaBi station is currently located along the site frontage, the Applicant must assume the station will stay in place after the development has been constructed and must be designed in the public space plans. If it is not physically</i></p>	<p>The bicycle study area focuses on the routes that cyclists will take to and from major bicycle facilities. We will also highlight the internal bicycle circulation and facilities.</p> <p>A review of existing and planned bicycle facilities serving the site within a ½ mile will be included with an assessment of connections between the site and major facilities, including a qualitative review of how cyclists going to and from the site will access major facilities (paths, bike lanes, etc.). The review of bicycle facilities will follow DDOT's CTR guidelines found in section 3.3.1.</p> <p><input checked="" type="checkbox"/> <i>Scoping Graphic: Bicycle Study Area w/Bicycling Routes to Transit, Schools, Activity Centers</i></p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

<p><i>possible to stay in place, then DDOT expects the Applicant to demonstrate this hardship, propose a viable alternative location, and fund the station relocation. The minimum size of a new CaBi station is 19 docks with 12 bikes.</i></p>		
<p>Transit Network Evaluate, at a minimum, existing transit stop locations, adjacent bus routes and Metro headways, planned transit improvements, and an assessment of existing transit stop conditions (e.g., ADA compliance, bus shelters, benches, wayfinding, etc.). For Metrorail stations, refer to the 2009 WMATA Station Site and Access Planning Manual, as well as various station capacity studies.</p> <p><i>Study area is 1.0 mile for Metrorail stations and ½ mile for Streetcar, Circulator, and WMATA buses.</i></p> <p><i>All existing bus stops and shelters must be accommodated during construction, assumed to be returned to the original location after construction, and designed into the public space plans. If a bus stop and/or shelter must be moved then the Applicant will fund the relocation and obtain approval from DDOT and WMATA for the new location. Applicant must fund the electrification of all new or relocated shelters.</i></p>	<p>The study will discuss transit routes and schedules, including headway and span of service for Metrorail stations within one (1) mile of the site and for WMATA bus stops within ½ mile of the site. The study will evaluate the sufficiency of the identified services and access to those services from a qualitative standpoint. Additionally, transit stop locations will be evaluated. Any planned transit improvements will be included in the report. This study will not include a quantitative study of boarding and alighting volumes at specific transit stops. All transit network evaluations will follow guidance as outlined in section 3.4 of DDOT’s CTR guidelines.</p> <p><input checked="" type="checkbox"/> Scoping Graphic: Transit Study Area with Adjacent Routes and Stations</p> <p><input checked="" type="checkbox"/> Scoping Graphic: Screenshots from DDOT transit maps showing where the site falls within buffers from Metrorail and Priority Transit</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>
<p>Safety Analysis Qualitatively evaluate safety conditions at intersections and along blocks within the vehicle study area.</p> <p><i>Perform a review of DDOT Vision Action Plan. Note whether any study intersections have been identified by DDOT as high crash locations, if any safety studies have been previously conducted, and discuss the recommendations. Depending on the results of the TIA, DDOT may require improvements to nearby intersections previously identified as having known safety issues.</i></p>	<p>A qualitative evaluation of safety conditions within the proposed study area will be included in the CTR following the guidance set forth in section 3.6 of DDOT’s CTR guidelines.</p>	<p>DDOT 9.24.21: Please include sight triangles for proposed curb cut to S. Capitol Street.</p> <p>DDOT 9.24.21: What is the expected spacing between the site access point and the future signalized intersection to the north? A significant portion of site generated trips are expected to make the left turn onto the I-395/695 ramps. TESD is concerned about the potential of egressing vehicles blocking through travel lanes attempting to make the northbound left turn movement.</p> <p>GS response: Sight triangles will be provided in the CTR. The expected spacing between the site access point and the stop bar of the future signalized intersection to the north is approximately 75 feet.</p> <p>DDOT 9.30.21: Acknowledged</p>

<p>Curbside Management</p> <p>Propose a curbside management plan that is consistent with current DDOT policies and practices. The curbside management plan must delineate existing and proposed on-street parking designations/restrictions, including but not limited to pick-up/drop-off zones, commercial loading zones, multi-space meters, RPP, and net change in number of on-street spaces as a result of the proposal.</p> <p><i>Note that the preliminary curbside management plan will not be approved by DDOT during the zoning process. Applicant must submit a more detailed signage and marking plan via TOPS for formal review and approval by DDOT-PGTD during public space permitting. DDOT expects the Applicant to fund the installation of multi-space meters on blocks where meters are required.</i></p>	<p>No changes to curbside management are proposed as part of this project.</p> <p><input type="checkbox"/> Scoping Graphic: Existing Curbside Designations (min. 2 block radius of site)</p>	<p>DDOT 9.24.21: Noted.</p> <p>GS response: Noted.</p>
<p>Pick-Up and Drop-Off Plan</p> <p>This plan is required for all schools and daycares with 20 or more students. It may also be required for churches, hotels, or any other use expected to have significant pick-up and drop-off operations, as necessary. The plan will identify pick-up and drop-off locations and demonstrate adequate circulation so that the flow of bicycles and vehicles is not impeded and queuing does not occur through the pedestrian realm.</p> <p><i>DDOT will require this plan for schools and daycares currently in operation even if the relief requested from the BZA is not related to a student cap increase.</i></p>	<p>A pick-up/drop-off plan is not necessary. The intensity of the development program is not expected to have significant pick-up and drop-off operations.</p> <p>Further, the proposed plan includes a residential pick-up/drop-off area on-site and out of the public space that will be accessed via the proposed driveway along northbound South Capitol Street.</p>	<p>DDOT 9.24.21: DDOT acknowledges the propose site layout including a pick-up/drop-off loop, parking spaces, and bollards. Since it is located under the Interstate it is subject to review by the Public Space Committee and will require a recommendation of approval by IPMD’s bridge engineers. Typically, this type of permanent construction in the DDOT ROW and so close to bridge pillars is not permitted, especially for storage of personal vehicles.</p> <p>GS response: Only paved surface, and other surface improvements, are proposed within the private property covering the easement.</p> <p>DDOT 9.30.21: Acknowledged. We will continue discussing this through zoning and public space – both the design and legal applicability of the easement. Our bridge engineers have stated that some paving can occur under the Interstate (Public Space Committee’s thoughts are TBD on that) but parking is not permitted under the Interstate or close to the bridge piers.</p>
<p>On-Street Parking Occupancy Study</p>	<p>Zoning relief for parking is not being sought, therefore this section is not applicable.</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

CSX West Parcel (Square 695) – 8/25/2021, DDOT 9.24.21, GS Responses 9.28.2021, FINAL 9.30.21

<p>This analysis is required if BZA relief from 5 or more on-site vehicle parking spaces is being requested. It may also be required as part of a ZC or permitting case if DDOT has concerns about site-generated vehicles parking in adjacent residential neighborhoods.</p> <p><i>Vehicle parking occupancy counts will be collected hourly during periods of peak demand. These are typically the weekday evening period (6-10 PM) for residential developments, weekday morning period (7-9 AM) if within ¼ mile of Metrorail, and weekend peak periods if there is a commercial component. Parking availability must be assessed a maximum of 2 blocks in each direction from the site, unless otherwise agreed upon. Also include inventory of off-street parking garages in vicinity of site.</i></p>	<p><input type="checkbox"/> Scoping Graphic: Study Area/Block Faces</p>	
<p>Parking Garage Queueing Analysis</p> <p>If site contains 150 or more vehicle parking spaces <u>and</u> direct access to a public street, evaluate on-site vehicle queueing demand and provide analysis demonstrating parking entrance and ramps can properly process vehicles without queuing onto public streets. Provide proposed parking supply, queuing analysis, and physical controls to parking area, if applicable.</p>	<p>The proposed garage does not have direct access to a public street as the distance from the garage door to the curb line at Eye Street SE is approximately 300 feet; therefore this section is not applicable.</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>
<p>Motorcoaches</p> <p>Propose methodology for data collection and analysis. Describe and show the parking locations, anticipated demand, existing areas on- and off-site for loading and unloading (and desired loading times restrictions, if any), and potential routes to and from designated truck routes. If on-street motorcoach parking is proposed, a plan for installation of signage and meters is required, subject to DDOT-PGTD approval. This section is typically only required for uses that generate significant tourist activity (hotels, museums, cruises, etc.).</p>	<p>No motorcoach activity is anticipated at the site.</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>
Section 4: TRAFFIC IMPACT ANALYSIS (TIA)		
<p>The TIA component of a CTR is required when a development generates 25 or more peak hour vehicle trips in the peak direction (higher of either inbound or outbound vehicles in any study peak period), after mode split is applied. Existing site traffic, pass-by, TDM, internal capture or other reductions may not be applied when calculating whether a TIA is required. Applicable reductions may be used in the multi-modal trip generation summary and assignment of trips within the TIA, as appropriate. A standalone TIA may also be required if the project proposes a change to roadway capacity, operations, or directionality; has a site access challenge; or as otherwise deemed necessary by DDOT.</p>		
CATEGORY & GUIDELINES	CONSULTANT PROPOSAL	DDOT COMMENTS

<p>TIA Study Area and Data Collection</p> <p>Identify study intersections commensurate with the impact of the proposed project and the travel demand it will generate. Study area must include all major signalized and unsignalized intersections, intersections expected to realize large numbers of new traffic, and intersections that may experience changing traffic patterns. Additional guidance on selecting study intersections is provided in DEM 38.3.2.</p> <p><i>Turning Movement Counts (TMC) will be collected in 15-minute increments during the weekday morning (6:30 AM to 9:30 AM) and evening (4:00 PM to 7:00 PM) peak periods on Tuesdays through Thursdays during non-holiday weeks, while schools and Congress are in session, the Fed govt is not in a shutdown, and weather is not an issue, unless otherwise agreed upon. Saturday mid-day peak period (generally 11:00 AM to 1:00 PM) will be studied if development program is retail-heavy. TMCs will include vehicles, pedestrians, bicyclists, and % truck traffic. TMCs will be collected at all existing site driveways and reported as existing conditions in trip generation summary.</i></p> <p><i>Previously collected TMCs may be used if they are less than 2 years old at the time of study submission. DDOT may require counts be refreshed once TMCs reach 3 years old or if a major transportation or land use change occurs. A growth rate will be applied to TMCs older than 12 months to create present year Existing Conditions.</i></p>	<p>The following intersections are proposed to be evaluated in the study:</p> <ol style="list-style-type: none"> 1. Proposed RIRO Site Driveway & South Capitol St 2. Eye St & Half St SW 3. Eye St & South Capitol St 4. Eye St & Carwash Driveway (to be converted to outbound / egress only w/ development) 5. Eye St & Half St SE 6. Eye St & First St SE 7. Eye St & New Jersey Ave SE 8. South Capitol Street & Signalized Intersection North of Proposed Driveway (added by A.Z.) <p>As data collection in Summer 2021 is not representative of typical travel patterns due to the COVID-19 emergency, volumes at proposed study intersections are available from several sources, outlined below.</p> <p>Historical turning movement counts are available from the following sources at the following intersections:</p> <ul style="list-style-type: none"> • 2 Eye Street SE TIS (11/2015) <ul style="list-style-type: none"> ○ Eye St & Half St SW ○ Eye St & Carwash Driveway ○ Eye St & Half St SE • CSX East Parcel CTR (12/2018) <ul style="list-style-type: none"> ○ Eye St & South Capitol St ○ Eye St & First St SE ○ Eye St & New Jersey Ave SE <p>We propose comparing the volumes from the above-mentioned sources and growing them according to historical DDOT traffic volume data based on their respective years of collection to establish baseline 2021 conditions. The CTR will include detailed calculations and rationales explaining how we established these baseline conditions.</p> <p><input checked="" type="checkbox"/> Scoping Graphic: Study Intersections</p> <p><input checked="" type="checkbox"/> Provide hard copies of TMCs in CTR appendix and electronic copies in DDOT-required spreadsheet format at time of submission.</p>	<p>DDOT 9.24.21: Include the signalized intersection north of the proposed driveway.</p> <p>GS response: Noted; this intersection will be included in the analysis. Since existing volumes are not available at the entrance to the surface lot, and the intersection is planned for a full reconfiguration with the Interstate ramps, only background and total future conditions with the reconfiguration will be included in the analysis.</p> <p>DDOT 9.30.21: DDOT concurs and notes that the intersection has been added to the left.</p>
<p>TIA Study Scenarios</p> <p>Propose an appropriate set of scenarios to analyze. Note the anticipated build-out year and project phasing. Analysis scenarios to be considered:</p> <ul style="list-style-type: none"> • Existing Conditions (Current Year) • Background Conditions (No-Build) • Total Future Conditions (With Development) • Total Future Conditions (With Development and Mitigation) • Additional Scenarios For Each Phase, as necessary • Total Future Conditions (+5 Years), as required 	<p>We propose to include the following scenarios following section 4.3 of DDOT's CTR guidelines:</p> <ul style="list-style-type: none"> • Existing Conditions (2021 Existing Conditions) • 2026 Future Conditions <u>without</u> the project (2026 Background Conditions) • 2026 Future Conditions <u>with</u> the project (2026 Total Future Conditions) <ul style="list-style-type: none"> ○ 2026 Mitigated Future Conditions <u>with</u> the project (2026 Mitigated Total Future Conditions), as necessary 	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

<ul style="list-style-type: none"> • Long Range +20 Years Planning Scenario, as required 		
<p>TIA Methodology</p> <p>Propose an appropriate methodology for the capacity analysis including the type of software program to be used. Per DEM 38.3.5.1, HCM methodology will be used to determine Level of Service (LOS), v/c, and vehicle queue lengths. LOS must be reported by intersection approach and v/c by lane group. DDOT prefers Synchro 9 or newer software for capacity and queueing analyses. SimTraffic (10 simulations averaged) should be used to further evaluate an observed queueing issue and determine a solution, as necessary.</p> <p><i>DDOT's required standard Synchro and SimTraffic inputs/settings are provided in Appendix H.</i></p> <p><i>Merge/weave/diverge analysis is required if any of the study intersections include a highway, freeway, or Interstate ramp (DEM 38.3.5.3). HCS software should be used for this analysis.</i></p>	<p>Capacity analyses will be performed using Highway Capacity Manual (HCM) methodologies using an industry recognized software package. We propose performing the analysis in Synchro 10 and reporting the results in delay and LOS using HCM 2000 methodologies. We propose to analyze the weekday morning and afternoon commuter peak hours, using the individual peak hours at all study area intersections. Synchro files will be obtained from DDOT for use in the vehicular capacity analysis. Signal timings for the study area intersections will be obtained from DDOT. Field visits will be performed to update existing geometric information into the Synchro models, and update Synchro files with current traffic signal timing plans.</p> <p>We will apply this methodology to the following analysis scenarios:</p> <ul style="list-style-type: none"> • Existing Conditions (2021 Existing Conditions) • 2026 Future Conditions <u>without</u> the project (2026 Background Conditions) • 2026 Future Conditions <u>with</u> the project (2026 Total Future Conditions) <ul style="list-style-type: none"> ○ 2026 Mitigated Future Conditions <u>with</u> the project (2026 Mitigated Total Future Conditions), as necessary <p>Adjustments to the Synchro network and signal timings may be made at locations where background conditions include roadway improvements that would necessitate such changes.</p> <p>The capacity analysis results will show the average delay, v/c, and the resulting LOS for each approach and for the overall intersection (where available), as well as the queuing results obtained from Synchro 10 for the average and 95th percentile queue for each lane group.</p> <ul style="list-style-type: none"> • We will highlight all LOS E or LOS F conditions per intersection and approach. • We will propose mitigation measures at intersections or approaches that degrade to an LOS E or F as a result of the development, or intersections or approaches operating under LOS E or F under background conditions that observe an increase in delay of greater than 5 percent, when compared to background scenario. • We will highlight all locations where the 95th percentile queue length exceeds the length of storage. We will note where the proposed project causes the 95th percentile queue length to exceed the available capacity of a lane group when it does not in the background scenario. • We will propose mitigation measures at intersections where the proposed project causes any 95th percentile queue lengths that exceed the available capacity to experience an increase in length of greater than 150 feet along any lane group. <p>An assessment of feasibility given the existing ROW at each location will be given for each potential mitigation measure.</p> <p><input checked="" type="checkbox"/> Will provide copies of Synchro, SimTraffic, and other analysis software printouts in study appendix and electronic copies of analysis files at time of CTR submission.</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>
<p>Transportation Network Improvements</p> <p>List and map all roadway, transit, bicycle, and pedestrian projects funded by DDOT or WMATA, or proffered by others, in the vicinity of the study area and expected to open for</p>	<p>The following improvements to the transportation network will be assumed in background and total future conditions:</p> <ul style="list-style-type: none"> • Eye Street SW/SE cycle tracks between 7th Street SW and New Jersey Avenue SE; • First Street SE cycle tracks between Eye Street and Potomac Avenue SE • South Capitol Street Project – Includes the relocation of I-395 ramps and reconfiguration of South Capitol Street / Eye Street intersection adjacent to the site. 	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

<p>public use prior to the proposal's anticipated build-out year. Review the STIP, CLRP, and proffers/commitments for other nearby developments.</p>	<p><input checked="" type="checkbox"/> <i>Scoping Graphic: Locations of background transportation network improvements</i></p>	
<p>Local Traffic Growth List and map developments to be analyzed as local background growth. This will include known matter-of-right and zoning-approved developments within ¼ mile of site and others more than ¼ mile from site if their traffic is distributed through study intersections. Document the portions of developments anticipated to open by the projected build-out year.</p>	<p>The CTR will consider the following background developments:</p> <ol style="list-style-type: none"> 1. Kelvin Apartments/Envy Condos (1250 Half St SE & 70 N St SE) 2. West Half Street (1201 Half St SE) 3. Square 769 (1100 2nd Pl SE) 4. The Yards Parcel L1 5. The Yards Parcel L2 6. The Yards Parcel O 7. DC Water Headquarters (125 O St SE) 8. The Riverfront (Florida Rock - 71-79 Potomac Ave SE) 9. Novel Capitol View 10. 950 South Capitol Street 11. Former Congressional Square Project 12. The Garrett at the Collective 13. Capper Residential 14. 1000 4th Street SW 15. Randall School Redevelopment 16. CSX East Redevelopment 17. 375 & 425 M Street SW 18. The Bard 19. Wharf Phase 2 20. DDOT HQ (250 M Street SE) 21. The Yards Parcel G 22. The Yards Parcel I 23. The Yards Parcel F1 24. The Yards Parcel A1 25. The Yards Parcel F 26. 5 M Street 27. 1000 South Capitol Street SE 28. 1319 South Capitol Street SW <p><input checked="" type="checkbox"/> <i>Scoping Graphic: Background development projects near study area</i></p> <p><input type="checkbox"/> <i>Scoping Table: Completion amounts/portions occupied of background developments</i></p>	<p>DDOT 9.24.21: Confirm that all of these projects have not been constructed yet. DC Water HQ and DDOT HQs have already been built and opened. Same with Yards Parcel L and Yards Parcel G (though this one may have been built but not opened).</p> <p>GS response: The base volumes for 2021 Existing Conditions were collected in 2015 and 2018 as current volumes are not representative of typical conditions due to the ongoing COVID-19 emergency. Therefore, although some of these projects have now been completed, they would not have been captured in the 2015 and 2018 counts that comprise the 2021 Existing Conditions.</p> <p>Note: a 28th background development has been added since this scoping form was originally submitted and is highlighted in the list to the left.</p> <p>DDOT 9.30.21: DDOT appreciates the clarification, that makes sense. Be sure to include the distributions of each of these projects in the Appendix.</p>

Regional Traffic Growth

Propose a methodology to account for growth in regional travel demand passing through the study area. An appropriate methodology could include reviewing historic AADT traffic counts, MWCOG model growth rates, data from other planning studies, or recently conducted nearby CTRs. These sources should only be used as a guide.

Generally, maximum annually compounding growth rates of 0.5% in peak direction and 2.0% in non-peak direction are acceptable. Growth rates based should be based on DDOT historical data from 10+ years, if available. Adjustments to the rates may be necessary depending on the amount of traffic assumed from local background developments or if there were recent changes to the transportation network.

We propose to examine volumes contained in the MWCOG regional model, as well as historical DDOT AADTs (where available), to develop an average annual growth rate for study area roadways following section 4.6.2 of DDOT’s CTR guidelines. A summary of COG model volumes and trends for the study area are attached to this scoping form. This methodology accounts for all future projects and developments in the COG model and allows for district growth rates by direction and time of day.

We based growth rates between 2015/2018 (data collection) and 2021 (existing conditions) on historical AADT growth between 2015/2018 and 2021. We based growth rates between 2021 (existing conditions) and 2026 (project completion) on the differences between the year 2021 and 2026 COG model scenarios. Where the COG model showed negative or minimal growth, we assumed a conservative 0.1% per year minimum growth. Maximum growth rates of 0.5% in the peak direction and 2.0% in the non-peak direction were used.

Proposed growth rates for each roadway for the 2015/2018-2021 period and the 2021-2026 period are shown below.

Roadway	Dir.	Proposed Annual Growth Rate Between 2015/2018 & 2021 ¹		Proposed Annual Growth Rate Between 2021 and 2026 ²		Proposed Total Growth Between 2021 and 2026	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Eye St SW/SE	EB	0.10%	0.10%	1.00%	0.10%	5.10%	0.50%
	WB	0.10%	0.10%	0.30%	2.00%	1.51%	10.41%
South Capitol St	NB	1.20%	1.20%	0.10%	0.40%	0.50%	2.02%
	SB	1.20%	1.20%	1.00%	0.10%	5.10%	0.50%
Half St SE ³	NB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
	SB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
First St SE ³	NB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
	SB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
New Jersey Ave SE	NB	0.10%	0.10%	0.10%	2.00%	0.50%	10.41%
	SB	0.10%	0.10%	2.00%	0.10%	10.41%	0.50%

¹ These rates were applied to volumes recorded in 2015 and 2018 that were used to establish 2021 existing conditions. Rates are based on historical AADT data.

² These rates were applied to volumes grown from 2021 existing conditions. Rates are based on MWCOG’s currently adopted regional transportation model for this time period.

³ Neither AADT nor MWCOG data is available for these streets; therefore a conservative 0.1% growth rate per year was used.

Scoping Table: Projected regional growth assumptions (dependent on methodology), show growth rates by facility, direction, and time of day

Scoping Graphic: Projected regional growth assumptions (dependent on methodology), show growth rates by facility, direction, and time of day

DDOT 9.24.21: DDOT concurs.

GS response: Noted.

<p>Trip Distribution</p> <p>Provide sources and justification for proposed percentage distribution of site-generated trips. Additionally, document proposed pass-by distributions and the re-routing of existing or future vehicles based on any changes to the transportation network.</p> <p><i>Percentage distributions must be shown turning at intersections throughout the transportation network and at site driveways and garage entrances to ensure appropriate routing assumptions.</i></p> <p><i>The agreed upon trip distribution methodology may not be revised between scoping and CTR submission without concurrence by DDOT Case Manager.</i></p> <p><i>Given the District's urban context and grid network, a small portion of trips (up to 5% of trips through an intersection) may be re-routed from their original routes to an alternate route due to traffic congestion.</i></p>	<p>Trip distribution for the site was determined based on CTPP TAZ flow data. Attached to this scoping form are figures depicting the CTPP TAZ flow data for residents of the project TAZ commuting by vehicle to other TAZs.</p> <p>The resulting proposed trip distributions are illustrated on an attached graphic.</p> <p><input checked="" type="checkbox"/> Scoping Graphic(s): <i>Percentage Distribution by Land Use, Direction, Time of Day</i></p>	<p>DDOT 9.24.21: In the outbound percentage graphic, why would vehicles exit at #4 and turn left to go down Half Street to reach S. Cap? Wouldn't vehicles turn right on I and left on S. Cap? Or is it because S. Cap & I is already congested?</p> <p>GS response: Westbound left turns from Eye Street to South Capitol Street will be prohibited with the reconfiguration of the intersection, according to plans and Synchro file provided by DDOT for the new South Capitol Street design.</p> <p>DDOT 9.30.21: Our understanding is that the intersection redesign project is intended to restore all movements to the intersection. Please include the WB left-turns, which can occur today and should in the future. Update the distribution accordingly.</p> <p>DDOT 9.24.21: In the inbound percentage graphic, how do you plan to get 45% of the cars into the site from the northwest given the prohibition on U turns and left-turns at I Street? In reality, cars make rights onto K SW to Half SW to I SW and left to S. Cap. Or they continue south on S. Cap, get off at M SE and left onto Half SE up to I and S. Cap.</p> <p>GS response: This updated scoping form routes these vehicles to the south to K Street – west to Half Street – north to Eye Street to proceed to turn left onto northbound South Capitol Street. Based on the trip generation and distributions, approximately 4 AM and 12 PM vehicles would be required to take this route. U-turns were assumed to be prohibited from southbound South Capitol Street at Eye Street.</p> <p>DDOT 9.30.21: DDOT concurs.</p>
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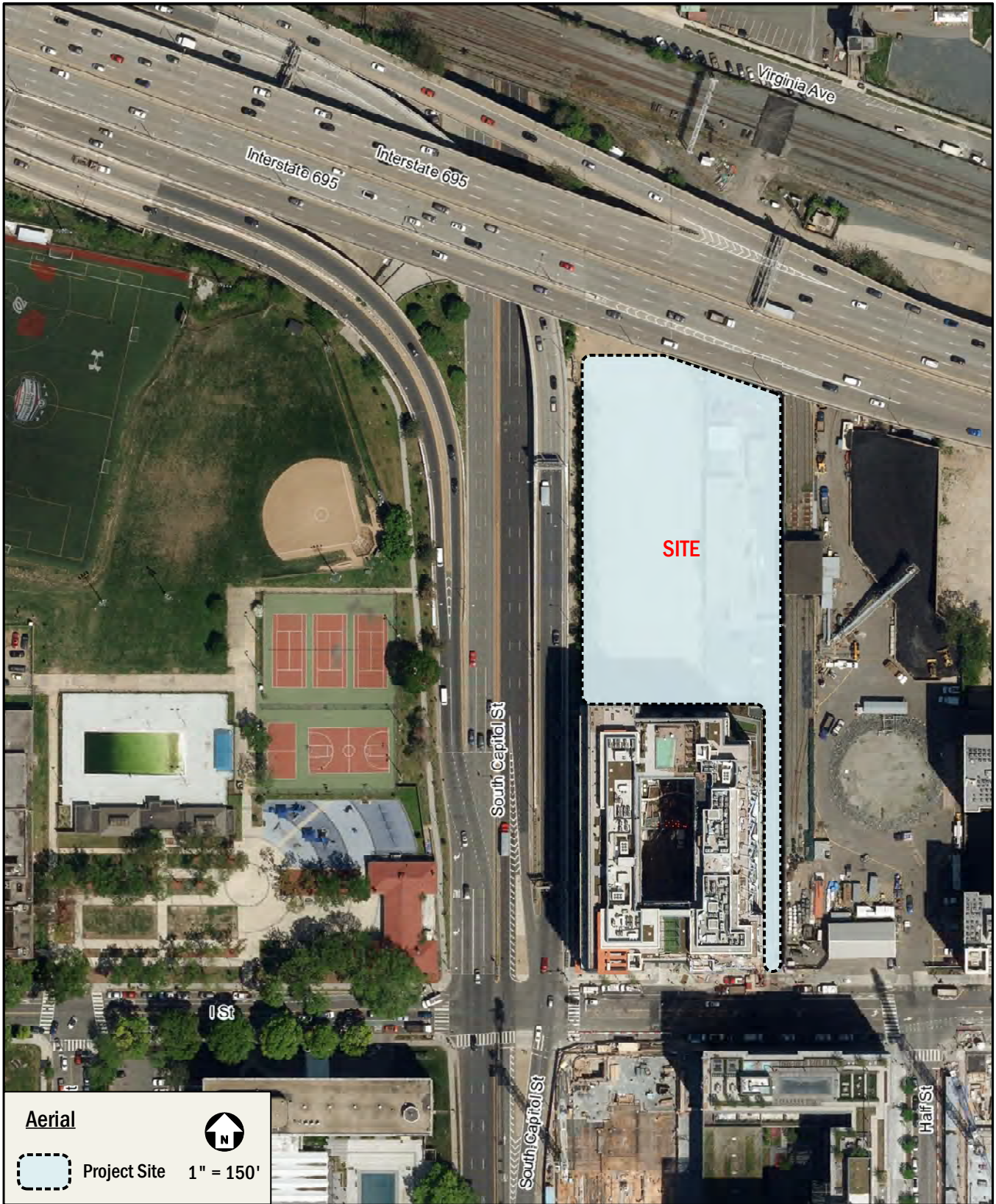
Section 5: MITIGATION

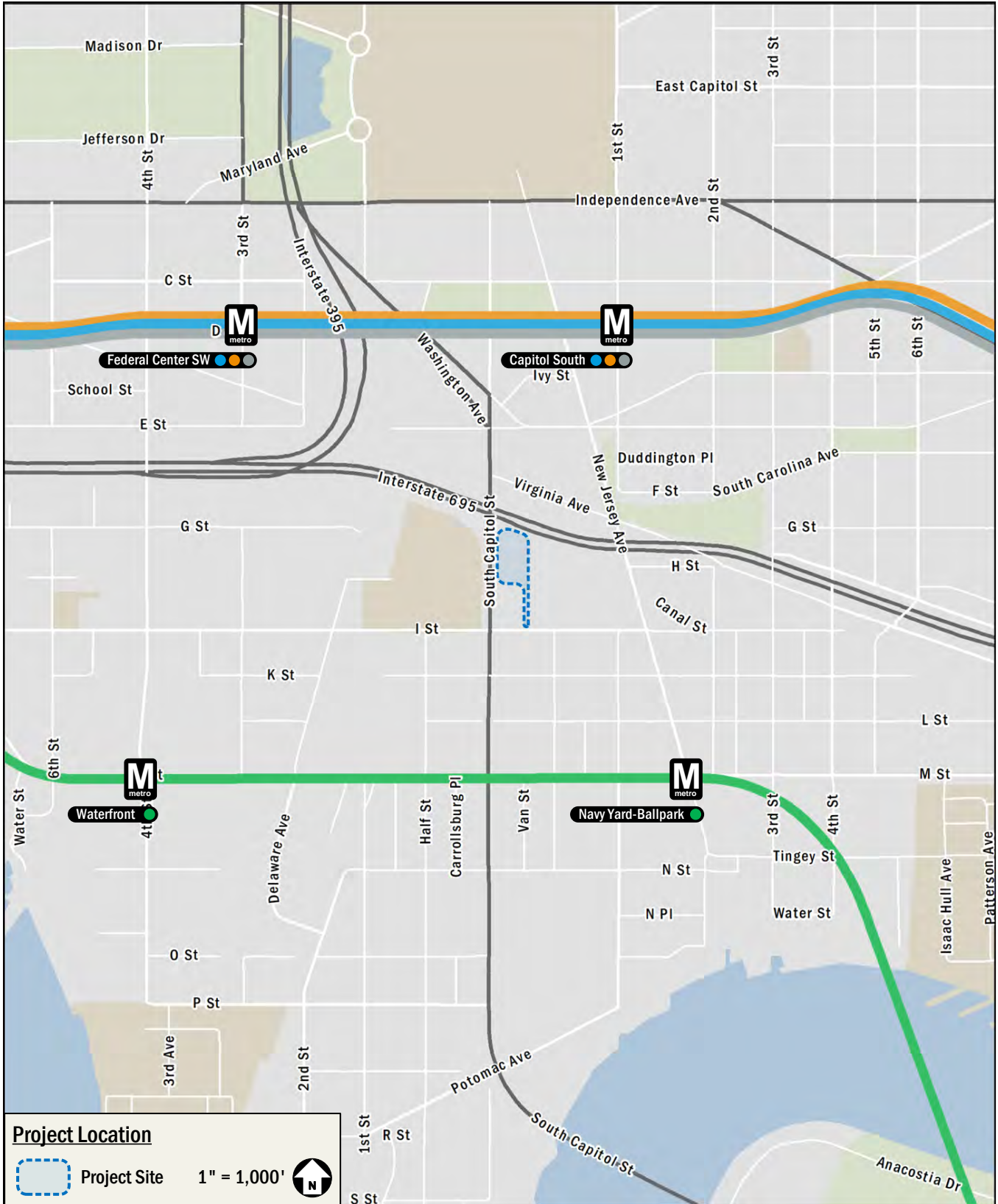
The completed CTR must detail all proposed mitigations. The purpose of discussing mitigation at the scoping stage is to highlight DDOT’s Significant Impact Policy, DDOT’s approach to mitigation, and to give the Applicant an opportunity to gain initial feedback on potential mitigations that may ultimately be proposed. Any mitigation strategies discussed and included in the *Scoping Form* are considered non-binding until formally evaluated in the study and committed to as part of a related action.

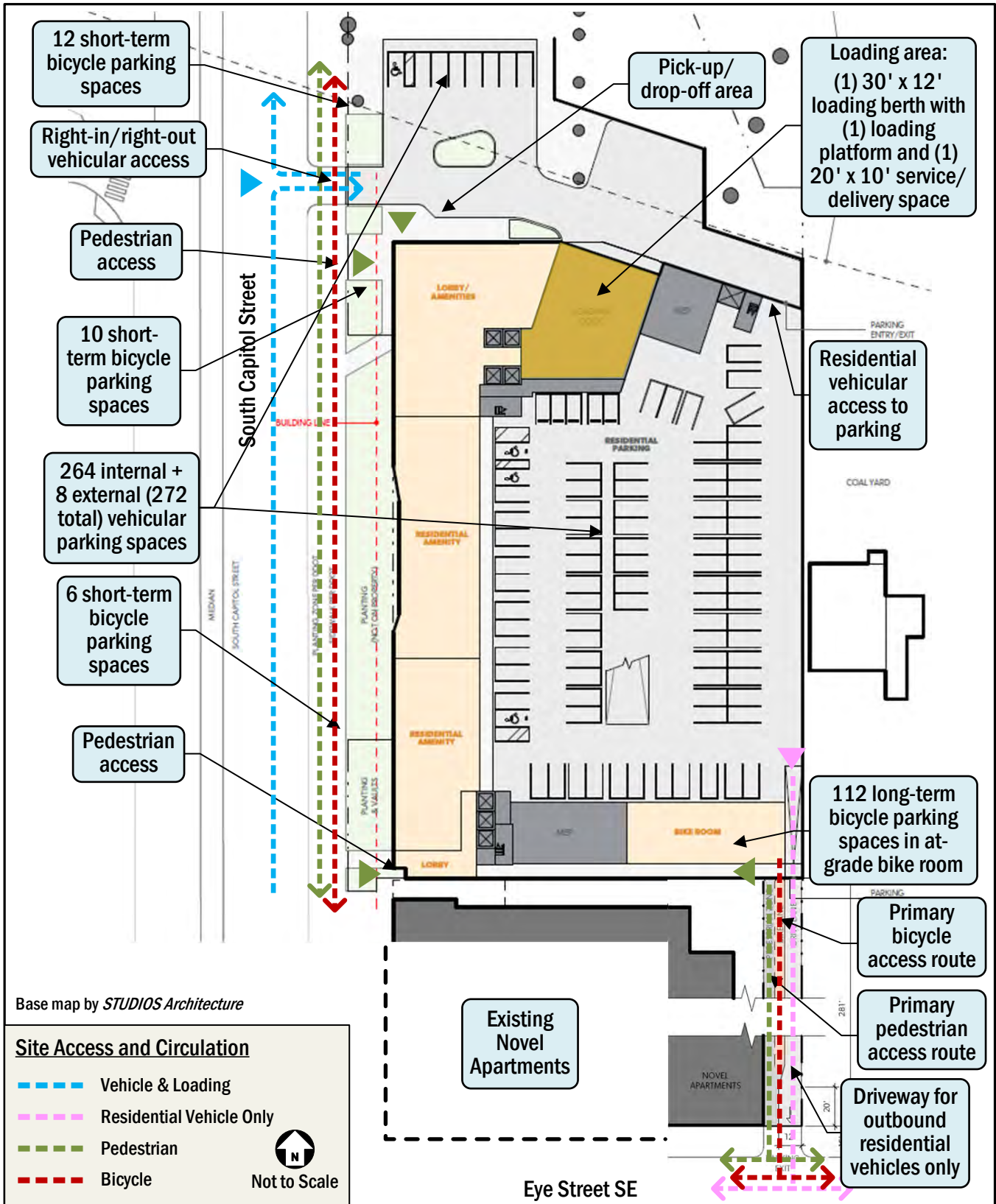
CATEGORY & GUIDELINES	CONSULTANT PROPOSAL	DDOT COMMENTS
<p>DDOT Significant Impact Policy</p> <p><u>Vehicle Parking Supply</u> DDOT considers a high parking provision as an ‘impact’ that needs to be mitigated since it is a permanent site feature that encourages additional driving and yield vehicle trips in the future that were not contemplated in the study. Appropriate mitigations include reducing vehicle parking, implementing substantive TDM strategies, off-site non-automotive network upgrades, and making monetary contributions to DDOT for non-auto improvements. See Table 2 to determine if a site is over-parked based on land use and distance to transit.</p> <p><u>Capacity Impacts at Intersections</u> All site-generated vehicular impacts to the transportation network during study peak hours must be mitigated, per DEM 38.3.5, if any of the following occur:</p> <ul style="list-style-type: none"> • Degradation of an approach or intersection to LOS E or F or intersection v/c ratio increases to 1.0 or greater from Background to Total Future Conditions. • If an approach or intersection exceeds LOS E or F or movement/lane group exceeds 1.0 v/c ratio under Background Conditions then an increase in delay or v/c ratio by 5% or more under Total Future Conditions. • If 95th percentile vehicle queuing length exceeds available capacity of approach or turn lane under Total Future Conditions. • If 95th percentile queue length of an approach or turn lane increases by 150 feet or more from Background to Total Future Conditions. 	<p><input checked="" type="checkbox"/> <i>The Applicant acknowledges DDOT’s Significant Impact Policy.</i></p> <p><input checked="" type="checkbox"/> <i>The study will comply with all other policies in the Guidance for Comprehensive Transportation Review and the Category & Guidelines column of this Scoping Form not explicitly documented in the Consultant Proposal or DDOT Comments columns.</i></p> <p><input checked="" type="checkbox"/> <i>The study will include all of the required graphics, tables, and deliverables for the relevant sections determined during scoping, as shown in Table 1 of Guidance for Comprehensive Transportation Review.</i></p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>
<p>DDOT Approach to Mitigation</p> <p>DDOT’s approach to mitigation is to first establish optimal site design and operations to support efficient site circulation. When these efforts alone cannot properly mitigate an action’s impact, reducing on-site vehicle parking, implementing TDM measures, making upgrades to the pedestrian, bicycle, and transit networks to encourage use of non-automotive modes, or monetary contribution to DDOT for</p>	<p><input checked="" type="checkbox"/> <i>The Applicant acknowledges DDOT’s approach to mitigation that prioritizes (in order of DDOT preference) optimal site design, reducing vehicle parking, implementing more TDM strategies, making non-automotive network improvements, and making a monetary contribution to DDOT for non-auto improvements before considering options that increase roadway capacity or alter roadway operations.</i></p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

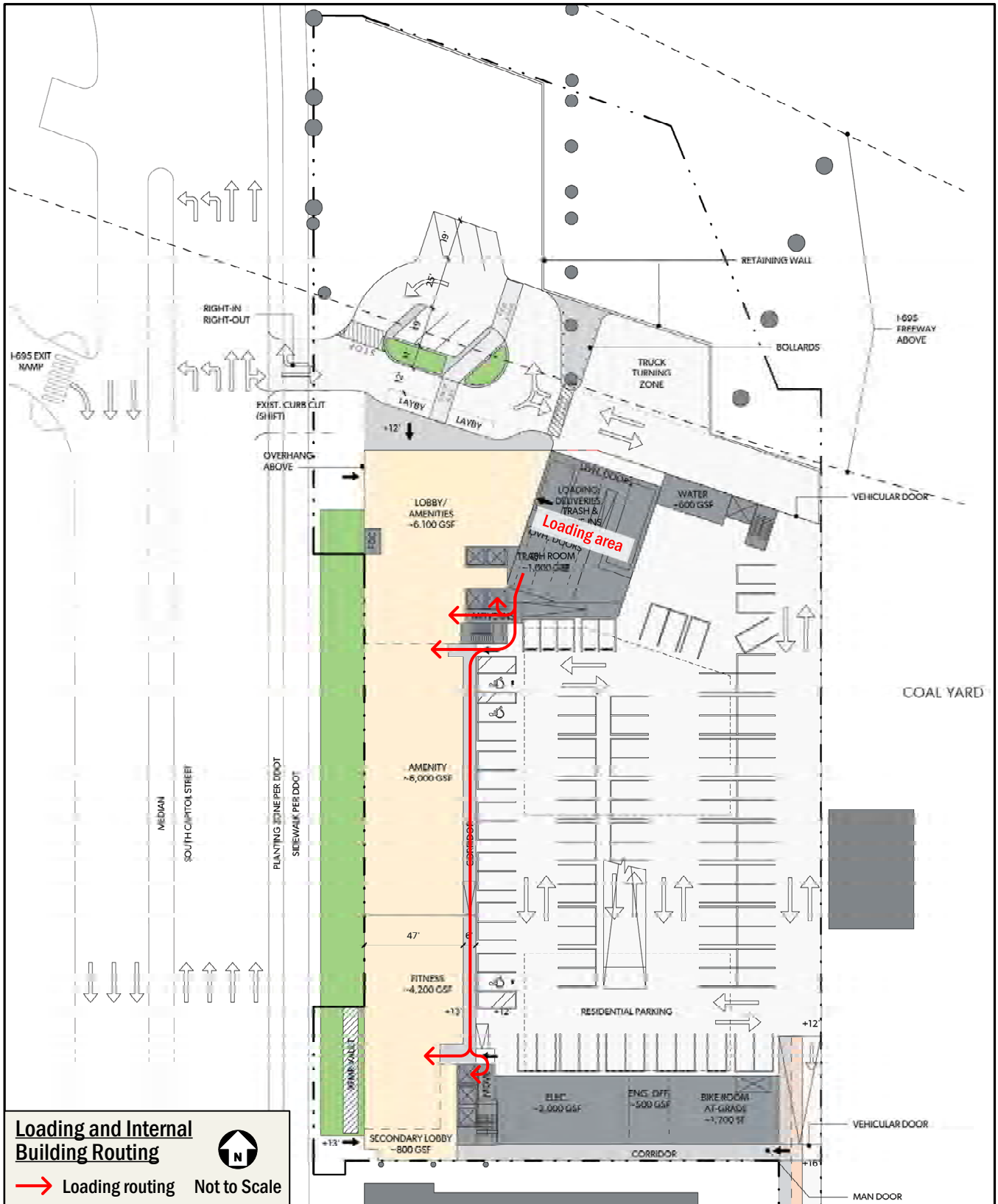
<p>non-auto improvements must be proposed. Only when these options are exhausted will DDOT consider capacity-increasing changes to the roadway network because such changes often have detrimental impacts on non-automotive travel and are often contrary to the District’s multi-modal transportation goals.</p>		
<p>Transportation Demand Management (TDM)</p> <p>A TDM Plan is typically required to offset site-generated impacts to the transportation network or in situations where a site provides more parking than DDOT determines is practical for the use and surrounding context. TDM strategies are also an integral part of the District’s transportation options. As such, a Baseline TDM plan is required in all CTRs regardless of impacts to the network. An Enhanced Plan or greater is required if the site is over-parked per Table 2 or there are roadway impact identified. Sample TDM plans by land use and tier can be found in Appendix C.</p> <p><i>Document all existing TDM strategies being implemented on-site (even outside of a formal TDM Plan) and those being proposed and committed to by the Applicant. Elements of the TDM Plan included in CTR must be broken down by land use and user (i.e., employee, faculty, resident, visitor, etc.).</i></p>	<p><input checked="" type="checkbox"/> <i>The Applicant will include at least a Baseline TDM Plan. The TDM plan will increase to Enhanced Plan or beyond depending on the parking ratio and other impacts identified in the study.</i></p>	<p>DDOT 9.24.21: Based on the high parking supply, start with an Enhanced TDM plan and we will work with the Applicant to include additional items as needed based on the results of the CTR.</p> <p>GS response: The Applicant is proposing a robust TDM plan in the CTR to include Baseline + Enhanced + Additional Measures. Further, the Applicant has reduced the parking from 296 to 272 spaces.</p> <p>DDOT 9.30.21: DDOT concurs and supports the reduction in parking.</p>
<p>Performance Monitoring Plan (PMP)</p> <p>DDOT may require a PMP in situations where anticipated vehicle trips are large in magnitude, unpredictable, or necessitate a vehicle trip cap. Typically, this is required for schools expected to have a significant amount of single occupancy vehicle trips or very large developments.</p> <p>The monitoring plan will establish thresholds for new trips a project can generate, define post-completion evaluation criteria and methodology, determine the frequency of reporting, and establish potential remediating measures (e.g., adjust trip caps or implement additional TDM strategies).</p> <p><i>Document any existing performance monitoring Plans in effect and any proposed changes.</i></p>	<p>Noted.</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

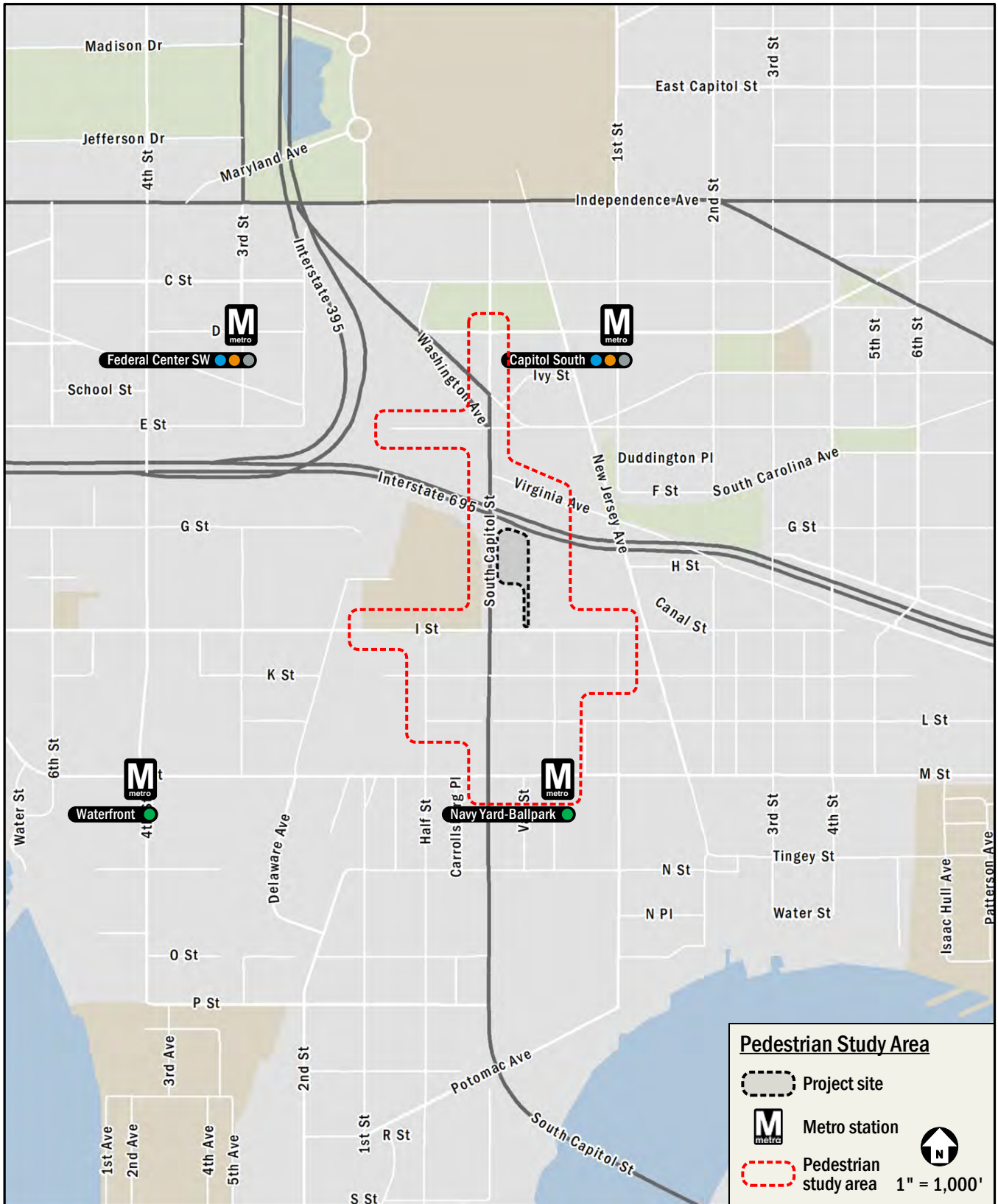
<p>Roadway Operational and Geometric Changes</p> <p>Describe all proposed roadway operational and geometric changes in CTR with supporting analysis and warrants in the study appendix. Detail must be provided on any ROW implications of proposed mitigations. All proposed changes in traffic control must be conducted following the procedures outlined in the <i>Manual of Uniform Traffic Control Devices</i> (MUTCD).</p> <p><i>Note any preliminary ideas being considered.</i></p>	<p>As noted in the Site Access section of this form, primary vehicular access to the site will be provided from a curb cut located along South Capitol Street, and a additional egress only driveway would be provided via the existing driveway/curb cut connecting Lot 31 to Eye Street SE.</p> <ul style="list-style-type: none"> The South Capitol Street access is proposed to be right-in/right-out and will serve the project's loading facilities, parking garage, and a dedicated pick-up/drop-off area for ride-hailing and deliveries. The proposed South Capitol Street access previously received concept approval from DDOT PSC. The Eye Street SE access is proposed to be one-way southbound, serving only resident egress from the parking garage. This drive aisle is approximately 20-feet wide and would be reconfigured to provide a pedestrian pathway, a bicycle lane and a southbound (egress only) vehicular travel lane. <p>Additional details and justification for the proposed access scheme will be provided in the CTR.</p>	<p>DDOT 9.24.21: Acknowledged.</p> <p>GS response: Noted.</p>
Section 6: ADDITIONAL TOPICS FOR DISCUSSION DURING SCOPING		
CATEGORY & GUIDELINES	CONSULTANT PROPOSAL	DDOT COMMENTS
<p>ANC Discussions and Feedback</p> <p>Provide an update on the status of Community Benefits Agreement, any ANC concerns, or other concerns expressed by the community.</p>	<p>Discussions with ANC 6D have begun and are ongoing.</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>
<p>Miscellaneous Items for Discussion</p> <p>These items could include relevant on-going discussions with other agencies and stakeholders or seeking direction other types of analyses to be included (i.e., traffic calming proposal, TOPP, TMP).</p>	<p>N/A</p>	<p>DDOT 9.24.21: DDOT concurs.</p> <p>GS response: Noted.</p>

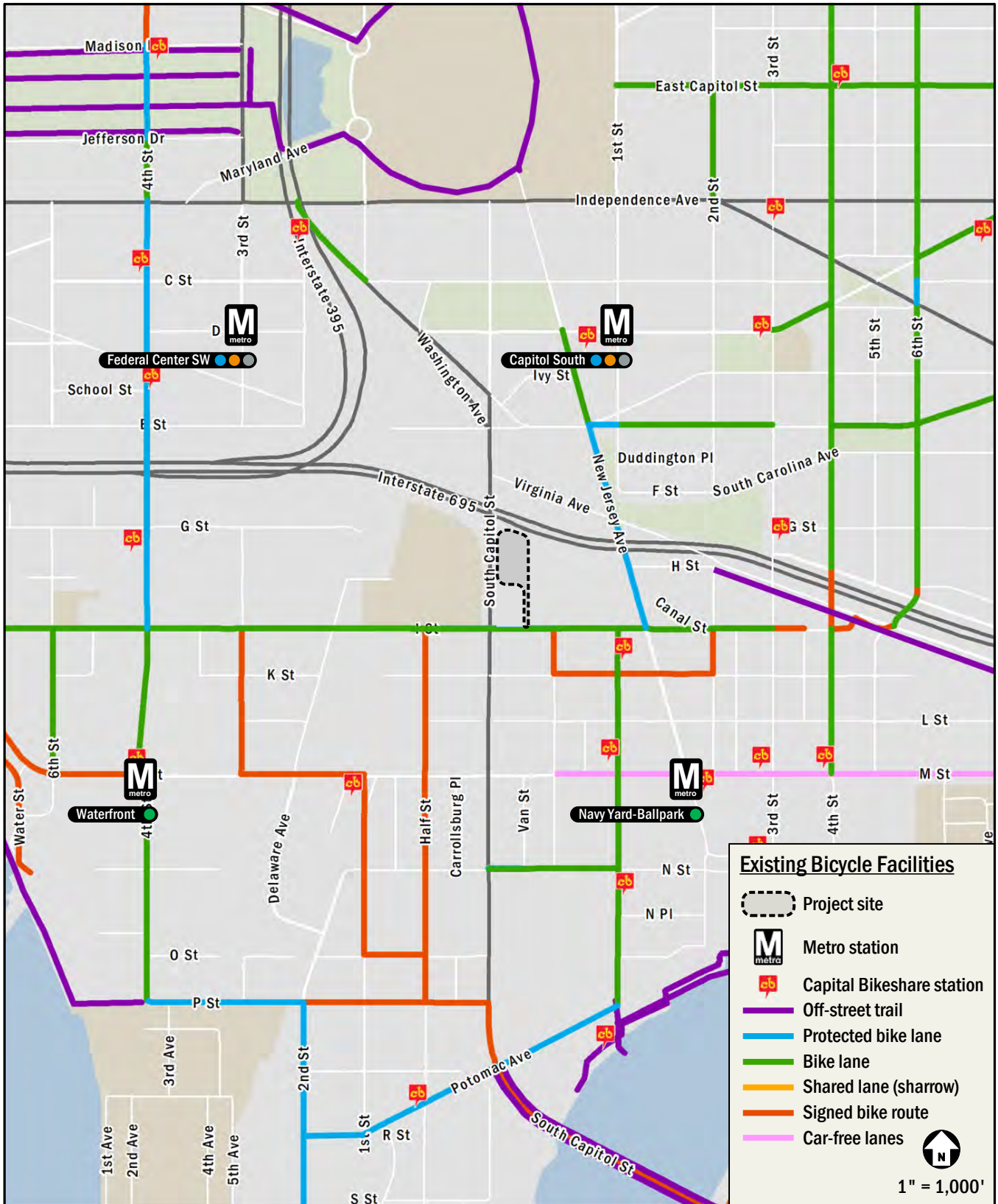


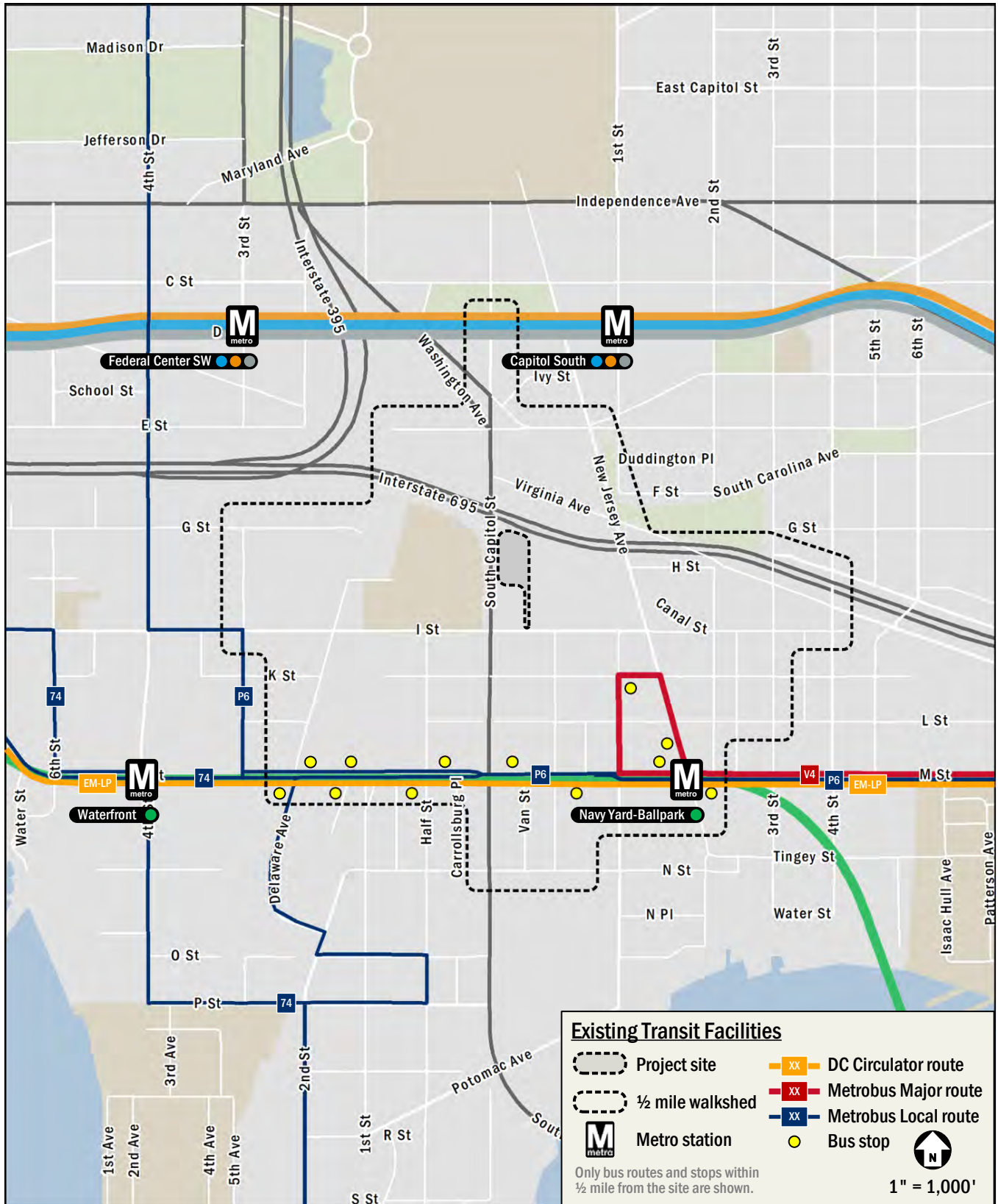


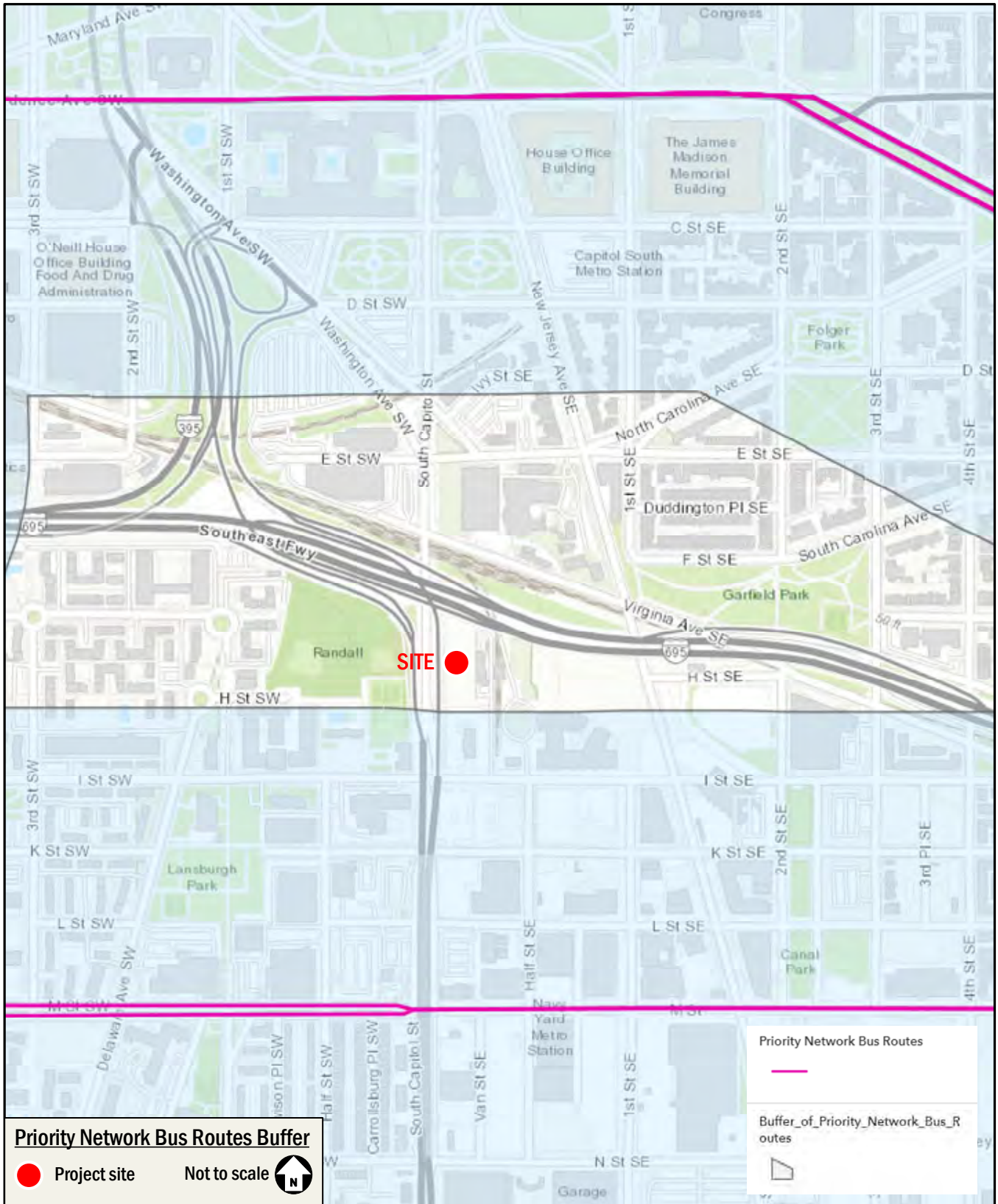


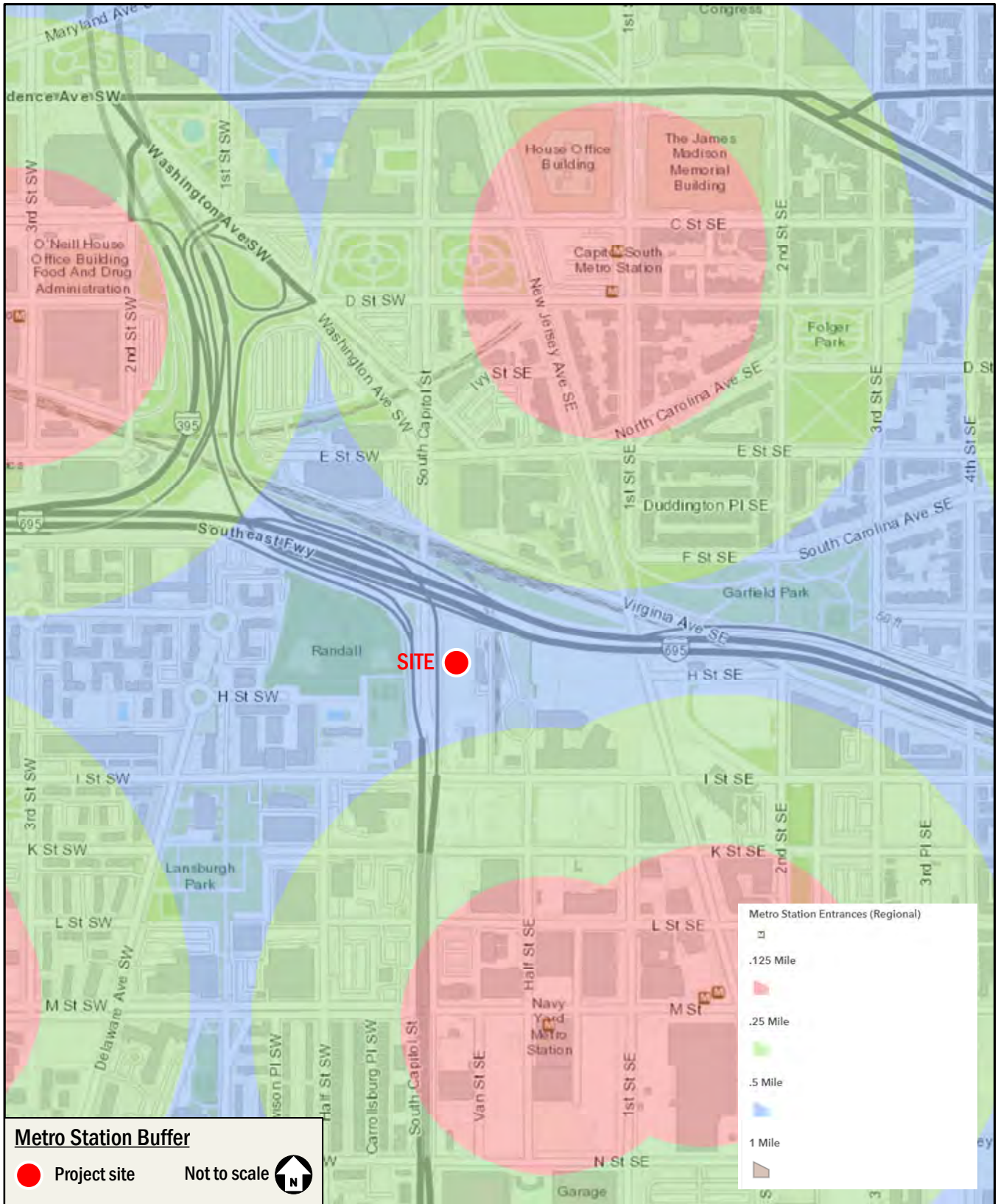


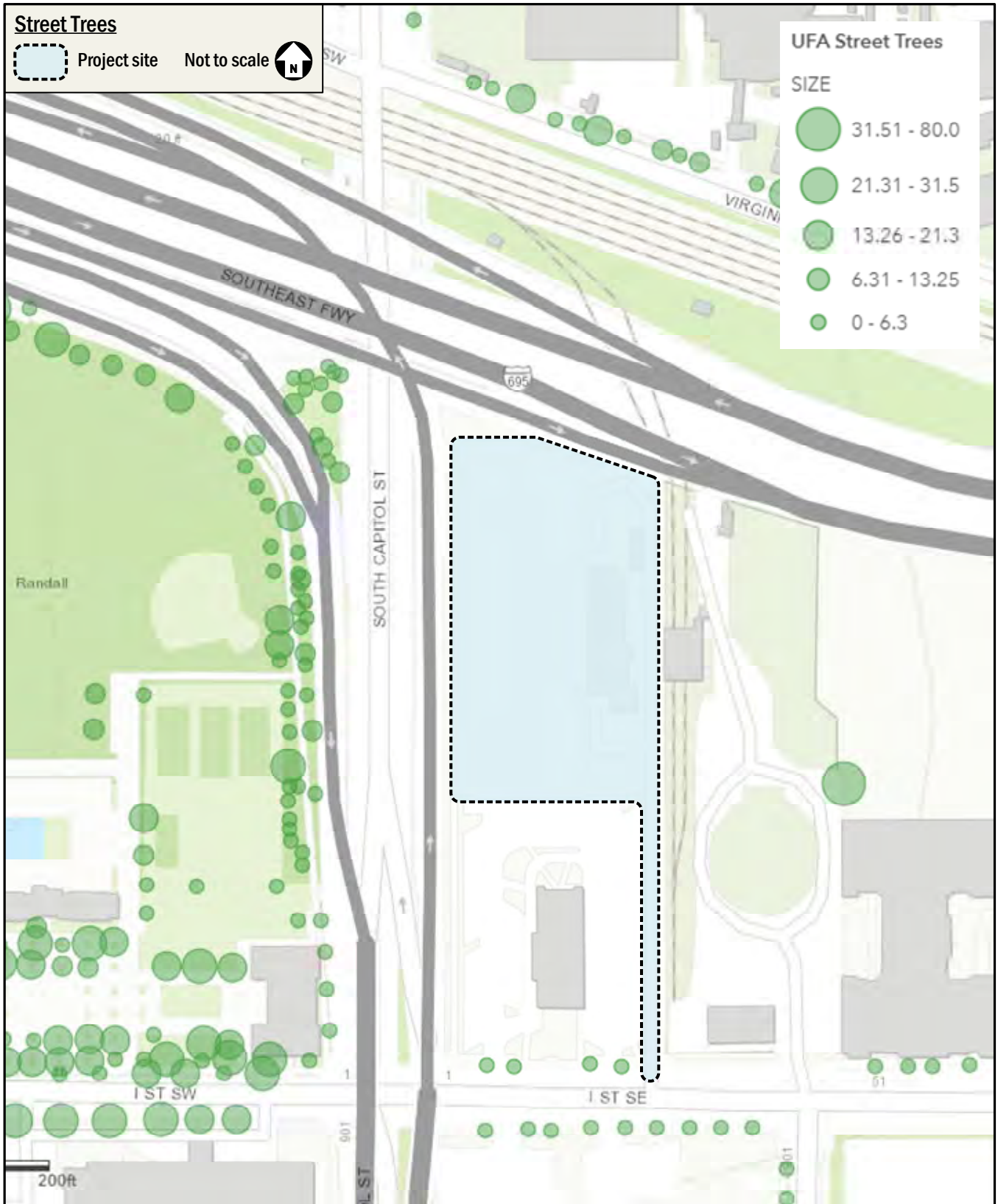












Mode Split Assumptions for Proposed Project

Residential Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
Census Tract 72 Residents	32%	3%	37%	---	19%	3%	6%
CTPP residents (TAZ 20372)	32%	3%	33%	2%	24%	3%	3%
State of the Commute 2019 (of DC Residents)	31%	2%	47%	17%		3%	
WMATA Ridership Survey Table 10 (Residential Mode Share: CBD)	18%		56%	26%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	35%	40%	5%	20%	0%

A: Approved Scope

Proposed Development Trip Generation: CSX West

520 dwelling units

Step 1: Base trip generation using ITEs' Trip Generation

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Saturday Peak Hour			Weekday
			In	Out	Total	In	Out	Total	In	Out	Total	Total
High-rise Apt.	222	520 du	38 veh/hr	120 veh/hr	158 veh/hr	113 veh/hr	72 veh/hr	185 veh/hr	102 veh/hr	83 veh/hr	185 veh/hr	956 veh
Calculation Details:			24%	76%	=0.28X+12.86	61%	39%	=0.34X+8.56				Ln(T)=0.84Ln(X)+1.61

Note: The setting used for the calculation above was General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Saturday Peak Hour			Weekday
		In	Out	Total	In	Out	Total	In	Out	Total	Total
High-rise Apt.	1.18 ppl/veh	45 ppl/hr	141 veh/hr	186 ppl/hr	133 ppl/hr	85 veh/hr	218 ppl/hr	120 ppl/hr	98 veh/hr	218 ppl/hr	1128 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Saturday Peak Hour			Weekday
			In	Out	Total	In	Out	Total	In	Out	Total	Total
High-rise Apt.	Auto	35%	16 ppl/hr	49 veh/hr	65 ppl/hr	47 ppl/hr	29 veh/hr	76 ppl/hr	42 ppl/hr	34 veh/hr	76 ppl/hr	395 ppl
High-rise Apt.	Transit	40%	18 ppl/hr	56 veh/hr	74 ppl/hr	53 ppl/hr	34 veh/hr	87 ppl/hr	48 ppl/hr	39 veh/hr	87 ppl/hr	451 ppl
High-rise Apt.	Bike	5%	2 ppl/hr	7 veh/hr	9 ppl/hr	7 ppl/hr	4 veh/hr	11 ppl/hr	6 ppl/hr	5 veh/hr	11 ppl/hr	56 ppl
High-rise Apt.	Walk	20%	9 ppl/hr	29 veh/hr	38 ppl/hr	26 ppl/hr	18 veh/hr	44 ppl/hr	24 ppl/hr	20 veh/hr	44 ppl/hr	226 ppl

Step 4: Convert auto trips back to vehicles/hour

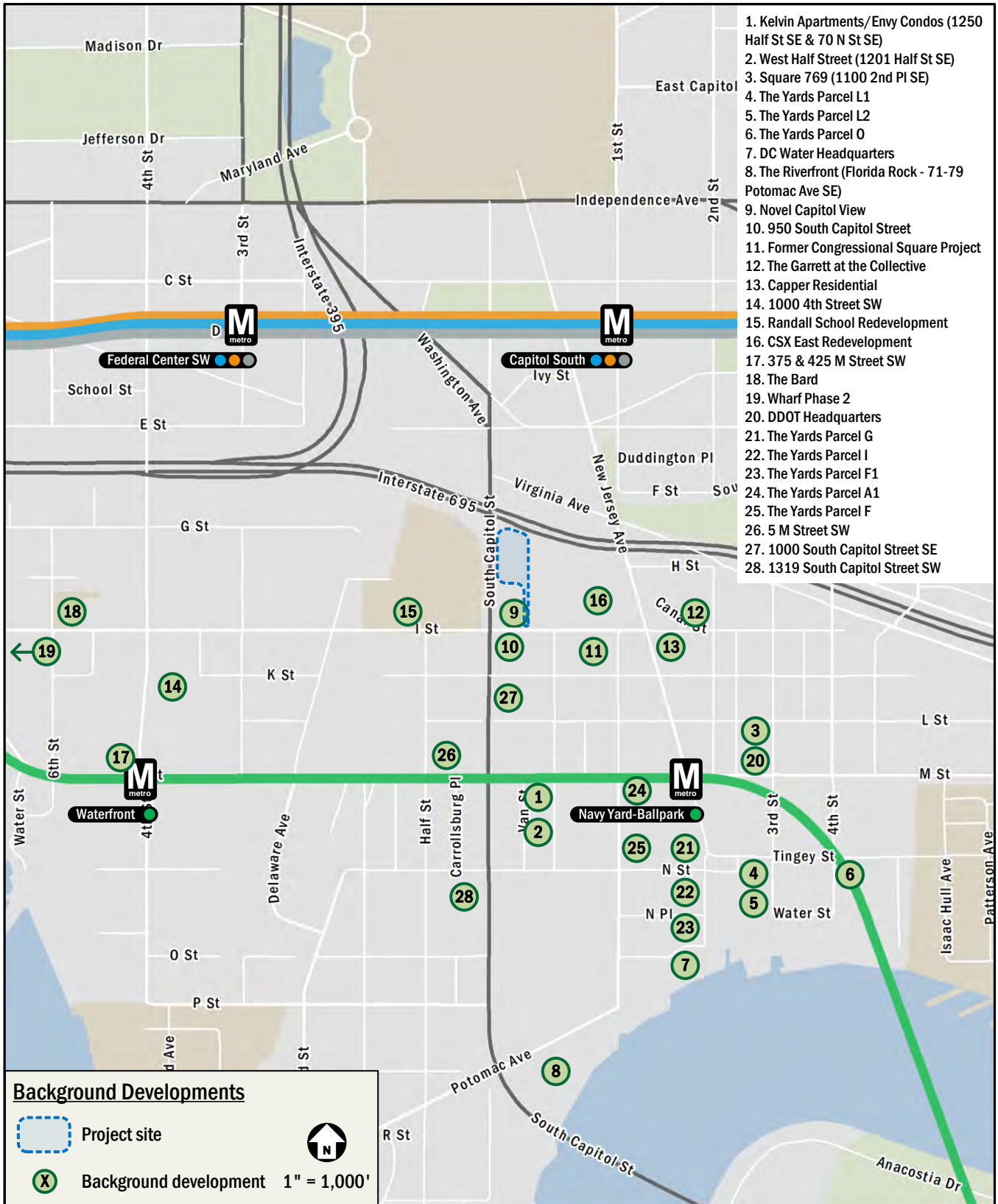
Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Saturday Peak Hour			Weekday
		In	Out	Total	In	Out	Total	In	Out	Total	Total
High-rise Apt.	1.18 ppl/veh	14 veh/hr	41 veh/hr	55 veh/hr	40 veh/hr	24 veh/hr	64 veh/hr	36 veh/hr	28 veh/hr	64 veh/hr	335 veh

Trip Gen Summary

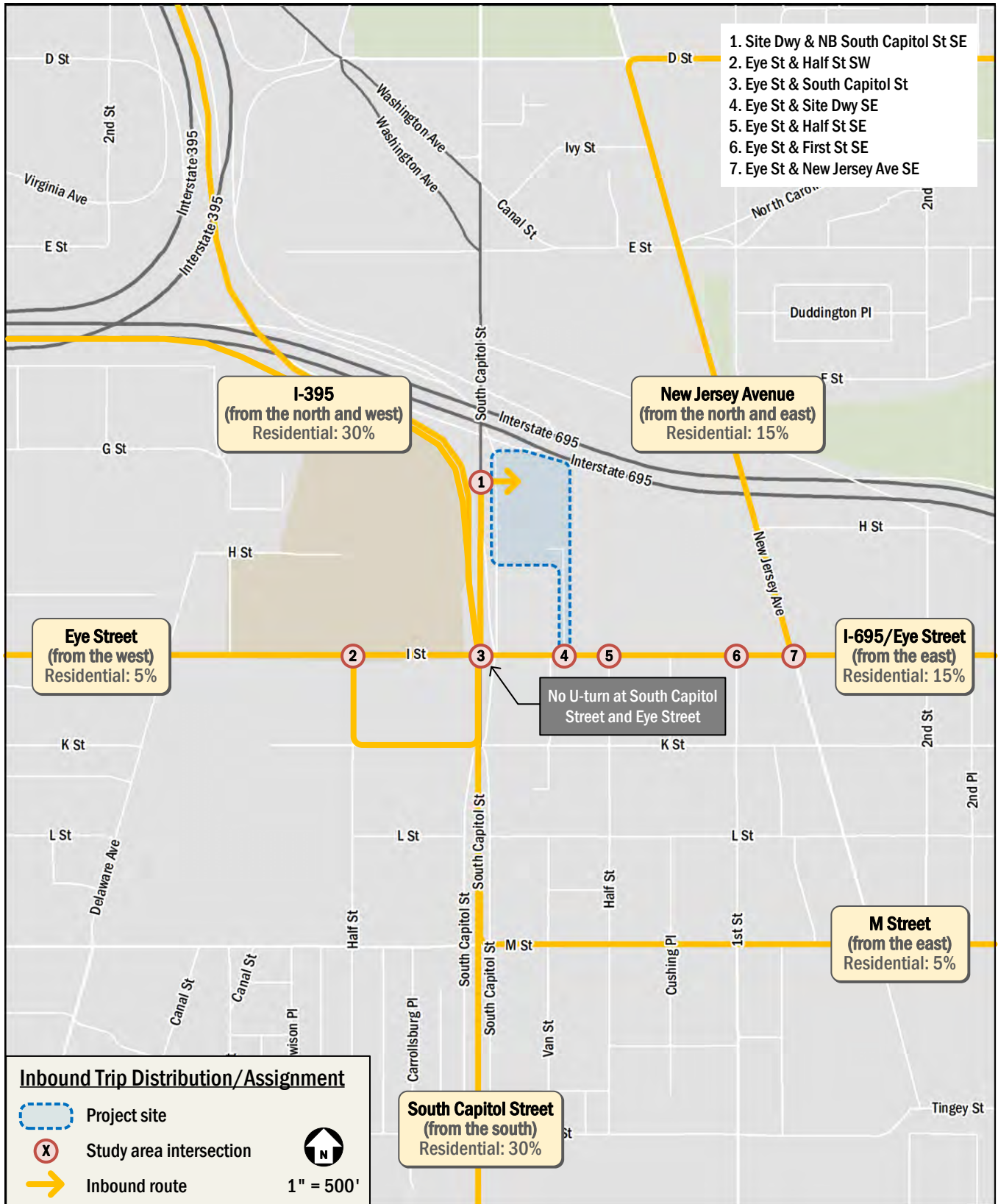
Mode	AM Peak Hour			PM Peak Hour			Saturday Peak Hour			Weekday
	In	Out	Total	In	Out	Total	In	Out	Total	Total
Auto	14 veh/hr	41 veh/hr	55 veh/hr	40 veh/hr	24 veh/hr	64 veh/hr	36 veh/hr	28 veh/hr	64 veh/hr	335 veh
Transit	18 ppl/hr	56 ppl/hr	74 ppl/hr	53 ppl/hr	34 ppl/hr	87 ppl/hr	48 ppl/hr	39 ppl/hr	87 ppl/hr	451 ppl/hr
Bike	2 ppl/hr	7 ppl/hr	9 ppl/hr	7 ppl/hr	4 ppl/hr	11 ppl/hr	6 ppl/hr	5 ppl/hr	11 ppl/hr	56 ppl/hr
Walk	9 ppl/hr	29 ppl/hr	38 ppl/hr	26 ppl/hr	18 ppl/hr	44 ppl/hr	24 ppl/hr	20 ppl/hr	44 ppl/hr	226 ppl/hr

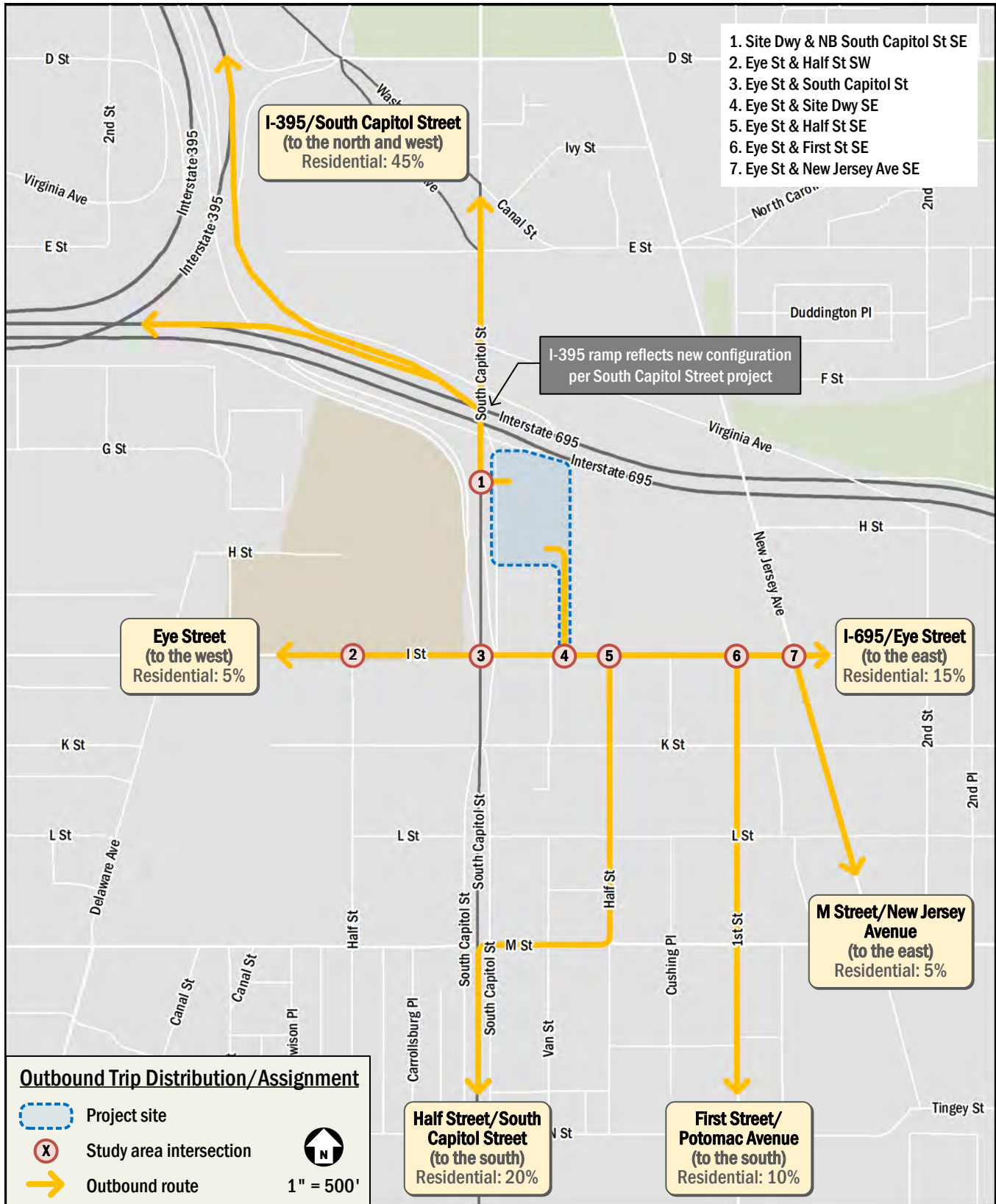


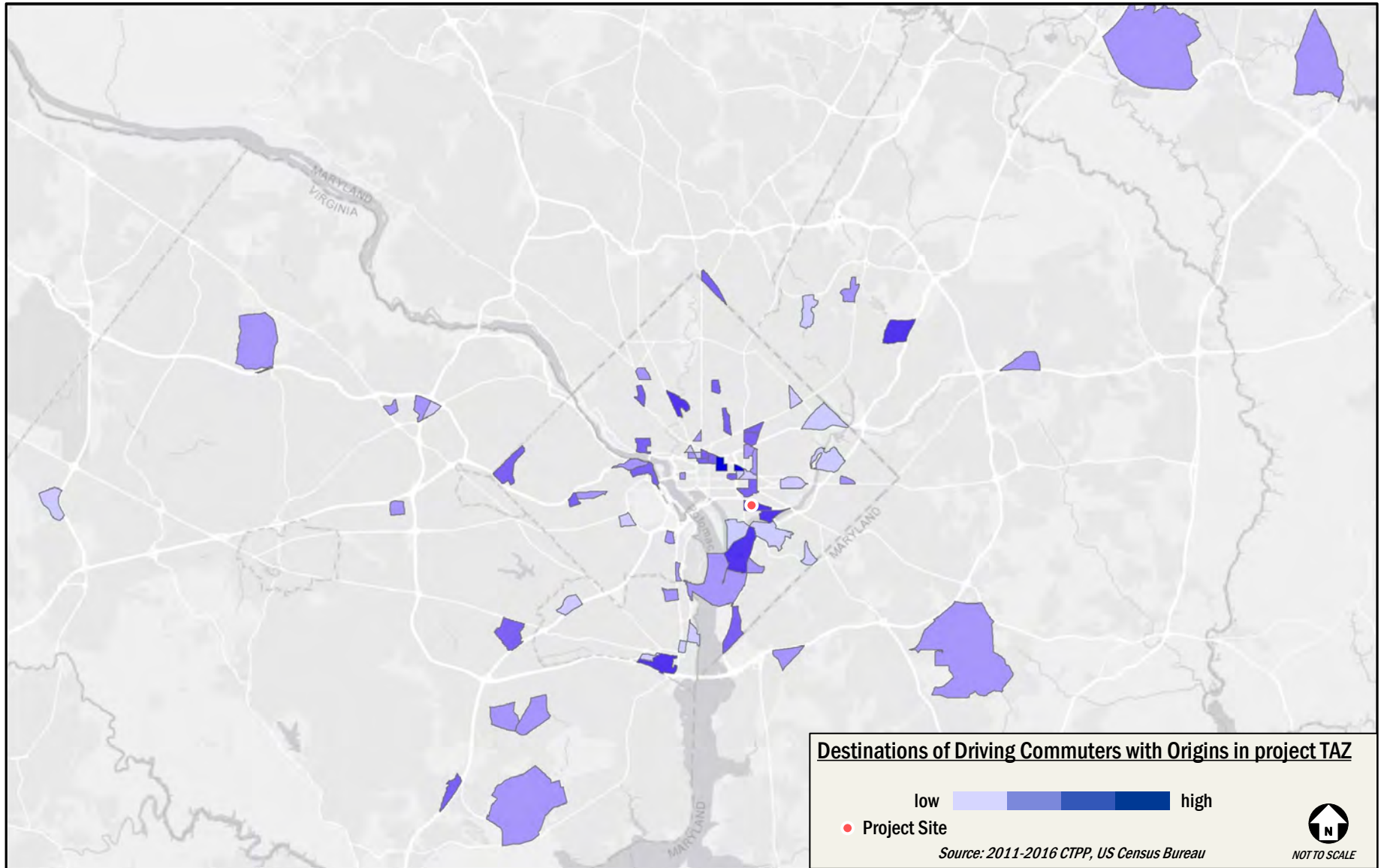




1. Kelvin Apartments/Envy Condos (1250 Half St SE & 70 N St SE)
2. West Half Street (1201 Half St SE)
3. Square 769 (1100 2nd PI SE)
4. The Yards Parcel L1
5. The Yards Parcel L2
6. The Yards Parcel O
7. DC Water Headquarters
8. The Riverfront (Florida Rock - 71-79 Potomac Ave SE)
9. Novel Capitol View
10. 950 South Capitol Street
11. Former Congressional Square Project
12. The Garrett at the Collective
13. Capper Residential
14. 1000 4th Street SW
15. Randall School Redevelopment
16. CSX East Redevelopment
17. 375 & 425 M Street SW
18. The Bard
19. Wharf Phase 2
20. DDOT Headquarters
21. The Yards Parcel G
22. The Yards Parcel I
23. The Yards Parcel F1
24. The Yards Parcel A1
25. The Yards Parcel F
26. 5 M Street SW
27. 1000 South Capitol Street SE
28. 1319 South Capitol Street SW







B. Mode Split and Trip Generation Calculations

Mode Split Assumptions for Proposed Project

Residential Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
Census Tract 72 Residents	32%	3%	37%	---	19%	3%	6%
CTPP residents (TAZ 20372)	32%	3%	33%	2%	24%	3%	3%
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WMATA Ridership Survey Table 10 (Residential Mode Share: CBD)	18%		56%	26%		---	

Mode Split assumed in TIS:

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Residential Mode Split	35%	40%	5%	20%	0%

B: Mode Split and Trip Generation Calculations

Proposed Development Trip Generation: CSX West

520 dwelling units

Step 1: Base trip generation using ITEs' Trip Generation

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			In	Out	Total	In	Out	Total	
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Calculation Details:			24%	76%	=0.28X+12.86	61%	39%	=0.34X+8.56	$Ln(T)=0.84Ln(X)+1.61$

Note: The setting used for the calculation above was General Urban/Suburban

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday Total
		In	Out	Total	In	Out	Total	
High-rise Apt.	1.18 ppl/veh	45 ppl/hr	141 veh/hr	186 ppl/hr	133 ppl/hr	85 veh/hr	218 ppl/hr	1128 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Weekday Total
			In	Out	Total	In	Out	Total	
High-rise Apt.	Auto	35%	16 ppl/hr	49 veh/hr	65 ppl/hr	47 ppl/hr	29 veh/hr	76 ppl/hr	395 ppl
High-rise Apt.	Transit	40%	18 ppl/hr	56 veh/hr	74 ppl/hr	53 ppl/hr	34 veh/hr	87 ppl/hr	451 ppl
High-rise Apt.	Bike	5%	2 ppl/hr	7 veh/hr	9 ppl/hr	7 ppl/hr	4 veh/hr	11 ppl/hr	56 ppl
High-rise Apt.	Walk	20%	9 ppl/hr	29 veh/hr	38 ppl/hr	26 ppl/hr	18 veh/hr	44 ppl/hr	226 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Weekday Total
		In	Out	Total	In	Out	Total	
High-rise Apt.	1.18 ppl/veh	14 veh/hr	41 veh/hr	55 veh/hr	40 veh/hr	24 veh/hr	64 veh/hr	335 veh

Trip Gen Summary

Mode	AM Peak Hour			PM Peak Hour			Weekday Total
	In	Out	Total	In	Out	Total	
Auto	14 veh/hr	41 veh/hr	55 veh/hr	40 veh/hr	24 veh/hr	64 veh/hr	335 veh
Transit	18 ppl/hr	56 ppl/hr	74 ppl/hr	53 ppl/hr	34 ppl/hr	87 ppl/hr	451 ppl/hr
Bike	2 ppl/hr	7 ppl/hr	9 ppl/hr	7 ppl/hr	4 ppl/hr	11 ppl/hr	56 ppl/hr
Walk	9 ppl/hr	29 ppl/hr	38 ppl/hr	26 ppl/hr	18 ppl/hr	44 ppl/hr	226 ppl/hr

C. Existing Turning Movement Counts

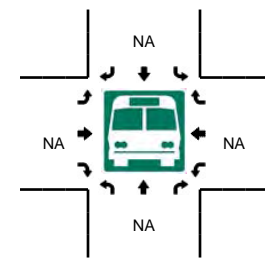
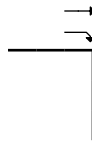
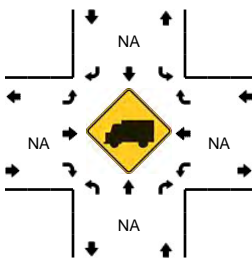
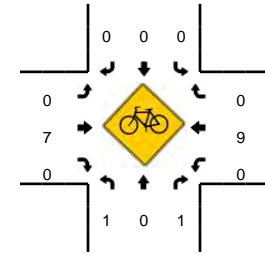
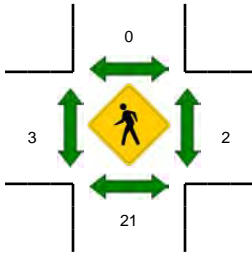
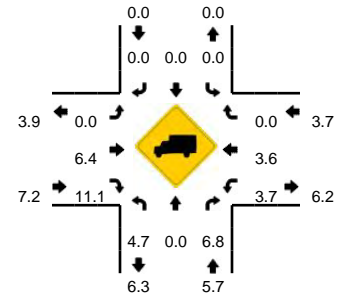
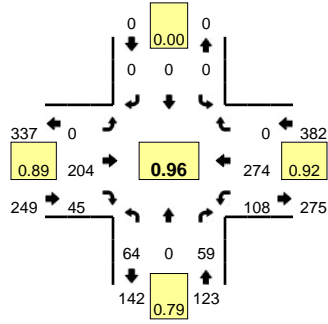
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Half St SW -- I St SW
CITY/STATE: Washington, DC

QC JOB #: 13654701
DATE: Thu, Nov 19 2015

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM



15-Min Count Period Beginning At	Half St SW (Northbound)				Half St SW (Southbound)				I St SW (Eastbound)				I St SW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	5	0	18	0	0	0	0	0	0	36	27	0	12	38	0	1	137	
6:45 AM	5	0	21	0	0	0	0	0	0	48	17	0	20	25	0	5	141	
7:00 AM	9	0	12	0	0	0	0	0	0	46	17	0	20	38	0	0	142	
7:15 AM	19	0	19	0	0	0	0	0	0	42	7	0	22	40	0	3	152	572
7:30 AM	17	0	22	0	0	0	0	0	0	52	6	0	27	54	0	1	179	614
7:45 AM	18	0	10	1	0	0	0	0	0	52	15	0	29	66	0	5	196	669
8:00 AM	14	0	18	0	0	0	0	0	0	44	10	0	20	75	0	1	182	709
8:15 AM	14	0	9	0	0	0	0	0	0	56	14	0	20	79	0	5	197	754
8:30 AM	9	0	12	1	0	0	0	0	0	69	18	0	20	73	0	2	204	779
8:45 AM	11	0	22	0	0	0	0	0	0	46	19	0	22	65	0	6	191	774
9:00 AM	12	0	9	0	0	0	0	0	0	50	22	0	14	46	0	0	153	745
9:15 AM	3	0	29	0	0	0	0	0	0	49	22	0	19	49	0	4	175	723
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	0	36	0	0	0	0	0	0	224	56	0	80	316	0	20	788	
Heavy Trucks	4	0	4	0	0	0	0	0	0	12	12	0	8	12	0	0	52	
Pedestrians		32				0				0				8			40	
Bicycles	1	0	0		0	0	0		0	2	0		0	0	0		3	
Railroad																		
Stopped Buses																		

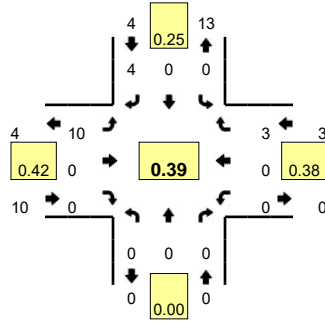
Comments:

Type of peak hour being reported: User-Defined

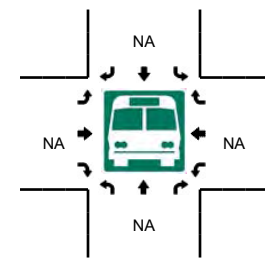
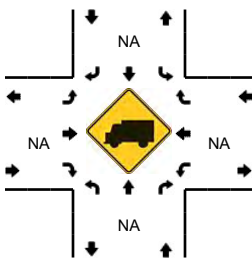
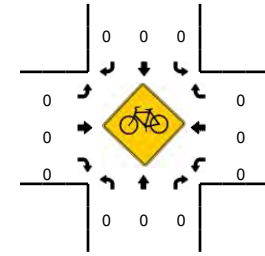
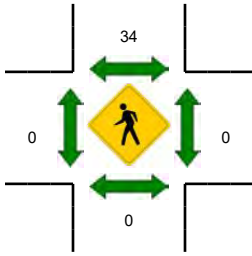
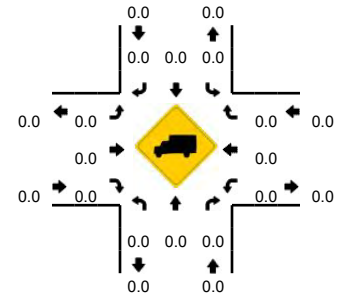
Method for determining peak hour: Total Entering Volume

LOCATION: Carwash Dwy -- I St SE
CITY/STATE: Washington, DC

QC JOB #: 13654715
DATE: Tue, Nov 24 2015



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM



15-Min Count Period Beginning At	Carwash Dwy (Northbound)				Carwash Dwy (Southbound)				I St SE (Eastbound)				I St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	4	5
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	6
8:15 AM	0	0	0	0	0	0	4	0	6	0	0	0	0	0	1	0	11	17
8:30 AM	0	0	0	0	1	0	1	0	6	0	0	0	0	0	2	0	10	26
8:45 AM	0	0	0	0	1	0	8	0	1	0	0	0	0	0	5	0	15	37
9:00 AM	0	0	0	0	0	0	3	0	4	0	0	0	0	0	2	0	9	45
9:15 AM	0	0	0	0	3	0	6	0	2	0	0	0	0	0	7	0	18	52
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	16	0	24	0	0	0	0	0	4	0	44	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	16	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

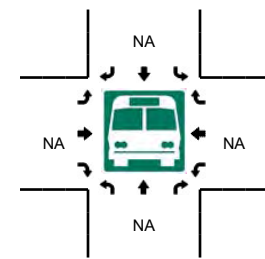
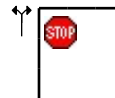
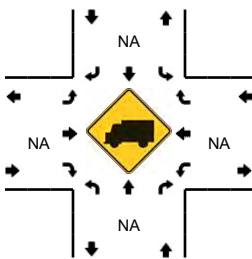
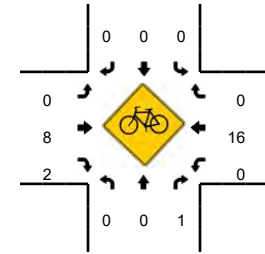
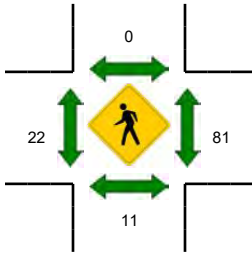
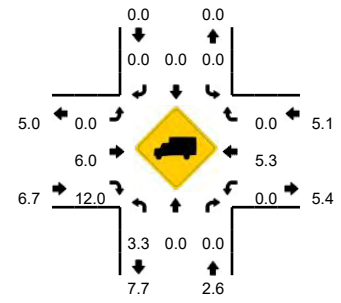
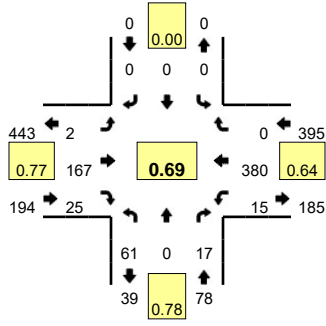
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Half St SE -- I St SE
CITY/STATE: Washington, DC

QC JOB #: 13654705
DATE: Thu, Nov 19 2015

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM



15-Min Count Period Beginning At	Half St SE (Northbound)				Half St SE (Southbound)				I St SE (Eastbound)				I St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:30 AM	4	0	2	0	0	0	0	0	0	28	8	0	2	48	0	0	92	
6:45 AM	10	0	0	0	0	0	0	0	0	39	10	0	6	43	0	0	108	
7:00 AM	8	0	4	0	0	0	0	0	0	27	4	0	2	64	0	1	110	
7:15 AM	11	0	3	0	0	0	0	0	0	37	6	0	1	67	0	0	125	435
7:30 AM	13	0	1	0	0	0	0	0	0	33	8	1	2	61	0	0	119	462
7:45 AM	15	0	6	0	0	0	0	0	0	33	6	0	0	85	0	0	145	499
8:00 AM	15	0	3	0	0	0	0	0	0	42	7	1	5	86	0	1	160	549
8:15 AM	18	0	7	0	0	0	0	0	0	59	4	0	7	148	0	0	243	667
8:30 AM	16	0	2	0	0	0	0	0	0	39	4	0	4	100	0	2	167	715
8:45 AM	12	0	8	0	0	0	0	0	0	35	6	0	1	87	0	0	149	719
9:00 AM	8	0	4	0	0	0	0	0	0	49	4	1	5	68	0	1	140	699
9:15 AM	7	0	2	0	0	0	0	0	0	39	6	1	0	70	0	0	125	581
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	72	0	28	0	0	0	0	0	0	236	16	0	28	592	0	0	972	
Heavy Trucks	4	0	0		0	0	0		0	4	0		0	48	0		56	
Pedestrians		24				0				12				112			148	
Bicycles	0	0	1		0	0	0		0	2	1		0	3	0		7	
Railroad																		
Stopped Buses																		

Comments:

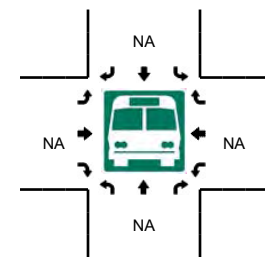
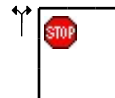
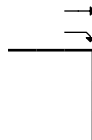
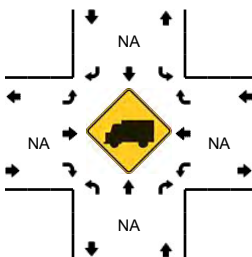
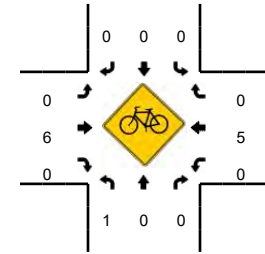
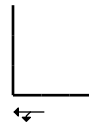
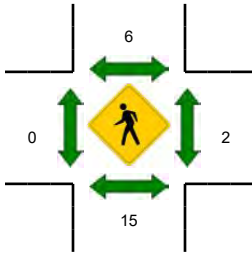
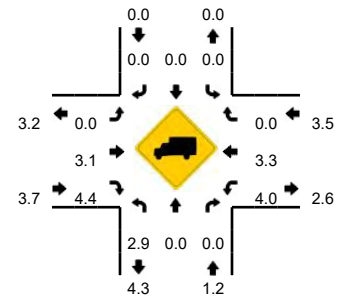
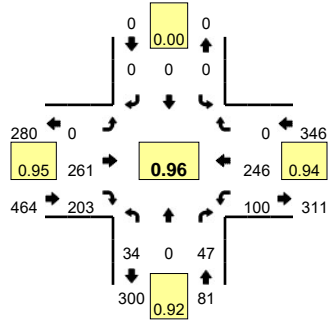
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Half St SW -- I St SW
CITY/STATE: Washington, DC

QC JOB #: 13654702
DATE: Thu, Nov 19 2015

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



15-Min Count Period Beginning At	Half St SW (Northbound)				Half St SW (Southbound)				I St SW (Eastbound)				I St SW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	14	0	0	0	0	0	0	71	40	0	23	59	0	2	214	
4:15 PM	11	0	10	0	0	0	0	0	0	74	38	0	30	56	0	0	219	
4:30 PM	9	0	13	0	0	0	0	0	0	54	65	0	28	56	0	0	225	
4:45 PM	9	0	10	0	0	0	0	0	0	62	60	0	16	75	0	1	233	891
5:00 PM	10	0	17	0	0	0	0	0	0	66	51	0	38	44	0	0	226	903
5:15 PM	8	0	5	0	0	0	0	0	0	63	67	0	23	61	0	0	227	911
5:30 PM	7	0	9	0	0	0	0	0	0	76	58	0	17	45	0	0	212	898
5:45 PM	8	0	13	0	0	0	0	0	0	71	33	0	31	70	0	1	227	892
6:00 PM	4	0	5	1	0	0	0	0	0	80	33	1	25	59	0	1	209	875
6:15 PM	5	0	11	0	0	0	0	0	0	75	28	0	35	49	0	3	206	854
6:30 PM	4	0	6	0	0	0	0	0	0	66	17	0	16	44	0	4	157	799
6:45 PM	5	0	9	0	0	0	0	0	0	59	13	0	5	37	0	2	130	702
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	0	40	0	0	0	0	0	0	248	240	0	64	300	0	4	932	
Heavy Trucks	0	0	0		0	0	0		0	4	16		0	12	0		32	
Pedestrians		28				8				0				4			40	
Bicycles	1	0	0		0	0	0		0	2	0		0	1	0		4	
Railroad																		
Stopped Buses																		

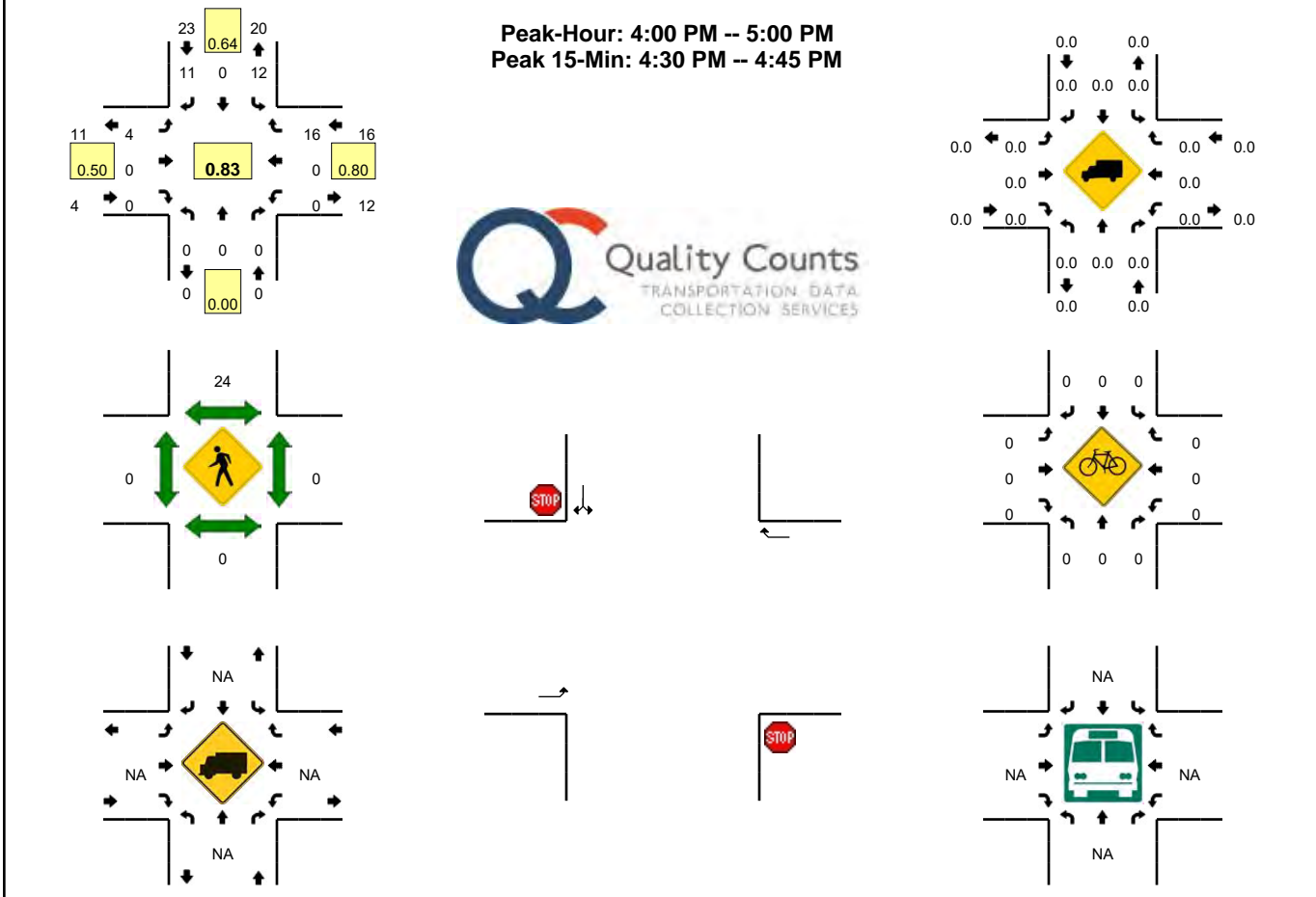
Comments:

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Carwash Dwy -- I St SE
CITY/STATE: Washington, DC

QC JOB #: 13654716
DATE: Tue, Nov 24 2015



15-Min Count Period Beginning At	Carwash Dwy (Northbound)				Carwash Dwy (Southbound)				I St SE (Eastbound)				I St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	3	0	3	0	1	0	0	0	0	0	4	0	11	
4:15 PM	0	0	0	0	2	0	2	0	2	0	0	0	0	0	5	0	11	
4:30 PM	0	0	0	0	3	0	6	0	0	0	0	0	0	0	4	0	13	
4:45 PM	0	0	0	0	4	0	0	0	1	0	0	0	0	0	3	0	8	43
5:00 PM	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	5	37
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	27
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	4
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	12	0	24	0	0	0	0	0	0	0	16	0	52	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians						24				0				0			24	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																	0	
Stopped Buses																	0	

Comments:

C: Existing Turning Movement Counts

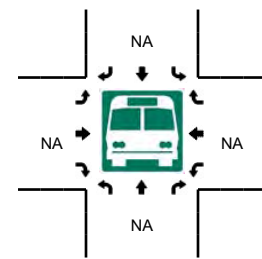
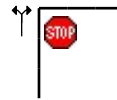
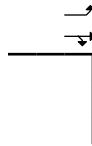
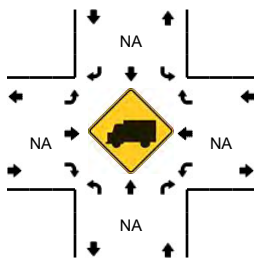
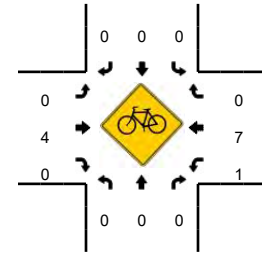
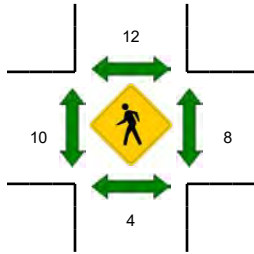
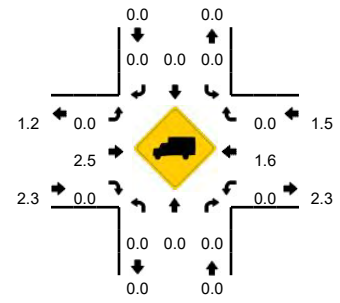
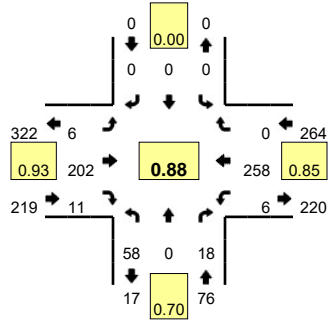
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: Half St SE -- I St SE
CITY/STATE: Washington, DC

QC JOB #: 13654706
DATE: Thu, Nov 19 2015

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM



15-Min Count Period Beginning At	Half St SE (Northbound)				Half St SE (Southbound)				I St SE (Eastbound)				I St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	20	0	7	0	0	0	0	0	0	53	4	2	2	70	0	0	158	
4:15 PM	17	0	2	0	0	0	0	0	0	54	2	3	1	63	0	0	142	
4:30 PM	8	0	3	0	0	0	0	0	0	47	1	0	1	49	0	0	109	
4:45 PM	13	0	6	0	0	0	0	0	0	48	4	1	2	76	0	0	150	559
5:00 PM	14	0	2	0	0	0	0	0	0	43	5	0	2	65	0	0	131	532
5:15 PM	15	0	3	0	0	0	0	0	0	49	6	0	3	68	0	0	144	534
5:30 PM	11	0	1	0	0	0	0	0	0	59	2	0	1	69	0	0	143	568
5:45 PM	13	0	4	0	0	0	0	0	0	49	1	0	0	61	0	0	128	546
6:00 PM	4	0	3	0	0	0	0	0	0	56	6	0	2	45	0	0	116	531
6:15 PM	10	0	4	0	0	0	0	0	0	55	6	0	4	54	0	0	133	520
6:30 PM	10	0	2	0	0	0	0	0	0	55	4	0	2	43	0	0	116	493
6:45 PM	4	0	3	0	0	0	0	0	0	35	6	1	3	37	0	2	91	456
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	80	0	28	0	0	0	0	0	0	212	16	8	8	280	0	0	632	
Heavy Trucks	0	0	0		0	0	0		0	4	0		0	0	0		4	
Pedestrians			4			20				4				4			32	
Bicycles	0	0	0		0	0	0		0	3	0		0	3	0		6	
Railroad																		
Stopped Buses																		

Comments:

Gorove/Slade Associates - Multimodal Turning Movement Count Report

Project Name : CSX East
 Project # : 2604-003
 Location : SE Washington DC
 Data Source : Gorove/Slade Associates, Inc.

Analysis Period: STUDY_PERIOD
 Date of Counts: Thursday, December 13, 2018
 Weather: Partly Cloudy

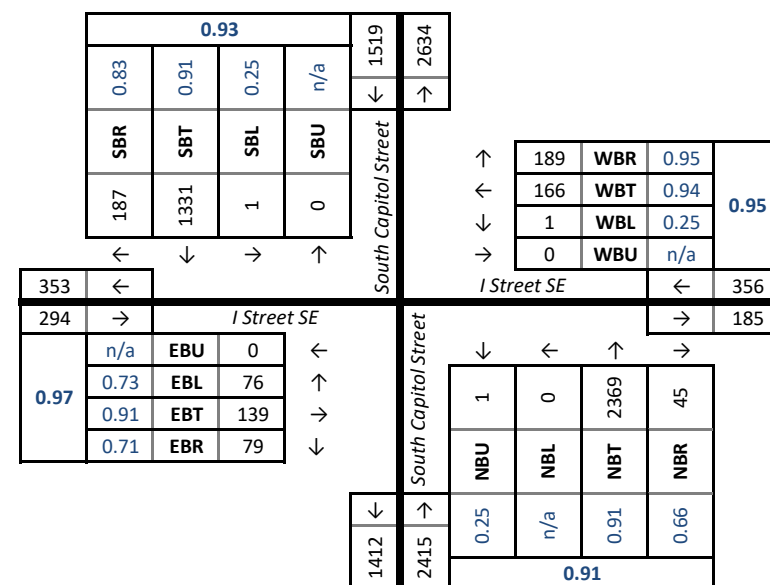
06:30 AM to 09:30 AM

Volumes Displayed as: 2. System Peak (vehicle)

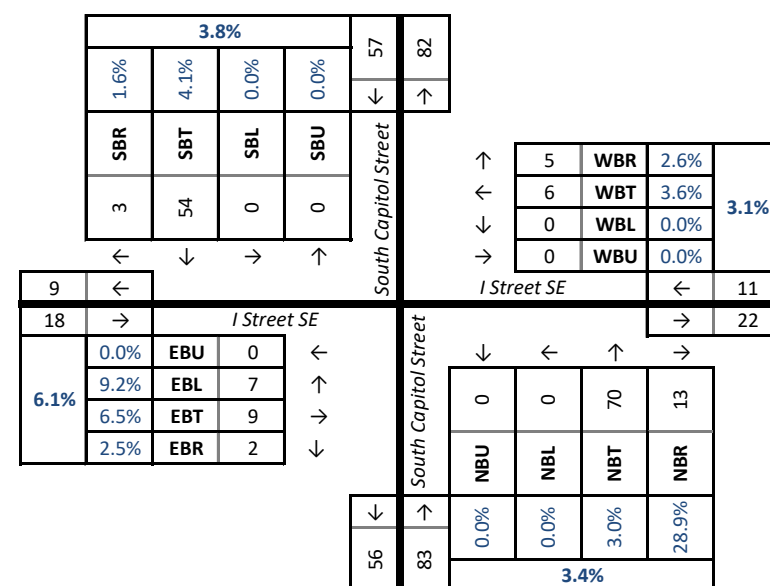
Intersection Peak Hour (all vehicles): 08:00 AM to 09:00 AM
 System Peak Hour (all vehicles): 08:00 AM to 09:00 AM
 User-Defined Peak Hour: 07:30 AM to 08:30 AM

Intersection:		1. South Capitol Street & I Street SE																			
ALL VEHICLES	Direction:	Southbound				Westbound				Northbound				Eastbound							
	Roadway:	South Capitol Street				I Street SE				South Capitol Street				I Street SE							
	Movement:	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds
06:30 AM to 06:45 AM		0	0	362	31	1	0	1	11	16	18	0	0	565	4	45	0	22	35	16	3
06:45 AM to 07:00 AM		0	0	350	52	0	0	0	16	24	19	0	0	413	8	52	0	16	27	13	6
07:00 AM to 07:15 AM		0	0	357	29	1	0	0	28	26	13	0	0	484	6	35	0	23	26	17	1
07:15 AM to 07:30 AM		0	0	436	33	0	0	0	29	35	3	0	1	563	15	13	0	18	36	20	2
07:30 AM to 07:45 AM		0	0	323	45	0	0	0	43	40	1	0	0	558	12	19	0	26	26	19	1
07:45 AM to 08:00 AM		0	0	303	39	0	0	0	32	37	3	0	0	583	10	21	0	31	32	14	1
08:00 AM to 08:15 AM		0	1	366	43	0	0	1	37	46	5	0	0	555	14	14	0	10	36	28	3
08:15 AM to 08:30 AM		0	0	300	38	2	0	0	42	44	8	0	0	570	9	20	0	20	38	17	9
08:30 AM to 08:45 AM		0	0	332	50	0	0	0	43	49	4	0	0	595	5	22	0	20	36	13	5
08:45 AM to 09:00 AM		0	0	333	56	0	0	0	44	50	7	1	0	649	17	17	0	26	29	21	8
09:00 AM to 09:15 AM		0	0	274	34	0	0	0	35	40	6	0	0	546	15	14	0	32	40	20	4
09:15 AM to 09:30 AM		0	0	265	44	0	0	0	23	49	7	0	0	531	14	15	0	25	24	11	1
09:30 AM to 09:45 AM																					
09:45 AM to 10:00 AM																					
10:00 AM to 10:15 AM																					
10:15 AM to 10:30 AM																					
10:30 AM to 10:45 AM																					
10:45 AM to 11:00 AM																					
11:00 AM to 11:15 AM																					
11:15 AM to 11:30 AM																					
SYSTEM PEAK HR (VEH.)		1519				2	356				24	2415				73	294				25
08:00 AM to 09:00 AM		0	1	1331	187	2	0	1	166	189	24	1	0	2369	45	73	0	76	139	79	25
Peak Hour Overall		U	Left	Thru	Right	SB	U	Left	Thru	Right	WB	U	Left	Thru	Right	NB	U	Left	Thru	Right	EB
Factor (PHF)		n/a	0.25	0.91	0.83	0.93	n/a	0.25	0.94	0.95	0.95	0.25	n/a	0.91	0.66	0.91	n/a	0.73	0.91	0.71	0.97

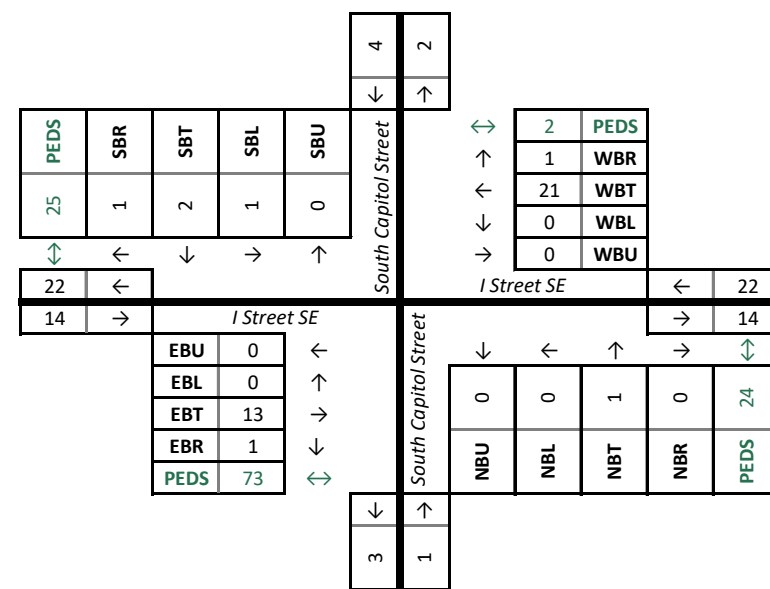
VEHICLE PEAK HOUR VOLS AND PHF: System Peak (vehicle)



HEAVY VEH PEAK HOUR VOLS AND PHV: System Peak (vehicle)



PED AND BIKE PEAK HOUR VOLUMES: System Peak (vehicle)



DATA COLLECTION NOTES :

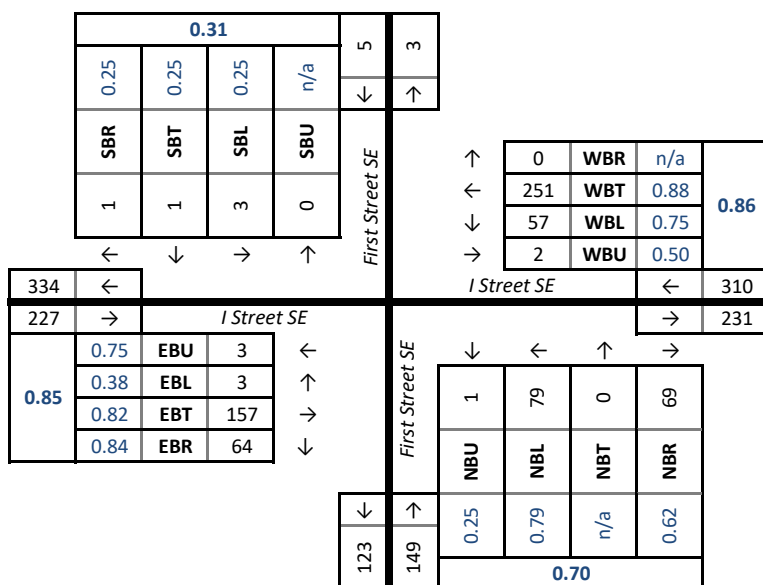
Corvee/Slade Associates - Multimodal Turning Movement Count Report

Project Name : CSX East Analysis Period: STUDY_PERIOD 06:30 AM to 09:30 AM
 Project # : 2604-003 Date of Counts: Thursday, December 13, 2018
 Location SE Washington DC Weather: Partly Cloudy
 Data Source: Corvee/Slade Associates, Inc.

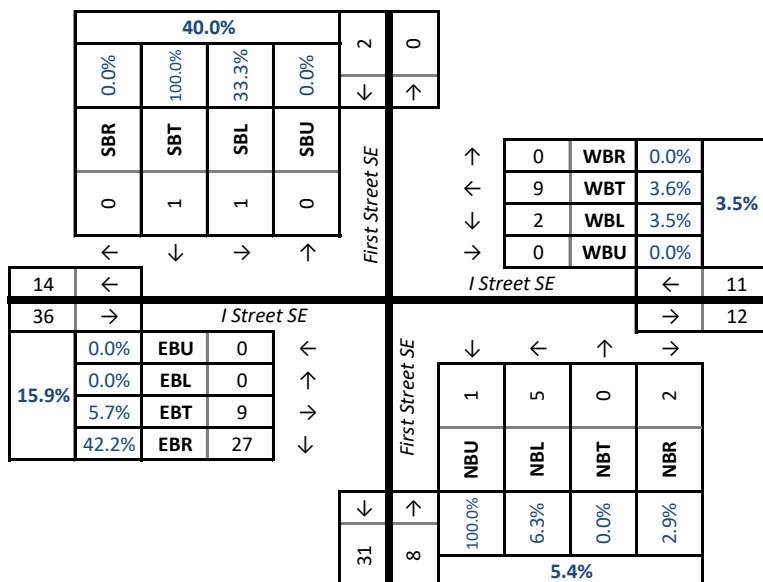
Volumes Displayed as: 2. System Peak (vehicle)
 Intersection Peak Hour (all vehicles): 08:00 AM to 09:00 AM
 System Peak Hour (all vehicles): 08:00 AM to 09:00 AM
 User-Defined Peak Hour: 07:30 AM to 08:30 AM

Intersection:		1. First Street SE & I Street SE																				
ALL VEHICLES	Direction:	Southbound				Westbound				Northbound				Eastbound								
	Roadway:	First Street SE				I Street SE				First Street SE				I Street SE								
	Movement:	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	
06:30 AM to 06:45 AM		0	0	0	0	10	0	9	18	0	5	0	5	0	9	4	0	0	21	4	3	
06:45 AM to 07:00 AM		0	0	0	2	14	0	10	35	0	10	0	5	1	16	4	1	0	24	10	4	
07:00 AM to 07:15 AM		0	1	0	0	25	1	16	36	0	9	0	14	1	7	7	0	1	23	10	12	
07:15 AM to 07:30 AM		0	1	0	0	30	1	10	34	2	12	0	15	1	9	6	0	0	29	13	4	
07:30 AM to 07:45 AM		0	0	0	0	24	1	11	49	0	10	0	11	0	9	1	0	0	31	15	6	
07:45 AM to 08:00 AM		0	0	0	0	26	1	12	45	2	16	0	19	0	12	7	0	0	32	13	5	
08:00 AM to 08:15 AM		0	3	0	1	60	0	19	71	0	21	1	16	0	15	8	1	2	41	11	19	
08:15 AM to 08:30 AM		0	0	0	0	53	1	7	64	0	16	0	18	0	11	3	1	0	48	18	7	
08:30 AM to 08:45 AM		0	0	0	0	61	0	15	52	0	27	0	20	0	15	6	1	0	32	16	6	
08:45 AM to 09:00 AM		0	0	1	0	55	1	16	64	0	30	0	25	0	28	5	0	1	36	19	6	
09:00 AM to 09:15 AM		0	0	0	0	30	1	23	60	1	11	0	14	0	16	13	0	0	42	17	12	
09:15 AM to 09:30 AM		0	2	0	0	21	1	12	59	0	10	0	17	0	11	1	0	0	31	15	2	
09:30 AM to 09:45 AM																						
09:45 AM to 10:00 AM																						
10:00 AM to 10:15 AM																						
10:15 AM to 10:30 AM																						
10:30 AM to 10:45 AM																						
10:45 AM to 11:00 AM																						
11:00 AM to 11:15 AM																						
11:15 AM to 11:30 AM																						
SYSTEM PEAK HR (VEH.)		5				229	310				94	149				22	227				38	
08:00 AM to 09:00 AM		0	3	1	1		2	57	251	0		1	79	0	69		3	3	157	64		38
Peak Hour Factor (PHF)	Overall	U	Left	Thru	Right	SB	U	Left	Thru	Right	WB	U	Left	Thru	Right	NB	U	Left	Thru	Right	EB	
		n/a	0.25	0.25	0.25	0.31	0.50	0.75	0.88	n/a	0.86	0.25	0.79	n/a	0.62	0.70	0.75	0.38	0.82	0.84	0.85	

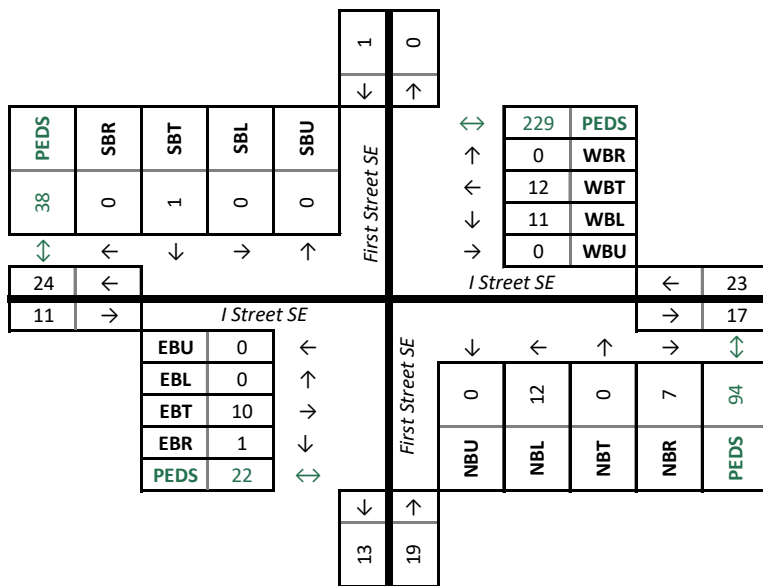
VEHICLE PEAK HOUR VOLS AND PHF: System Peak (vehicle)



HEAVY VEH PEAK HOUR VOLS AND PHV: System Peak (vehicle)



PED AND BIKE PEAK HOUR VOLUMES: System Peak (vehicle)



DATA COLLECTION NOTES :

Gorove/Slade Associates - Multimodal Turning Movement Count Report

Project Name : CSX East
 Project # : 2604-003
 Location : SE Washington DC
 Data Source : Gorove/Slade Associates, Inc.

Analysis Period: STUDY_PERIOD
 Date of Counts: Thursday, December 13, 2018
 Weather: Partly Cloudy

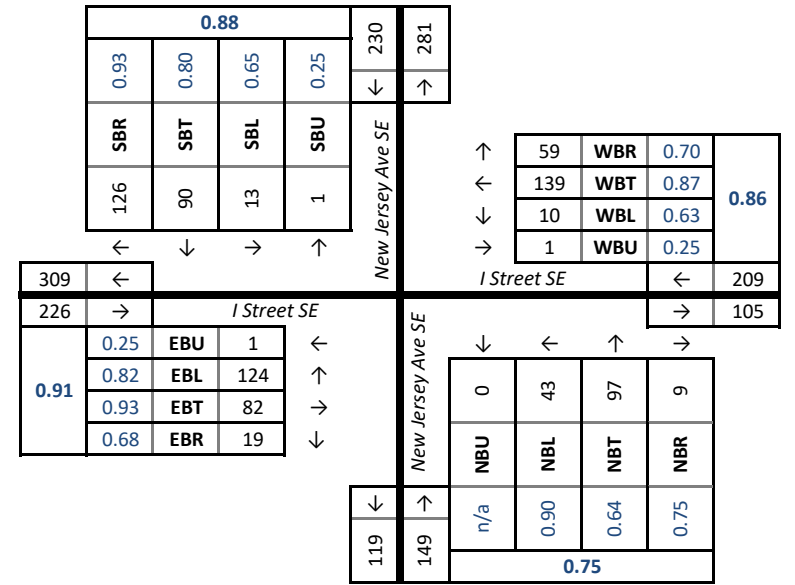
06:30 AM to 09:30 AM

Volumes Displayed as: 2. System Peak (vehicle)

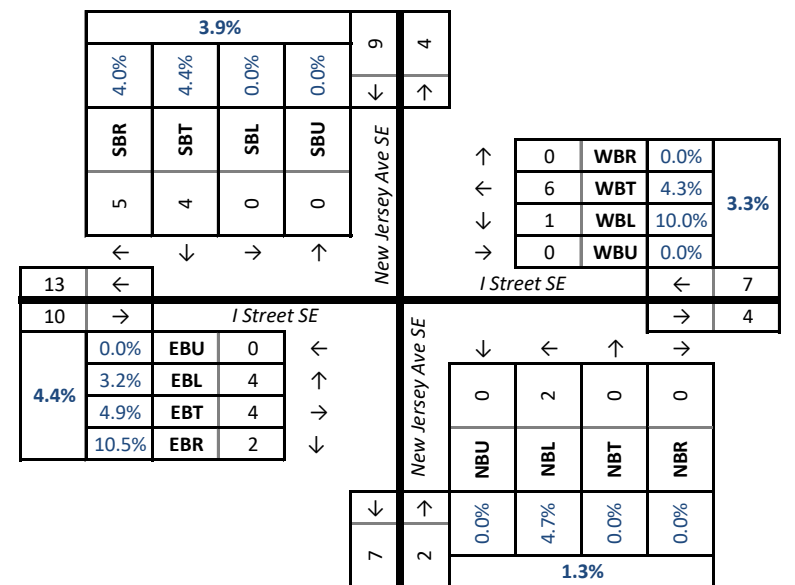
Intersection Peak Hour (all vehicles): 08:15 AM to 09:15 AM
 System Peak Hour (all vehicles): 08:00 AM to 09:00 AM
 User-Defined Peak Hour: 07:30 AM to 08:30 AM

Intersection:		1. New Jersey Ave SE & I Street SE																			
ALL VEHICLES	Direction:	Southbound				Westbound				Northbound				Eastbound							
	Roadway:	New Jersey Ave SE				I Street SE				New Jersey Ave SE				I Street SE							
	Movement:	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds
06:30 AM to 06:45 AM		0	0	9	13	8	0	0	10	4	15	0	5	4	1	5	0	11	14	5	11
06:45 AM to 07:00 AM		0	7	14	18	10	0	3	16	2	21	0	11	9	2	9	0	17	14	6	21
07:00 AM to 07:15 AM		0	3	11	23	19	0	2	20	3	20	0	8	14	0	10	0	12	13	6	25
07:15 AM to 07:30 AM		0	1	17	19	22	0	3	23	5	29	0	7	11	0	11	0	21	16	5	28
07:30 AM to 07:45 AM		0	3	19	31	26	0	4	27	9	36	0	5	26	0	9	0	27	17	3	26
07:45 AM to 08:00 AM		0	2	20	19	24	0	0	27	8	33	0	12	19	1	3	0	23	15	3	26
08:00 AM to 08:15 AM		1	5	12	29	22	0	1	40	9	29	0	12	15	2	5	0	29	22	4	36
08:15 AM to 08:30 AM		0	5	28	32	31	0	4	33	21	27	0	10	20	1	4	0	30	22	7	34
08:30 AM to 08:45 AM		0	2	23	34	22	0	3	28	9	40	0	12	24	3	5	0	27	18	5	40
08:45 AM to 09:00 AM		0	1	27	31	22	1	2	38	20	42	0	9	38	3	6	1	38	20	3	41
09:00 AM to 09:15 AM		0	6	24	39	19	1	5	30	11	44	0	15	27	1	9	0	25	30	8	36
09:15 AM to 09:30 AM		0	3	21	31	11	0	3	33	6	27	1	12	13	1	6	0	16	18	7	19
09:30 AM to 09:45 AM																					
09:45 AM to 10:00 AM																					
10:00 AM to 10:15 AM																					
10:15 AM to 10:30 AM																					
10:30 AM to 10:45 AM																					
10:45 AM to 11:00 AM																					
11:00 AM to 11:15 AM																					
11:15 AM to 11:30 AM																					
SYSTEM PEAK HR (VEH.)		230				97	209				138	149				20	226				151
08:00 AM to 09:00 AM		1	13	90	126	97	1	10	139	59	138	0	43	97	9	20	1	124	82	19	151
Peak Hour Factor (PHF)	Overall	U	Left	Thru	Right	SB	U	Left	Thru	Right	WB	U	Left	Thru	Right	NB	U	Left	Thru	Right	EB
		0.25	0.65	0.80	0.93	0.88	0.25	0.63	0.87	0.70	0.86	n/a	0.90	0.64	0.75	0.75	0.25	0.82	0.93	0.68	0.91

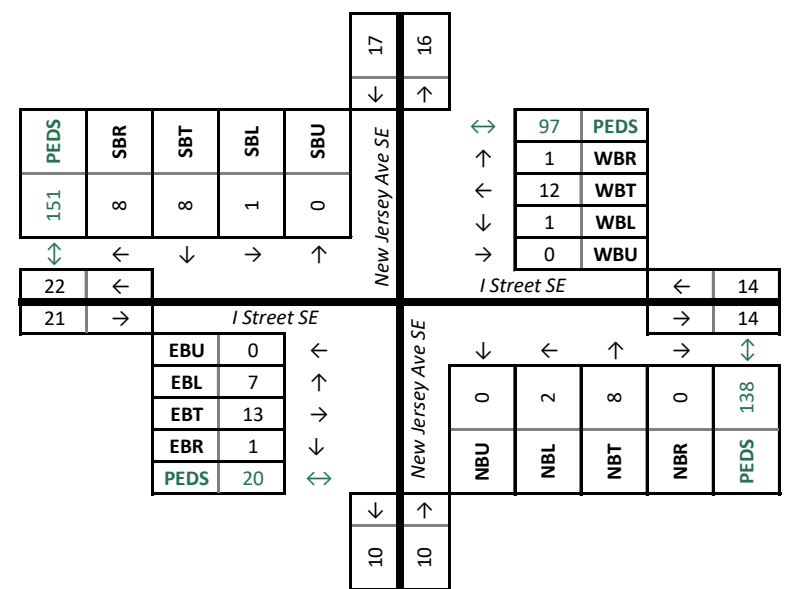
VEHICLE PEAK HOUR VOLS AND PHF: System Peak (vehicle)



HEAVY VEH PEAK HOUR VOLS AND PHV: System Peak (vehicle)



PED AND BIKE PEAK HOUR VOLUMES: System Peak (vehicle)



DATA COLLECTION NOTES :

Gorove/Slade Associates - Multimodal Turning Movement Count Report

Project Name : CSX East
 Project # : 2604-003
 Location : SE Washington DC
 Data Source : Gorove/Slade Associates, Inc.

Analysis Period: STUDY_PERIOD
 Date of Counts: Thursday, December 13, 2018
 Weather: Partly Cloudy

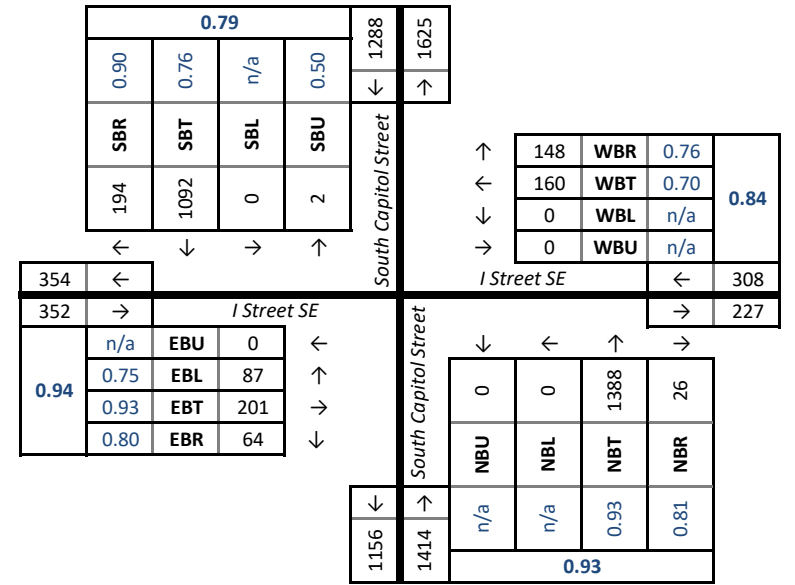
04:00 PM to 07:00 PM

Volumes Displayed as: 2. System Peak (vehicle)

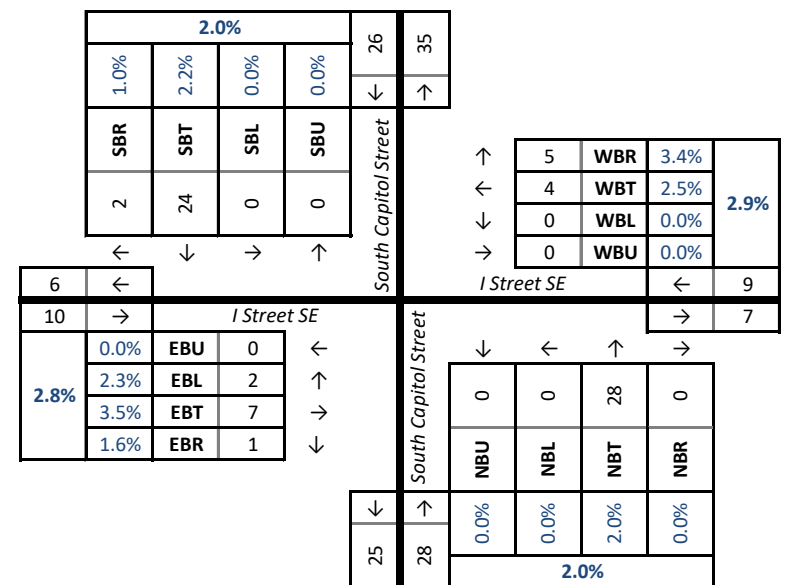
Intersection Peak Hour (all vehicles): 04:00 PM to 05:00 PM
 System Peak Hour (all vehicles): 04:30 PM to 05:30 PM
 User-Defined Peak Hour: 05:00 PM to 06:00 PM

Intersection:		1. South Capitol Street & I Street SE																			
ALL VEHICLES	Direction:	Southbound				Westbound				Northbound				Eastbound							
	Roadway:	South Capitol Street				I Street SE				South Capitol Street				I Street SE							
	Movement:	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds
04:00 PM	to 04:15 PM	0	0	364	40	0	0	0	45	30	7	0	1	320	9	6	0	20	49	14	9
04:15 PM	to 04:30 PM	0	0	326	51	0	0	1	25	40	1	0	1	275	13	9	0	21	42	18	4
04:30 PM	to 04:45 PM	0	0	358	49	0	0	0	40	27	2	0	0	375	6	20	0	19	48	20	1
04:45 PM	to 05:00 PM	0	0	251	54	0	0	0	57	35	2	0	0	373	7	11	0	24	53	17	2
05:00 PM	to 05:15 PM	1	0	207	38	0	0	0	29	49	3	0	0	314	8	14	0	29	46	15	5
05:15 PM	to 05:30 PM	1	0	276	53	0	0	0	34	37	3	0	0	326	5	12	0	15	54	12	1
05:30 PM	to 05:45 PM	0	0	280	54	0	0	0	38	35	1	0	0	340	11	10	0	12	54	19	4
05:45 PM	to 06:00 PM	0	0	291	63	0	0	0	47	32	1	0	0	388	9	3	0	11	63	13	4
06:00 PM	to 06:15 PM	0	2	321	43	0	0	0	52	36	1	0	0	325	6	6	0	22	60	10	7
06:15 PM	to 06:30 PM	0	0	306	39	0	0	0	33	34	2	0	1	307	8	8	0	19	55	17	3
06:30 PM	to 06:45 PM	0	0	285	36	0	0	0	39	25	1	0	2	368	6	8	0	16	49	21	4
06:45 PM	to 07:00 PM	0	0	341	34	0	0	0	38	25	0	0	0	280	15	7	0	8	29	21	2
07:00 PM	to 07:15 PM																				
07:15 PM	to 07:30 PM																				
07:30 PM	to 07:45 PM																				
07:45 PM	to 08:00 PM																				
08:00 PM	to 08:15 PM																				
08:15 PM	to 08:30 PM																				
08:30 PM	to 08:45 PM																				
08:45 PM	to 09:00 PM																				
SYSTEM PEAK HR (VEH.)		1288				0	308				10	1414				57	352				9
04:30 PM	to 05:30 PM	2	0	1092	194	0	0	0	160	148	10	0	0	1388	26	57	0	87	201	64	9
Peak Hour	Overall	U	Left	Thru	Right	SB	U	Left	Thru	Right	WB	U	Left	Thru	Right	NB	U	Left	Thru	Right	EB
Factor (PHF)	0.89	0.50	n/a	0.76	0.90	0.79	n/a	n/a	0.70	0.76	0.84	n/a	n/a	0.93	0.81	0.93	n/a	0.75	0.93	0.80	0.94

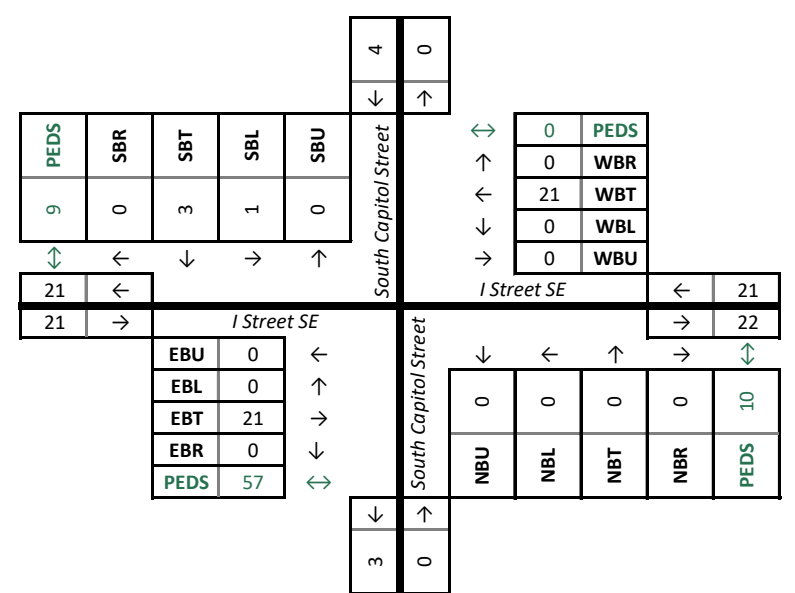
VEHICLE PEAK HOUR VOLS AND PHF: System Peak (vehicle)



HEAVY VEH PEAK HOUR VOLS AND PHV: System Peak (vehicle)



PED AND BIKE PEAK HOUR VOLUMES: System Peak (vehicle)



DATA COLLECTION NOTES :

Gorove/Slade Associates - Multimodal Turning Movement Count Report

Project Name : CSX East
 Project # : 2604-003
 Location : SE Washington DC
 Data Source : Gorove/Slade Associates, Inc.

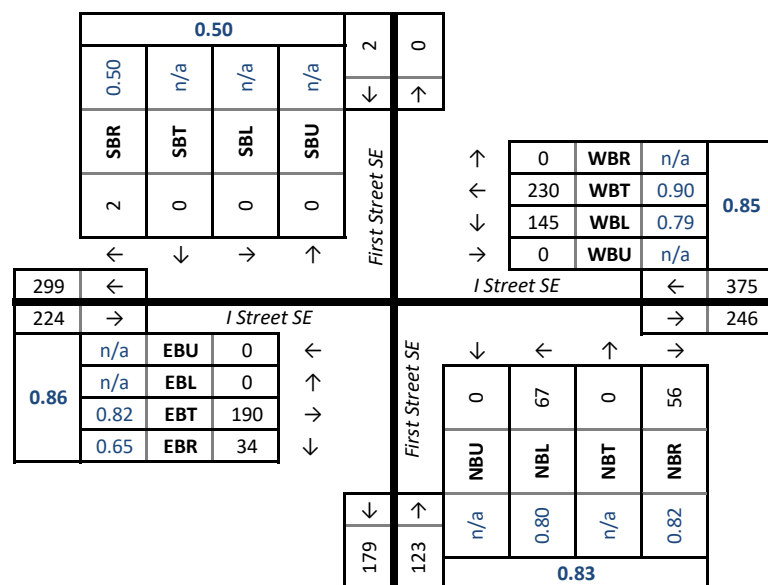
Analysis Period: STUDY_PERIOD
 Date of Counts: Thursday, December 13, 2018
 Weather: Partly Cloudy

04:00 PM to 07:00 PM

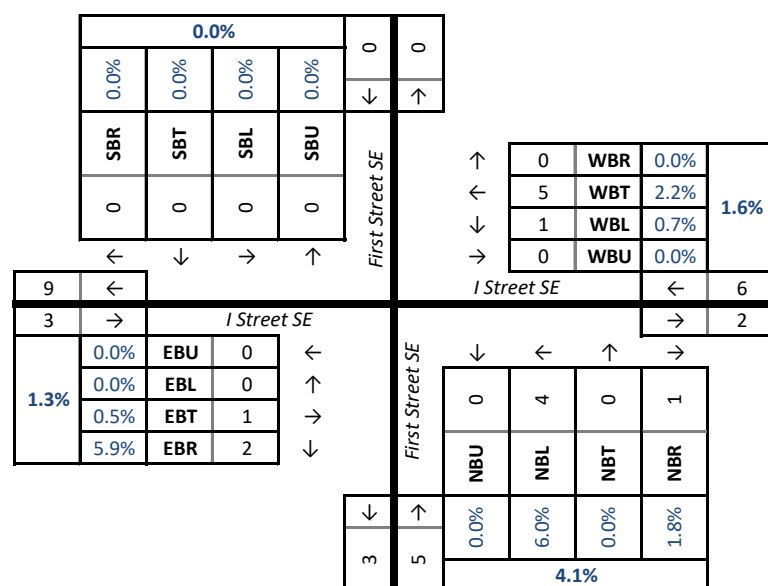
Volumes Displayed as: 2. System Peak (vehicle)
 Intersection Peak Hour (all vehicles): 04:45 PM to 05:45 PM
 System Peak Hour (all vehicles): 04:30 PM to 05:30 PM
 User-Defined Peak Hour: 05:00 PM to 06:00 PM

Intersection:		1. First Street SE & I Street SE																					
ALL VEHICLES	Direction:	Southbound				Westbound				Northbound				Eastbound									
	Roadway:	First Street SE				I Street SE				First Street SE				I Street SE									
	Movement:	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds		
04:00 PM to 04:15 PM		0	0	0	0	27	0	21	59	0	3	0	12	0	14	7	0	0	41	4	5		
04:15 PM to 04:30 PM		0	0	0	0	27	0	30	51	0	11	0	17	0	11	9	0	0	47	6	7		
04:30 PM to 04:45 PM		0	0	0	0	17	0	22	60	0	12	0	9	0	17	7	0	0	58	7	5		
04:45 PM to 05:00 PM		0	0	0	0	27	0	46	64	0	17	0	21	0	16	8	0	0	39	13	7		
05:00 PM to 05:15 PM		0	0	0	1	29	0	39	58	0	17	0	18	0	11	5	0	0	44	7	9		
05:15 PM to 05:30 PM		0	0	0	1	36	0	38	48	0	23	0	19	0	12	11	0	0	49	7	6		
05:30 PM to 05:45 PM		0	0	0	0	42	0	36	60	0	14	0	17	0	18	13	0	0	43	11	9		
05:45 PM to 06:00 PM		0	0	0	0	33	1	37	69	0	15	0	19	0	16	13	1	0	39	15	8		
06:00 PM to 06:15 PM		0	0	0	0	39	1	26	65	0	21	0	19	0	13	13	0	0	42	13	14		
06:15 PM to 06:30 PM		0	0	0	0	53	0	27	53	0	18	0	11	0	12	5	1	0	37	12	3		
06:30 PM to 06:45 PM		0	0	0	0	56	1	23	57	0	29	0	9	0	15	13	0	0	31	6	8		
06:45 PM to 07:00 PM		0	0	0	0	44	3	13	52	0	13	1	13	0	12	11	0	0	33	5	7		
07:00 PM to 07:15 PM																							
07:15 PM to 07:30 PM																							
07:30 PM to 07:45 PM																							
07:45 PM to 08:00 PM																							
08:00 PM to 08:15 PM																							
08:15 PM to 08:30 PM																							
08:30 PM to 08:45 PM																							
08:45 PM to 09:00 PM																							
SYSTEM PEAK HR (VEH.)		2				109	375				69	123				31	224				27		
04:30 PM to 05:30 PM		0	0	0	2	109	0	145	230	0	69	0	67	0	56	31	0	0	190	34	27		
Peak Hour Overall		U	Left	Thru	Right	SB	U	Left	Thru	Right	WB	U	Left	Thru	Right	NB	U	Left	Thru	Right	EB		
Factor (PHF)		0.91	n/a	n/a	n/a	0.50	0.50	n/a	0.79	0.90	n/a	0.85	0.85	n/a	0.80	n/a	0.82	0.83	n/a	n/a	0.82	0.65	0.86

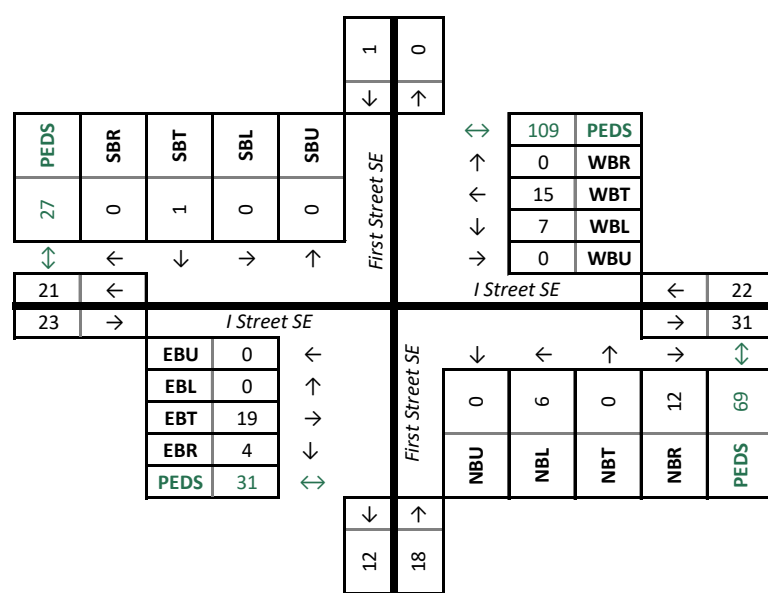
VEHICLE PEAK HOUR VOLS AND PHF: System Peak (vehicle)



HEAVY VEH PEAK HOUR VOLS AND PHV: System Peak (vehicle)



PED AND BIKE PEAK HOUR VOLUMES: System Peak (vehicle)



DATA COLLECTION NOTES :

Gorove/Slade Associates - Multimodal Turning Movement Count Report

Project Name : CSX East
 Project # : 2604-003
 Location : SE Washington DC
 Data Source : Gorove/Slade Associates, Inc.

Analysis Period: STUDY_PERIOD
 Date of Counts: Thursday, December 13, 2018
 Weather: Partly Cloudy

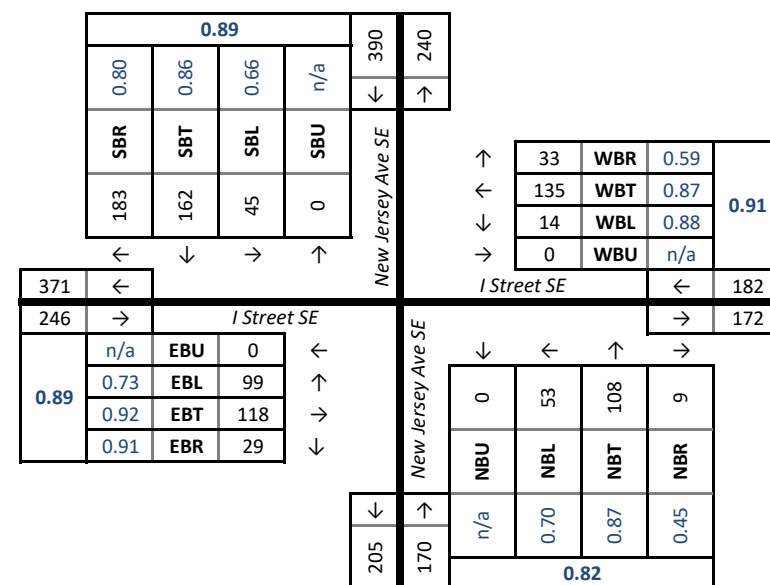
04:00 PM to 07:00 PM

Volumes Displayed as: 2. System Peak (vehicle)

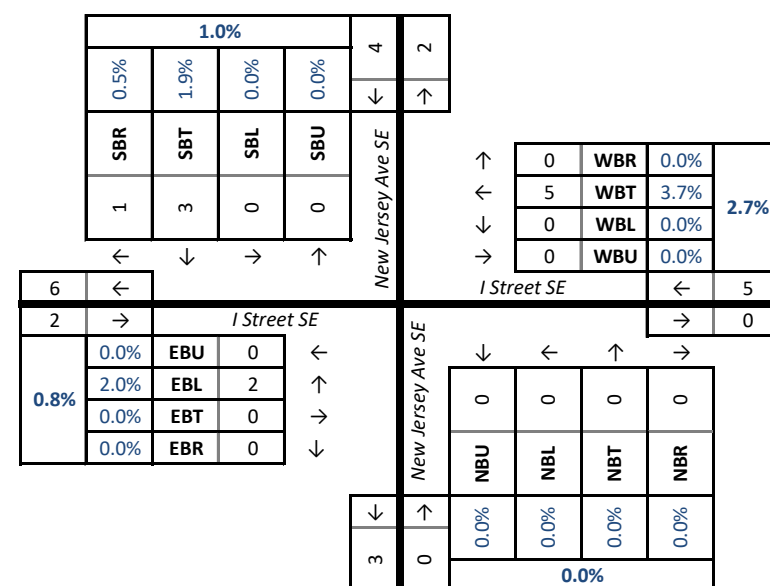
Intersection Peak Hour (all vehicles): 04:30 PM to 05:30 PM
 System Peak Hour (all vehicles): 04:30 PM to 05:30 PM
 User-Defined Peak Hour: 05:00 PM to 06:00 PM

Intersection:		1. New Jersey Ave SE & I Street SE																			
ALL VEHICLES	Direction:	Southbound				Westbound				Northbound				Eastbound							
	Roadway:	New Jersey Ave SE				I Street SE				New Jersey Ave SE				I Street SE							
	Movement:	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds	U	Left	Thru	Right	Peds
04:00 PM to 04:15 PM		0	7	25	42	18	0	0	27	11	36	0	11	26	1	6	0	23	27	7	40
04:15 PM to 04:30 PM		0	14	31	46	18	0	3	21	7	40	0	13	21	3	17	1	32	19	5	41
04:30 PM to 04:45 PM		0	9	42	33	24	0	4	31	2	38	0	19	31	2	7	0	34	28	7	28
04:45 PM to 05:00 PM		0	7	47	56	26	0	4	39	6	49	0	11	27	1	7	0	20	28	8	20
05:00 PM to 05:15 PM		0	17	32	57	21	0	3	32	11	32	0	11	27	1	6	0	22	30	6	43
05:15 PM to 05:30 PM		0	12	41	37	20	0	3	33	14	41	0	12	23	5	13	0	23	32	8	49
05:30 PM to 05:45 PM		0	7	45	52	26	0	2	40	4	53	0	8	16	2	12	0	18	30	12	43
05:45 PM to 06:00 PM		0	11	31	44	14	0	5	45	4	32	0	11	25	1	9	0	25	27	10	59
06:00 PM to 06:15 PM		0	12	29	35	31	0	2	47	5	36	0	9	19	3	15	0	20	23	14	42
06:15 PM to 06:30 PM		0	6	42	38	47	0	3	36	6	40	0	12	11	3	15	0	15	23	3	72
06:30 PM to 06:45 PM		0	10	28	32	26	0	6	35	9	46	1	10	14	2	23	1	22	20	7	43
06:45 PM to 07:00 PM		0	11	27	31	27	0	3	23	5	39	1	11	21	4	18	0	24	21	5	29
07:00 PM to 07:15 PM																					
07:15 PM to 07:30 PM																					
07:30 PM to 07:45 PM																					
07:45 PM to 08:00 PM																					
08:00 PM to 08:15 PM																					
08:15 PM to 08:30 PM																					
08:30 PM to 08:45 PM																					
08:45 PM to 09:00 PM																					
SYSTEM PEAK HR (VEH.)		390				91	182				160	170				33	246				140
04:30 PM to 05:30 PM		0	45	162	183	91	0	14	135	33	160	0	53	108	9	33	0	99	118	29	140
Peak Hour Overall		U	Left	Thru	Right	SB	U	Left	Thru	Right	WB	U	Left	Thru	Right	NB	U	Left	Thru	Right	EB
Factor (PHF)		n/a	0.66	0.86	0.80	0.89	n/a	0.88	0.87	0.59	0.91	n/a	0.70	0.87	0.45	0.82	n/a	0.73	0.92	0.91	0.89

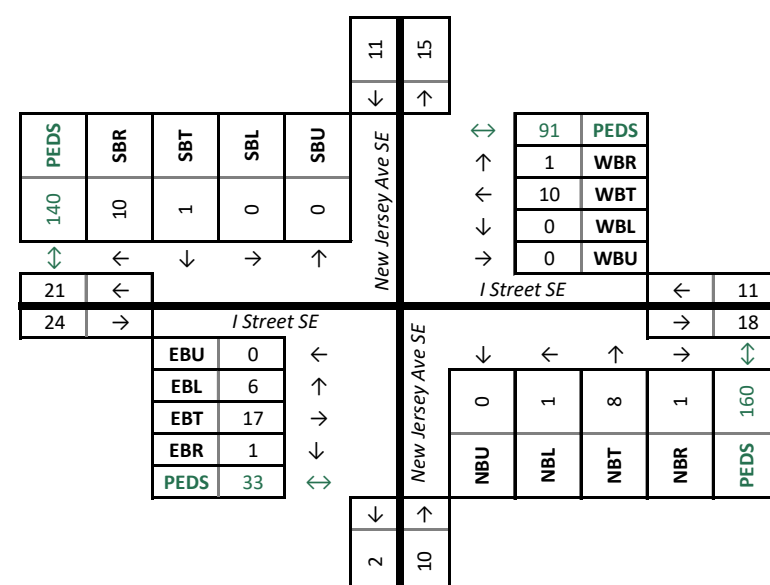
VEHICLE PEAK HOUR VOLS AND PHF: System Peak (vehicle)



HEAVY VEH PEAK HOUR VOLS AND PHV: System Peak (vehicle)



PED AND BIKE PEAK HOUR VOLUMES: System Peak (vehicle)



DATA COLLECTION NOTES :

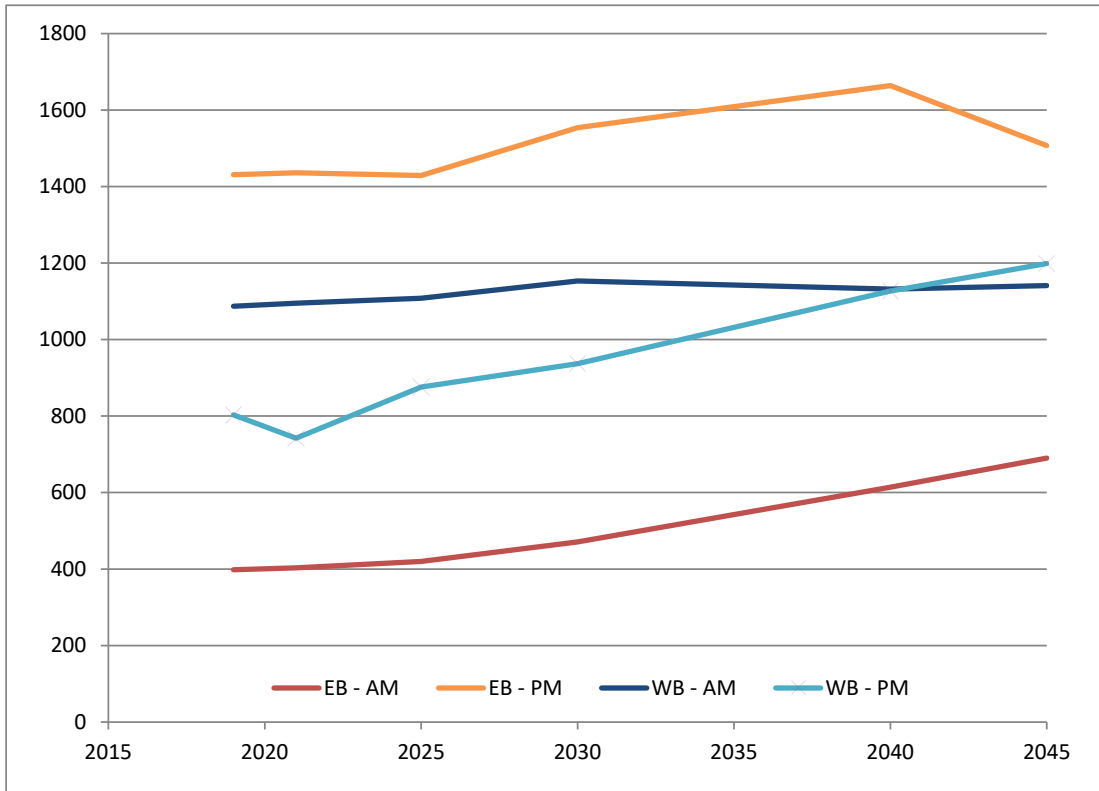
D. Growth Rate Assumptions

Growth Rate Information & Assumptions

Eye St SW/SE

MWCOG Model Volumes (v2.4)

Direction/Period	2019	2021	2025	2030	2040	2045
EB - AM	398	403	420	471	614	690
EB - PM	1431	1436	1429	1554	1664	1507
WB - AM	1087	1095	1108	1153	1132	1141
WB - PM	803	742	876	937	1127	1199



Year of data collection: 2021
 Project completion date: 2026

Direction/Period	Growth per year between 2021 & 2026
EB - AM	1.04%
EB - PM	-0.12%
WB - AM	0.30%
WB - PM	4.24%

Growth Rate Information & Assumptions

Eye St SW/SE

Historical DDOT AADTs in thousands

Location	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Eye St east of S Capitol St	6.2	6.2	6.1	6.2	6.3	6.4	7.0	7.0	6.0	6.0

Growth per year since:	2010	2013	2016
	-0.3%	-0.5%	-3.8%

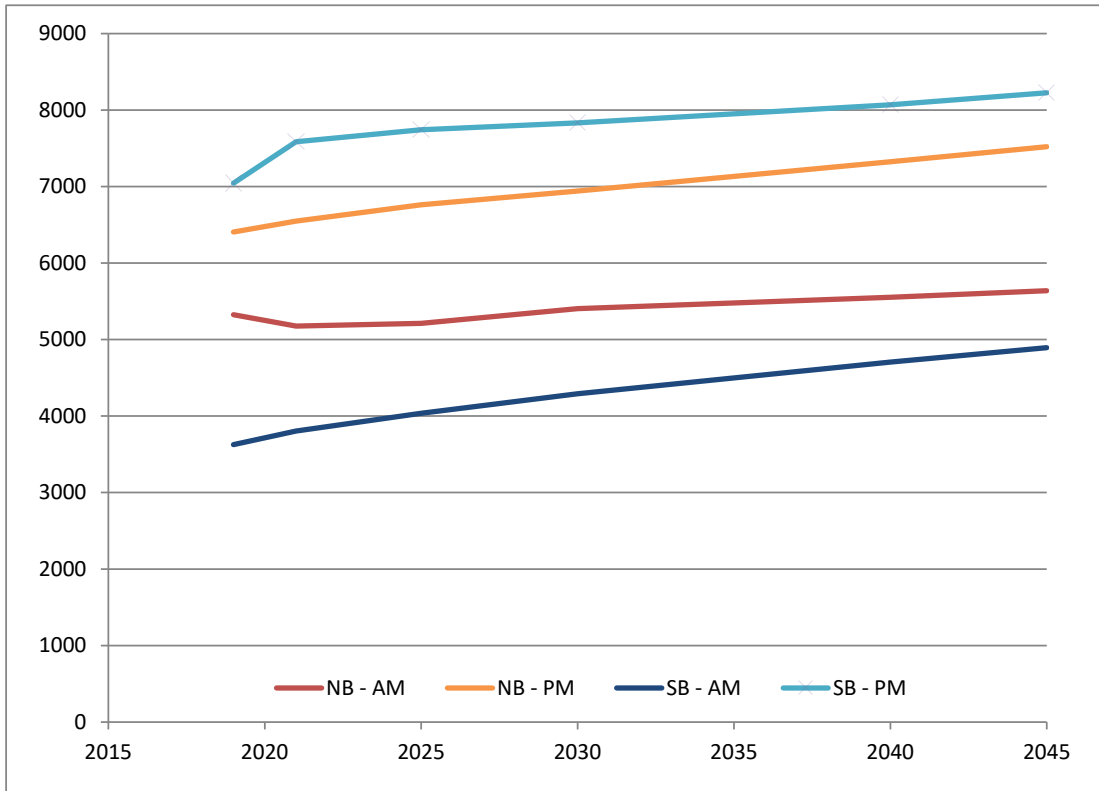
Proposed Growth Rates for Use in Study:

Direction/Period	Per year btwn 2021 & 2026	Total btwn 2021 & 2026	Per year btwn 2015/20 18 &
EB - AM	1.00%	5.10%	0.10%
EB - PM	0.10%	0.50%	0.10%
WB - AM	0.30%	1.51%	0.10%
WB - PM	2.00%	10.41%	0.10%

Growth Rate Information & Assumptions
South Capitol Street north of Eye St

MWCOG Model Volumes (v2.4)

Direction/Period	2019	2021	2025	2030	2040	2045
NB - AM	5325	5176	5211	5405	5553	5639
NB - PM	6405	6549	6762	6942	7324	7521
SB - AM	3627	3804	4037	4292	4705	4894
SB - PM	7044	7587	7743	7833	8069	8226



Year of data collection: 2021
 Project completion date: 2026

Direction/Period	Growth per year between 2021 & 2026
NB - AM	0.17%
NB - PM	0.80%
SB - AM	1.50%
SB - PM	0.51%

Growth Rate Information & Assumptions

South Capitol Street north of Eye St

Historical DDOT AADTs in thousands

Location	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
S Capitol St @ Eye St	47.6	47.8	52.0	31.7	31.7	25.0	21.0	22.0	22.0	22.0

Growth per year since:	2010	2013	2016
	-7.4%	-5.1%	1.2%

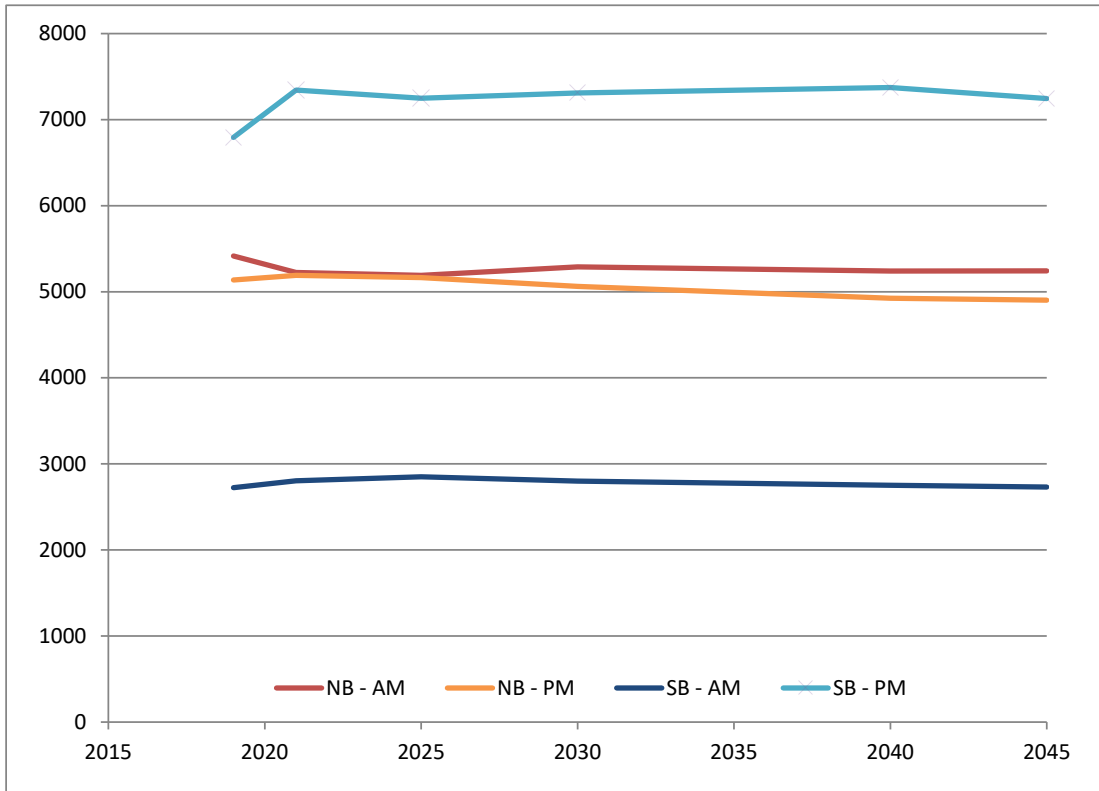
Proposed Growth Rates for Use in Study:

Direction/Period	Per year btwn 2021 & 2026	Total btwn 2021 & 2026	Per year btwn 2015/20 18 &
NB - AM			
NB - PM			
SB - AM			
SB - PM			

Growth Rate Information & Assumptions
South Capitol Street south of Eye St

MWCOG Model Volumes (v2.4)

Direction/Period	2019	2021	2025	2030	2040	2045
NB - AM	5415	5225	5190	5290	5240	5242
NB - PM	5136	5191	5164	5062	4925	4902
SB - AM	2723	2803	2849	2799	2752	2731
SB - PM	6793	7344	7249	7310	7373	7245



Year of data collection: 2021
 Project completion date: 2026

Direction/Period	Growth per year between 2021 & 2026
NB - AM	-0.17%
NB - PM	-0.13%
SB - AM	0.41%
SB - PM	-0.32%

Growth Rate Information & Assumptions

South Capitol Street south of Eye St

Historical DDOT AADTs in thousands

Location	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
S Capitol St @ Eye St	47.6	47.8	52.0	31.7	31.7	25.0	21.0	22.0	22.0	22.0

Growth per year since:	2010	2013	2016
	-7.4%	-5.1%	1.2%

Proposed Growth Rates for Use in Study:

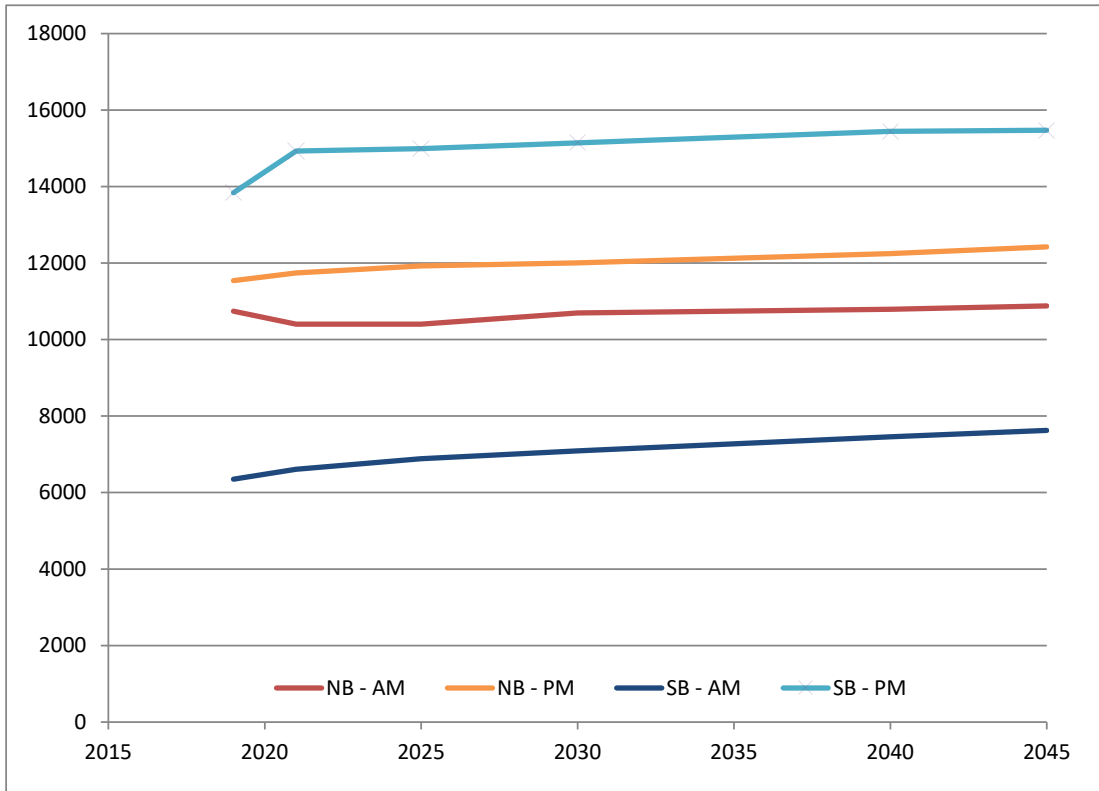
Direction/Period	Per year btwn 2021 & 2026	Total btwn 2021 & 2026	Per year btwn 2015/20 18 &
NB - AM			
NB - PM			
SB - AM			
SB - PM			

Growth Rate Information & Assumptions

South Capitol St aggregate

MWCOG Model Volumes (v2.3.78)

Direction/Period	2019	2021	2025	2030	2040	2045
NB - AM	10740	10401	10401	10695	10793	10881
NB - PM	11541	11740	11926	12004	12249	12423
SB - AM	6350	6607	6886	7091	7457	7625
SB - PM	13837	14931	14992	15143	15442	15471



Year of data collection: 2021
 Project completion date: 2026

Direction/Period	Growth per year between 2021 & 2026
NB - AM	0.00%
NB - PM	0.39%
SB - AM	1.04%
SB - PM	0.10%

Growth Rate Information & Assumptions

South Capitol St aggregate

Historical DDOT AADTs in thousands

Location	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
S Capitol St @ Eye St	47.6	47.8	52.0	31.7	31.7	25.0	21.0	22.0	22.0	22.0

Growth per year since:	2010	2013	2016
	-7.4%	-5.1%	1.2%

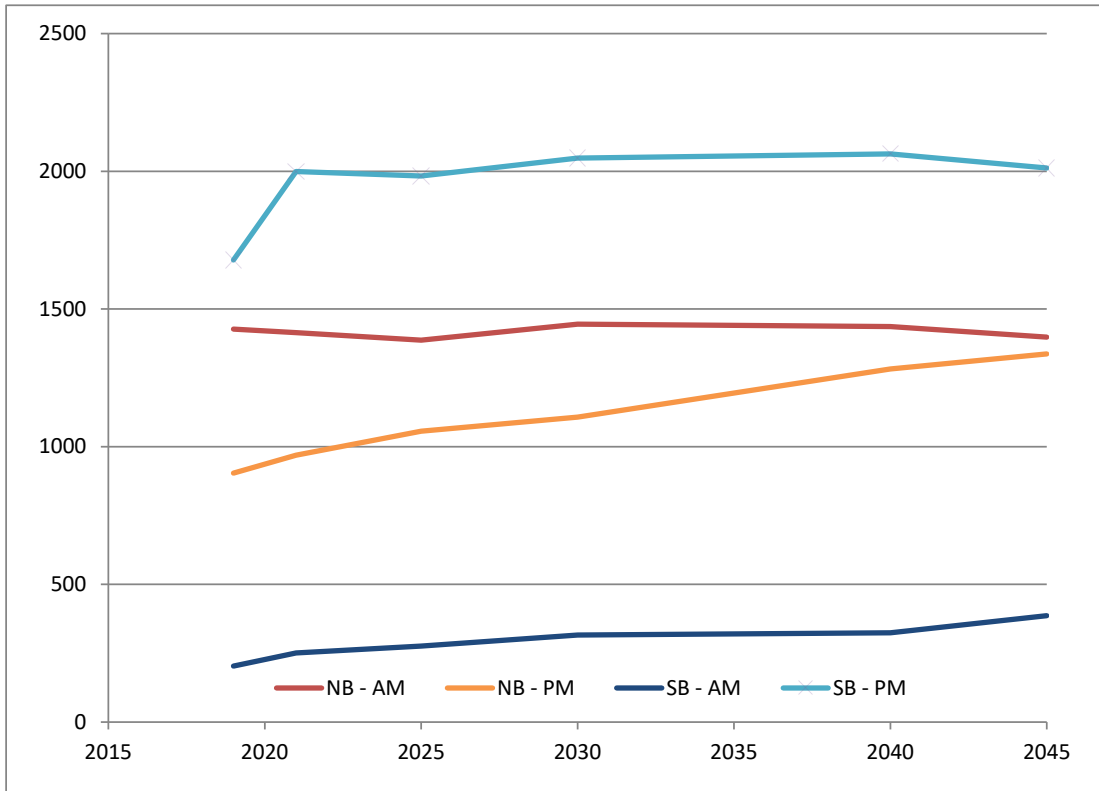
Proposed Growth Rates for Use in Study:

Direction/Period	Per year	Total	Per year
	btwn	btwn	btwn
	2021 &	2021 &	2015/20
	2026	2026	18 &
NB - AM	0.10%	0.50%	1.20%
NB - PM	0.40%	2.02%	1.20%
SB - AM	1.00%	5.10%	1.20%
SB - PM	0.10%	0.50%	1.20%

Growth Rate Information & Assumptions
New Jersey Ave SE

MWCOG Model Volumes (v2.4)

Direction/Period	2019	2021	2025	2030	2040	2045
NB - AM	1427	1414	1387	1445	1436	1398
NB - PM	904	969	1056	1107	1282	1337
SB - AM	203	251	276	316	324	386
SB - PM	1678	1999	1983	2048	2063	2012



Year of data collection: 2021
 Project completion date: 2026

Direction/Period	Growth per year between 2021 & 2026
NB - AM	-0.48%
NB - PM	2.17%
SB - AM	2.40%
SB - PM	-0.20%

Growth Rate Information & Assumptions

New Jersey Ave SE

Historical DDOT AADTs in thousands

Location	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
New Jersey Ave SE near Eye St	5.2	5.3	5.2	5.2			4.0	4.0	4.0	4.0

Growth per year since:	2010	2013	2016
	-2.6%	-3.7%	0.0%

Proposed Growth Rates for Use in Study:

Direction/Period	Per year btwn 2021 & 2026	Total btwn 2021 & 2026	Per year btwn 2015/20 18 &
NB - AM	0.10%	0.50%	0.10%
NB - PM	2.00%	10.41%	0.10%
SB - AM	2.00%	10.41%	0.10%
SB - PM	0.10%	0.50%	0.10%

D: Growth Rate Assumptions

Roadway	Dir.	Proposed Annual Growth Rate Between 2015/2018 & 2021 ¹		Proposed Annual Growth Rate Between 2021 and 2026 ²		Proposed Total Growth Between 2021 and 2026	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Eye St SW/SE	EB	0.10%	0.10%	1.00%	0.10%	5.10%	0.50%
	WB	0.10%	0.10%	0.30%	2.00%	1.51%	10.41%
South Capitol St	NB	1.20%	1.20%	0.10%	0.40%	0.50%	2.02%
	SB	1.20%	1.20%	1.00%	0.10%	5.10%	0.50%
Half St SW ³	NB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
	SB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
Half St SE ³	NB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
	SB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
First St SE ³	NB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
	SB	0.10%	0.10%	0.10%	0.10%	0.50%	0.50%
New Jersey Ave SE	NB	0.10%	0.10%	0.10%	2.00%	0.50%	10.41%
	SB	0.10%	0.10%	2.00%	0.10%	10.41%	0.50%

¹ These rates were applied to volumes recorded in 2015 and 2018 that were used to establish 2021 existing conditions. Rates are based on historical AADT data.

² These rates were applied to volumes grown from 2021 existing conditions. Rates are based on MWCOG's currently adopted regional transportation model.

³ Neither AADT nor MWCOG data is available for these streets; therefore a conservative 0.1% growth rate per year was used.

E. Trip Generation for Background Developments

Mode Split Assumptions - Monument Valley

Residential Component

Description of residential component of project:

The development will contain approximately 445 residential dwelling units, 60,000 S.F. of retail

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Residents (TAZ 20372)	34%	0%	40%	3%	24%	0%	0%
Census Tract - Residents (CT 72)	32%	4%	32%	3%	23%	3%	2%
State of the Commute 2016 (of District residents)	35%	4%	42%	16%		3%	
WMATA Ridership Survey (average for U-Street Station Area)	22%		51%	27%		---	
WMATA Ridership Survey (average for Suburban-Inside the Beltway)	39%		49%	12%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	40%	40%	5%	15%	---

Notes: -Census data (CTPP) used as basis for assumptions
 '-Census data adjusted based on parking supply

Retail Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Silver Spring Neighbourhood Center)	67%		19%	14%		---	
WMATA Ridership Survey (Ballston Common)	43%		30%	27%		---	

Mode Split assumed in TIS:

Use	Mode					
	Drive	Pass-by	Transit	Bike	Walk	Telecommute/Other
Retail Mode Split	45%		10%	10%	35%	---

Notes: -Two WMATA survey sites listed are more applicable to the ground-floor neighborhood retail

Trip Generation - Monument Valley

Residential (800 du), Retail (44,000 S.F.)

Step 1: Base trip generation using ITEs' Trip Generation

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	221	445 du	42 veh/hr	118 veh/hr	160 veh/hr	120 veh/hr	76 veh/hr	196 veh/hr	1211 veh	1210 veh	2421 veh
<i>Calculation Details:</i>			26%	74%	=0.36X	61%	39%	=0.44X	50%	50%	=5.44X
Retail	820	60,000 sf	35 veh/hr	21 veh/hr	56 veh/hr	110 veh/hr	119 veh/hr	229 veh/hr	1133 veh	1132 veh	2265 veh
<i>Calculation Details:</i>			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	50%	50%	=37.75(X/1000)

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	50 ppl/hr	139 ppl/hr	189 ppl/hr	142 ppl/hr	90 ppl/hr	231 ppl/hr	1429 ppl	1428 ppl	2857 ppl
Retail	1.82 ppl/veh	64 ppl/hr	38 ppl/hr	102 ppl/hr	200 ppl/hr	217 ppl/hr	417 ppl/hr	2062 ppl	2060 ppl	4122 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	Auto	40%	20 ppl/hr	56 ppl/hr	76 ppl/hr	57 ppl/hr	35 ppl/hr	92 ppl/hr	572 ppl	571 ppl	1143 ppl
Apartments	Transit	40%	20 ppl/hr	56 ppl/hr	76 ppl/hr	57 ppl/hr	35 ppl/hr	92 ppl/hr	572 ppl	571 ppl	1143 ppl
Apartments	Bike	5%	3 ppl/hr	6 ppl/hr	9 ppl/hr	7 ppl/hr	5 ppl/hr	12 ppl/hr	71 ppl	72 ppl	143 ppl
Apartments	Walk	15%	8 ppl/hr	20 ppl/hr	28 ppl/hr	21 ppl/hr	14 ppl/hr	35 ppl/hr	214 ppl	215 ppl	429 ppl
Retail	Auto	45%	29 ppl/hr	17 ppl/hr	46 ppl/hr	90 ppl/hr	98 ppl/hr	188 ppl/hr	928 ppl	927 ppl	1855 ppl
Retail	Transit	10%	6 ppl/hr	4 ppl/hr	10 ppl/hr	20 ppl/hr	22 ppl/hr	42 ppl/hr	206 ppl	206 ppl	412 ppl
Retail	Bike	10%	6 ppl/hr	4 ppl/hr	10 ppl/hr	20 ppl/hr	22 ppl/hr	42 ppl/hr	206 ppl	206 ppl	412 ppl
Retail	Walk	35%	22 ppl/hr	14 ppl/hr	36 ppl/hr	70 ppl/hr	76 ppl/hr	146 ppl/hr	722 ppl	721 ppl	1443 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	17 veh/hr	47 veh/hr	64 veh/hr	48 veh/hr	30 veh/hr	78 veh/hr	485 veh	484 veh	969 veh
Retail	1.82 ppl/veh	16 veh/hr	9 veh/hr	25 veh/hr	49 veh/hr	54 veh/hr	103 veh/hr	510 veh	509 veh	1019 veh

Trip Gen Summary for Monument Valley

Mode	AM Peak Hour			PM Peak Hour			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	33 veh/hr	56 veh/hr	89 veh/hr	97 veh/hr	84 veh/hr	181 veh/hr	995 veh	993 veh	1988 veh
Transit	26 ppl/hr	60 ppl/hr	86 ppl/hr	77 ppl/hr	57 ppl/hr	134 ppl/hr	778 ppl/hr	777 ppl/hr	1555 ppl/hr
Bike	9 ppl/hr	10 ppl/hr	19 ppl/hr	27 ppl/hr	27 ppl/hr	54 ppl/hr	277 ppl/hr	278 ppl/hr	555 ppl/hr
Walk	30 ppl/hr	34 ppl/hr	64 ppl/hr	91 ppl/hr	90 ppl/hr	181 ppl/hr	936 ppl/hr	936 ppl/hr	1872 ppl/hr



TRIP GENERATION

This section outlines the transportation demand of the proposed West Half Street project. It summarizes the projected trip generation of the site by land use (residential and retail) and by mode, which forms the basis for the chapters that follow.

Traditionally, weekday peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation*, 9th Edition. This methodology was supplemented to account for the urban nature of the site (*Trip Generation* provides data for non-urban, low transit use sites) and to generate trips for multiple modes including vehicle, transit, biking, and walking.

Residential trip generation was calculated based on ITE land use 220, Apartment, splitting trips into different modes using assumptions derived from census data for the residents that currently live near the site and mode splits used for residential developments that have recently been studied. Mode splits were adjusted based on the anticipated parking supply.

Retail trip generation was calculated based on ITE land use 820, Shopping Center. Rates based on average vehicle trip ends per 1,000 square feet of gross leasable area were used. Mode splits for the retail portion of the site were based on information contained in WMATA's 2005 *Development-Related Ridership Survey* and mode splits used for retail uses of nearby developments that have recently been studied. A summary of

mode splits for all land uses within the development is shown on Table 5.

Table 5: Mode Split Summary

Land Use	Mode Split			
	Auto	Transit	Bike	Walk
Residential	45%	43%	4%	8%
Retail	40%	40%	5%	15%

It should be noted that due to the changes to the development program from the approved development to the proposed development, particularly the transition from office space to residential space, the overall trip generation for the development has decreased for both vehicular and non-auto modes. A summary of the multimodal trip generation for the proposed development, the approved development, and the difference between the two is provided in Table 4, Table 7, and Table 6, respectively, for the morning and afternoon peak hours. As shown, the vehicular trip generation decreases by 70 trips in the morning peak hour and 43 trips in the afternoon peak hour due to the updated development program. The non-auto trip generation decreases by 55 trips in the morning peak hour and 42 trips in the afternoon peak hour due to the updated development program. Detailed calculations are included in the Technical Appendix.

Table 4: Multi-Modal Trip Generation Summary (Proposed Development)

Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto	Apartments	19 veh/hr	76 veh/hr	95 veh/hr	73 veh/hr	40 veh/hr	113 veh/hr
	Retail	16 veh/hr	9 veh/hr	25 veh/hr	46 veh/hr	51 veh/hr	97 veh/hr
	Total	35 veh/hr	85 veh/hr	120 veh/hr	119 veh/hr	91 veh/hr	210 veh/hr
Transit	Apartments	20 ppl/hr	82 ppl/hr	102 ppl/hr	79 ppl/hr	43 ppl/hr	122 ppl/hr
	Retail	28 ppl/hr	17 ppl/hr	45 ppl/hr	82 ppl/hr	90 ppl/hr	172 ppl/hr
	Total	48 ppl/hr	99 ppl/hr	147 ppl/hr	161 ppl/hr	133 ppl/hr	294 ppl/hr
Bike	Apartments	2 ppl/hr	8 ppl/hr	10 ppl/hr	7 ppl/hr	4 ppl/hr	11 ppl/hr
	Retail	3 ppl/hr	3 ppl/hr	6 ppl/hr	10 ppl/hr	12 ppl/hr	22 ppl/hr
	Total	5 ppl/hr	11 ppl/hr	16 ppl/hr	17 ppl/hr	16 ppl/hr	33 ppl/hr
Walk	Apartments	4 ppl/hr	15 ppl/hr	19 ppl/hr	15 ppl/hr	8 ppl/hr	23 ppl/hr
	Retail	10 ppl/hr	7 ppl/hr	17 ppl/hr	31 ppl/hr	34 ppl/hr	65 ppl/hr
	Total	14 ppl/hr	22 ppl/hr	36 ppl/hr	46 ppl/hr	42 ppl/hr	88 ppl/hr

Mode Split Assumptions - Square 769

Residential Component

Description of residential component of project:

The development will contain approximately 171 residential dwelling units, 4,000 S.F. of retail

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Residents (TAZ 20372)	34%	0%	40%	3%	24%	0%	0%
Census Tract - Residents (CT 72)	32%	4%	32%	3%	23%	3%	2%
State of the Commute 2016 (of District residents)	35%	4%	42%	16%		3%	
WMATA Ridership Survey (average for U-Street Station Area)	22%		51%	27%		---	
WMATA Ridership Survey (average for Suburban-Inside the Beltway)	39%		49%	12%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	40%	40%	5%	15%	---

Notes: -Census data (CTPP) used as basis for assumptions
 '-Census data adjusted based on parking supply

Retail Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Silver Spring Neighbourhood Center)	67%		19%	14%		---	
WMATA Ridership Survey (Ballston Common)	43%		30%	27%		---	

Mode Split assumed in TIS:

Use	Mode					
	Drive	Pass-by	Transit	Bike	Walk	Telecommute/Other
Retail Mode Split	45%		10%	10%	35%	---

Notes: -Two WMATA survey sites listed are more applicable to the ground-floor neighborhood retail

Trip Generation - Square 769

Residential (171 du), Retail (4,000 S.F.)

Step 1: Base trip generation using ITEs' Trip Generation

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	221	171 du	16 veh/hr	46 veh/hr	62 veh/hr	46 veh/hr	29 veh/hr	75 veh/hr	465 veh	465 veh	930 veh
Calculation Details:			26%	74%	=0.36X	61%	39%	=0.44X	50%	50%	=5.44X
Retail	820	4,000 sf	2 veh/hr	2 veh/hr	4 veh/hr	7 veh/hr	8 veh/hr	15 veh/hr	76 veh	75 veh	151 veh
Calculation Details:			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	50%	50%	=37.75(X/1000)

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	19 ppl/hr	54 ppl/hr	73 ppl/hr	54 ppl/hr	34 ppl/hr	89 ppl/hr	549 ppl	549 ppl	1097 ppl
Retail	1.82 ppl/veh	4 ppl/hr	4 ppl/hr	7 ppl/hr	13 ppl/hr	15 ppl/hr	27 ppl/hr	138 ppl	137 ppl	275 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	Auto	40%	8 ppl/hr	21 ppl/hr	29 ppl/hr	22 ppl/hr	14 ppl/hr	36 ppl/hr	220 ppl	219 ppl	439 ppl
Apartments	Transit	40%	8 ppl/hr	21 ppl/hr	29 ppl/hr	22 ppl/hr	14 ppl/hr	36 ppl/hr	220 ppl	219 ppl	439 ppl
Apartments	Bike	5%	1 ppl/hr	3 ppl/hr	4 ppl/hr	3 ppl/hr	1 ppl/hr	4 ppl/hr	27 ppl	28 ppl	55 ppl
Apartments	Walk	15%	3 ppl/hr	8 ppl/hr	11 ppl/hr	8 ppl/hr	5 ppl/hr	13 ppl/hr	82 ppl	83 ppl	165 ppl
Retail	Auto	45%	2 ppl/hr	1 ppl/hr	3 ppl/hr	6 ppl/hr	6 ppl/hr	12 ppl/hr	62 ppl	62 ppl	124 ppl
Retail	Transit	10%	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr	3 ppl/hr	14 ppl	14 ppl	28 ppl
Retail	Bike	10%	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr	3 ppl/hr	14 ppl	14 ppl	28 ppl
Retail	Walk	35%	1 ppl/hr	1 ppl/hr	2 ppl/hr	5 ppl/hr	4 ppl/hr	9 ppl/hr	48 ppl	48 ppl	96 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	7 veh/hr	18 veh/hr	25 veh/hr	19 veh/hr	12 veh/hr	31 veh/hr	186 veh	186 veh	372 veh
Retail	1.82 ppl/veh	1 veh/hr	1 veh/hr	2 veh/hr	3 veh/hr	4 veh/hr	7 veh/hr	34 veh	34 veh	68 veh

Trip Gen Summary for Monument Valley

Mode	AM Peak Hour			PM Peak Hour			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	8 veh/hr	19 veh/hr	27 veh/hr	22 veh/hr	16 veh/hr	38 veh/hr	220 veh	220 veh	440 veh
Transit	8 ppl/hr	22 ppl/hr	30 ppl/hr	23 ppl/hr	16 ppl/hr	39 ppl/hr	234 ppl/hr	233 ppl/hr	467 ppl/hr
Bike	1 ppl/hr	4 ppl/hr	5 ppl/hr	4 ppl/hr	3 ppl/hr	7 ppl/hr	41 ppl/hr	42 ppl/hr	83 ppl/hr
Walk	4 ppl/hr	9 ppl/hr	13 ppl/hr	13 ppl/hr	9 ppl/hr	22 ppl/hr	130 ppl/hr	131 ppl/hr	261 ppl/hr



TRIP GENERATION

This section outlines the transportation demand of the proposed Yards Parcel L1 project. It summarizes the projected trip generation of the site by mode, which forms the basis for the chapters that follow. Traditionally, weekday peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 9th Edition. This methodology was supplemented to account for the urban nature of the site (the *Trip Generation Manual* provides data for non-urban, low transit use sites) and to generate trips for multiple modes.

Hotel trip generation was calculated based on ITE land use 310, Hotel. Mode splits for the retail portion of the site were based on information contained in WMATA's 2005 *Development-Related Ridership Survey* and mode splits used for hotel uses of nearby developments that have recently been studied.

Retail trip generation was calculated based on ITE land use 820, Shopping Center. Mode splits for the retail portion of the site were based on information contained in WMATA's 2005 *Development-Related Ridership Survey* and mode splits used for retail uses of nearby developments that have recently been studied.

The below-grade parking garage will contain 85 parking spaces that will be shared by the retail components of Parcel L1 and L2, as well as open to the public for general shared use parking or hotel guests if demand dictates. In order to account for the public parking portion of the development, the analysis will include the trips generated by the site's existing use (a surface parking lot with 202 public parking spaces).

For purposes of determining the impact of the overall site, trips generated by the residential and retail components of Parcel L2 were included at the request of DDOT. Residential trip generation was calculated based on ITE land use 220, Apartment, splitting trips into different modes using assumptions derived from census data for the residents that currently live near the site. The vehicular mode split was then

Table 2: Multi-Modal Trip Generation Summary

Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto	Hotel (Parcel L1)	35 veh/hr	25 veh/hr	60 veh/hr	35 veh/hr	33 veh/hr	68 veh/hr
	Retail (Parcel L1)	2 veh/hr	1 veh/hr	3 veh/hr	5 veh/hr	6 veh/hr	11 veh/hr
	Residential (Parcel L2)	15 veh/hr	57 veh/hr	72 veh/hr	57 veh/hr	31 veh/hr	88 veh/hr
	Retail (Parcel L2)	2 veh/hr	1 veh/hr	3 veh/hr	7 veh/hr	6 veh/hr	13 veh/hr
	Public Parking*	47 veh/hr	1 veh/hr	48 veh/hr	70 veh/hr	33 veh/hr	103 veh/hr
	Total		101 veh/hr	85 veh/hr	186 veh/hr	174 veh/hr	109 veh/hr
Transit	Hotel (Parcel L1)	47 ppl/hr	32 ppl/hr	79 ppl/hr	46 ppl/hr	44 ppl/hr	90 ppl/hr
	Retail (Parcel L1)	4 ppl/hr	3 ppl/hr	7 ppl/hr	13 ppl/hr	13 ppl/hr	26 ppl/hr
	Residential (Parcel L2)	10 ppl/hr	39 ppl/hr	49 ppl/hr	38 ppl/hr	21 ppl/hr	59 ppl/hr
	Retail (Parcel L2)	6 ppl/hr	3 ppl/hr	9 ppl/hr	16 ppl/hr	18 ppl/hr	34 ppl/hr
	Total		67 ppl/hr	77 ppl/hr	144 ppl/hr	113 ppl/hr	96 ppl/hr
Bike	Hotel (Parcel L1)	8 ppl/hr	5 ppl/hr	13 ppl/hr	8 ppl/hr	7 ppl/hr	15 ppl/hr
	Retail (Parcel L1)	2 ppl/hr	2 ppl/hr	4 ppl/hr	7 ppl/hr	8 ppl/hr	15 ppl/hr
	Residential (Parcel L2)	5 ppl/hr	19 ppl/hr	24 ppl/hr	19 ppl/hr	11 ppl/hr	30 ppl/hr
	Retail (Parcel L2)	3 ppl/hr	2 ppl/hr	5 ppl/hr	9 ppl/hr	10 ppl/hr	19 ppl/hr
	Total		18 ppl/hr	28 ppl/hr	46 ppl/hr	43 ppl/hr	36 ppl/hr
Walk	Hotel (Parcel L1)	23 ppl/hr	17 ppl/hr	40 ppl/hr	23 ppl/hr	22 ppl/hr	45 ppl/hr
	Retail (Parcel L1)	2 ppl/hr	2 ppl/hr	4 ppl/hr	7 ppl/hr	8 ppl/hr	15 ppl/hr
	Residential (Parcel L2)	2 ppl/hr	6 ppl/hr	8 ppl/hr	6 ppl/hr	4 ppl/hr	10 ppl/hr
	Retail (Parcel L2)	3 ppl/hr	2 ppl/hr	5 ppl/hr	9 ppl/hr	10 ppl/hr	19 ppl/hr
	Total		30 ppl/hr	27 ppl/hr	57 ppl/hr	45 ppl/hr	44 ppl/hr

*based on existing counts



adjusted to reflect the parking supply and other developments with similar proximity to Metrorail. Retail trip generation for Parcel L2 was calculated using the same methodology outlined for Parcel L1.

A summary of the multimodal trip generation for the development is provided in Table 2 for the morning and afternoon peak hours. The mode split assumptions for all land uses within the development is summarized in Table 3. A comparison of the trip generation and amount of planned parking is shown in Table 4. Detailed calculations are included in the Technical Appendix.

Table 3: Summary of Mode Split Assumptions

Land Use	Mode			
	Auto	Transit	Bike	Walk
Residential	50%	30%	15%	5%
Retail	25%	35%	20%	20%
Hotel	50%	35%	5%	10%

Table 4: Comparison of Parking and Auto Trip Generation

Land Use	Parking Provided	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Hotel (Parcel L1)	50 spaces	35 veh/hr	25 veh/hr	60 veh/hr	35 veh/hr	33 veh/hr	68 veh/hr
Retail (Parcel L1)	85 spaces*	2 veh/hr	1 veh/hr	3 veh/hr	5 veh/hr	6 veh/hr	11 veh/hr
Residential (Parcel L2)	135 spaces	15 veh/hr	57 veh/hr	72 veh/hr	57 veh/hr	31 veh/hr	88 veh/hr
Retail (Parcel L2)	shared*	2 veh/hr	1 veh/hr	3 veh/hr	7 veh/hr	6 veh/hr	13 veh/hr
Public Parking (Parcel L1/L2)	shared*	47 veh/hr	1 veh/hr	48 veh/hr	70 veh/hr	33 veh/hr	103 veh/hr
Total	270 spaces	101 veh/hr	85 veh/hr	186 veh/hr	174 veh/hr	109 veh/hr	283 veh/hr

*shared between Parcel L1/L2 Retail and Public Parking



TRIP GENERATION

This section outlines the transportation demand of the proposed Yards Parcel L2 project. It summarizes the projected trip generation of the site by mode, which forms the basis for the chapters that follow.

Traditionally, weekday peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 9th Edition. This methodology was supplemented to account for the urban nature of the site (the *Trip Generation Manual* provides data for non-urban, low transit use sites) and to generate trips for multiple modes.

Residential trip generation was calculated based on ITE land use 220, Apartment, splitting trips into different modes using assumptions derived from census data for the residents that currently live near the site. The vehicular mode split was then adjusted to reflect the parking supply and other developments with similar proximity to Metrorail.

Retail trip generation was calculated based on ITE land use 820, Shopping Center. Mode splits for the retail portion of the site were based on information contained in WMATA's 2005 *Development-Related Ridership Survey* and mode splits used for retail uses of nearby developments that have recently been studied.

A summary of the multimodal trip generation for the development is provided in Table 2 for the morning and afternoon peak hours. The mode split assumptions for all land uses within the development is summarized in Table 3. Detailed calculations are included in the Technical Appendix.

Table 2: Multi-Modal Trip Generation Summary

Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto	Residential	10 veh/hr	40 veh/hr	50 veh/hr	39 veh/hr	21 veh/hr	60 veh/hr
	Retail	3 veh/hr	3 veh/hr	6 veh/hr	10 veh/hr	11 veh/hr	21 veh/hr
	Total	13 veh/hr	43 veh/hr	56 veh/hr	49 veh/hr	32 veh/hr	81 veh/hr
Transit	Residential	14 ppl/hr	58 ppl/hr	72 ppl/hr	57 ppl/hr	30 ppl/hr	87 ppl/hr
	Retail	9 ppl/hr	5 ppl/hr	14 ppl/hr	26 ppl/hr	27 ppl/hr	53 ppl/hr
	Total	23 ppl/hr	63 ppl/hr	86 ppl/hr	83 ppl/hr	57 ppl/hr	140 ppl/hr
Bike	Residential	5 ppl/hr	19 ppl/hr	24 ppl/hr	19 ppl/hr	10 ppl/hr	29 ppl/hr
	Retail	5 ppl/hr	3 ppl/hr	8 ppl/hr	15 ppl/hr	15 ppl/hr	30 ppl/hr
	Total	10 ppl/hr	22 ppl/hr	32 ppl/hr	34 ppl/hr	25 ppl/hr	59 ppl/hr
Walk	Residential	2 ppl/hr	6 ppl/hr	8 ppl/hr	6 ppl/hr	4 ppl/hr	10 ppl/hr
	Retail	5 ppl/hr	3 ppl/hr	8 ppl/hr	15 ppl/hr	15 ppl/hr	30 ppl/hr
	Total	7 ppl/hr	9 ppl/hr	16 ppl/hr	21 ppl/hr	19 ppl/hr	40 ppl/hr

Table 3: Summary of Mode Split Assumptions

Land Use	Mode			
	Auto	Transit	Bike	Walk
Residential	35%	45%	15%	5%
Retail	25%	35%	20%	20%

Mode Split Assumptions - Parcel O

Residential Component

Description of residential component of project:

The development will contain approximately 171 residential dwelling units, 4,000 S.F. of retail

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Residents (TAZ 20372)	34%	0%	40%	3%	24%	0%	0%
Census Tract - Residents (CT 72)	32%	4%	32%	3%	23%	3%	2%
State of the Commute 2016 (of District residents)	35%	4%	42%	16%		3%	
WMATA Ridership Survey (average for U-Street Station Area)	22%		51%	27%		---	
WMATA Ridership Survey (average for Suburban-Inside the Beltway)	39%		49%	12%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	35%	45%	5%	15%	---

Notes: -Census data (CTPP) used as basis for assumptions
 '-Census data adjusted based on parking supply

Retail Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Silver Spring Neighbourhood Center)	67%		19%	14%		---	
WMATA Ridership Survey (Ballston Common)	43%		30%	27%		---	

Mode Split assumed in TIS:

Use	Mode					
	Drive	Pass-by	Transit	Bike	Walk	Telecommute/Other
Retail Mode Split	25%		30%	10%	35%	---

Notes: -Two WMATA survey sites listed are more applicable to the ground-floor neighborhood retail

Trip Generation - Parcel O

Residential (171 du), Retail (4,000 S.F.)

Step 1: Base trip generation using ITEs' Trip Generation

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	221	328 du	31 veh/hr	87 veh/hr	118 veh/hr	88 veh/hr	56 veh/hr	144 veh/hr	892 veh	892 veh	1784 veh
Calculation Details:			26%	74%	=0.36X	61%	39%	=0.44X	50%	50%	=5.44X
Retail	820	19,200 sf	11 veh/hr	7 veh/hr	18 veh/hr	35 veh/hr	38 veh/hr	73 veh/hr	363 veh	362 veh	725 veh
Calculation Details:			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	50%	50%	=37.75(X/1000)

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	37 ppl/hr	103 ppl/hr	139 ppl/hr	104 ppl/hr	66 ppl/hr	170 ppl/hr	1053 ppl	1053 ppl	2105 ppl
Retail	1.82 ppl/veh	20 ppl/hr	13 ppl/hr	33 ppl/hr	64 ppl/hr	69 ppl/hr	133 ppl/hr	661 ppl	659 ppl	1320 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	Auto	40%	15 ppl/hr	41 ppl/hr	56 ppl/hr	42 ppl/hr	26 ppl/hr	68 ppl/hr	421 ppl	421 ppl	842 ppl
Apartments	Transit	40%	15 ppl/hr	41 ppl/hr	56 ppl/hr	42 ppl/hr	26 ppl/hr	68 ppl/hr	421 ppl	421 ppl	842 ppl
Apartments	Bike	5%	2 ppl/hr	5 ppl/hr	7 ppl/hr	5 ppl/hr	4 ppl/hr	9 ppl/hr	53 ppl	52 ppl	105 ppl
Apartments	Walk	15%	6 ppl/hr	15 ppl/hr	21 ppl/hr	16 ppl/hr	10 ppl/hr	26 ppl/hr	158 ppl	158 ppl	316 ppl
Retail	Auto	25%	5 ppl/hr	3 ppl/hr	8 ppl/hr	16 ppl/hr	17 ppl/hr	33 ppl/hr	165 ppl	165 ppl	330 ppl
Retail	Transit	30%	6 ppl/hr	4 ppl/hr	10 ppl/hr	19 ppl/hr	21 ppl/hr	40 ppl/hr	198 ppl	198 ppl	396 ppl
Retail	Bike	10%	2 ppl/hr	1 ppl/hr	3 ppl/hr	6 ppl/hr	7 ppl/hr	13 ppl/hr	66 ppl	66 ppl	132 ppl
Retail	Walk	35%	7 ppl/hr	5 ppl/hr	12 ppl/hr	22 ppl/hr	25 ppl/hr	47 ppl/hr	231 ppl	231 ppl	462 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	13 veh/hr	34 veh/hr	47 veh/hr	36 veh/hr	22 veh/hr	58 veh/hr	357 veh	357 veh	714 veh
Retail	1.82 ppl/veh	3 veh/hr	1 veh/hr	4 veh/hr	9 veh/hr	9 veh/hr	18 veh/hr	91 veh	91 veh	181 veh

Trip Gen Summary for Monument Valley

Mode	AM Peak Hour			PM Peak Hour			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	16 veh/hr	35 veh/hr	51 veh/hr	45 veh/hr	31 veh/hr	76 veh/hr	448 veh	448 veh	895 veh
Transit	21 ppl/hr	45 ppl/hr	66 ppl/hr	61 ppl/hr	47 ppl/hr	108 ppl/hr	619 ppl/hr	619 ppl/hr	1238 ppl/hr
Bike	4 ppl/hr	6 ppl/hr	10 ppl/hr	11 ppl/hr	6 ppl/hr	22 ppl/hr	119 ppl/hr	118 ppl/hr	237 ppl/hr
Walk	13 ppl/hr	20 ppl/hr	33 ppl/hr	38 ppl/hr	35 ppl/hr	73 ppl/hr	389 ppl/hr	389 ppl/hr	778 ppl/hr

3.1 SITE TRANSPORTATION DEMAND

3.1.1 Base Trip Generation

Traditionally, trip generation for a proposed development is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation*, 9th Edition. For this report, the methodology was supplemented to account for the urban nature of the site (*Trip Generation* provides data for non-urban, low transit use sites) and to generate trips for multiple modes. The following summarizes the methodology that was used in this study, which was approved by DDOT per the Scoping Form contained in the Technical Attachments.

First, ITE *Trip Generation* was used to develop base vehicular-trip rates, not accounting for reductions due to mode split. The *Trip Generation Handbook*, 2nd Edition was also consulted for guidelines for estimating trip generation. The following summarizes the trip generation projections:

- The office trips were projected based on Land Use (LU) 715 for Single Tenant Office Building. The total weekday trips, as well as the morning and afternoon weekday peak hour trips, were generated using the regression equations provided based on average vehicle trip ends per square foot of office space. The regression equations were chosen for the Office projections, due to the high (over 0.75) coefficient of determinations (R^2) for each time period. The weekday morning and afternoon peak hours generally correspond to the peak hours of the adjacent roadway network – one hour between 7:00 and 9:00 AM and between 4:00 and 6:00 PM, respectively. Based on this, the peak hour of the adjacent roadway network was used for the trip generation projection instead of the peak hours of the Generator.

Following the base vehicular- trip rate calculations, the vehicle-trips were converted to person-trips based on the estimated average vehicle occupancy (AVO). AVO rates were obtained from the *Summary of Travel Trends – 2009 National Household Travel Survey* performed by the U.S. Department of Transportation Federal Highway Administration⁴.

3.1.2 Mode Split

Following the base trip generation discussed in Section 3.1.1, the trips were split into each mode: transit (consisting of both Metrorail and Metrobus), walking, biking, and vehicle. The mode split estimates for the DC Water PUD were developed using survey information contained in several sources: WMATA's *2005 Development-Related Ridership Survey*, U.S. Department of Transportation's *2009 National Household Travel Survey* (NHTS) *Summary of Travel Trends*, Commuter Connections' *2010 State of the Commute Survey Report*, estimates from studies for nearby approved developments, and files from Gorove/Slade's library. These assumptions were approved by DDOT per the Scoping Form contained in the Technical Attachments.

Several sources provide mode split information that can be used to develop estimates for future residents of the DC Water Site PUD, including results from the 2007-2011 American Community Survey, WMATA's *Ridership Survey* of office sites within the District, and studies for other nearby developments, as shown below on Table 5. WMATA Ridership Survey data for Office sites within the CBD noted office auto modal splits of 21 percent while studies for other nearby developments noted auto modal splits of 40 to 50 percent (with higher auto modal splits for developments further from Metro, such as the Riverfront on the Anacostia development). The modal splits assumed for the DC Water PUD office space is noted on

⁴ AVO rates obtained from "Table 16: Average Vehicle Occupancy for Selected Trip Purpose 1977, 1983, 1990, and 1995 NPTS, and 2001 and 2009 NHTS (Person Miles per Vehicle Mile" for 2009 data. AVO for Retail uses based on "Shopping" Trip Purpose. AVO for Office and Residential uses based on "To or From Work" Trip Purpose.

Table 5 below is noted to be similar to that assumed for other nearby developments. Therefore, the office mode splits assumed for the DC Water Site will provide a conservative analysis.

Table 5: Modal Split Assumptions

Pertinent Mode Split data from other sources:					
Information Source	Mode				
	SOV	Carpool	Transit	Bike	Walk
WMATA Ridership Survey (average for <i>Suburban-Inside the Beltway</i>)	66%		30%	6%	
WMATA Ridership Survey (average for <i>CBD</i>)	21%		75%	4%	
Square 701 (Ballpark Square) PUD	40%		50%	7%	3%
Riverfront on the Anacostia (Florida Rock) PUD	50%		40%	7%	3%
Other Studies (Background Development Assumptions)	50%		35%	10%	5%

Mode Split assumed in TIS:					
Information Source	Mode				
	Drive	Transit	Bike	Walk	
Office Mode Split	45%	45%	5%	5%	

3.1.3 Multi-Modal Trip Generation

Based on the trip generation calculations outlined in Section 3.1.1 and the mode split assumptions shown in Section 3.1.2 (and summarized in Table 5) Table 6 shows the resulting calculations by mode.

Table 6: Trip Generation

Step 1: Base trip generation using ITEs' Trip Generation								
Land Use	Land Use Code	Quantity	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single Ten. Office	715	152,789 sf	247 veh/hr	30 veh/hr	277 veh/hr	40 veh/hr	227 veh/hr	267 veh/hr

Step 2: Convert to people per hour, before applying mode splits								
Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Office	1.13 ppl/veh	279 ppl/hr	34 ppl/hr	313 ppl/hr	45 ppl/hr	257 ppl/hr	302 ppl/hr	

Step 3: Split between modes, per assumed Mode Splits								
Land Use	Mode	Split	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Office	Auto	45%	126 ppl/hr	15 ppl/hr	141 ppl/hr	21 ppl/hr	115 ppl/hr	136 ppl/hr
Office	Transit	45%	126 ppl/hr	15 ppl/hr	141 ppl/hr	21 ppl/hr	115 ppl/hr	136 ppl/hr
Office	Bike	5%	14 ppl/hr	2 ppl/hr	16 ppl/hr	3 ppl/hr	13 ppl/hr	16 ppl/hr
Office	Walk	5%	14 ppl/hr	2 ppl/hr	16 ppl/hr	3 ppl/hr	13 ppl/hr	16 ppl/hr

Step 4: Convert auto trips back to vehicles/hour								
Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Office	1.13 ppl/veh	112 veh/hr	13 veh/hr	125 veh/hr	19 veh/hr	102 veh/hr	120 veh/hr	

Trip Gen Summary for Office								
Mode	AM Peak Hour			PM Peak Hour				
	In	Out	Total	In	Out	Total		
Auto	112 veh/hr	13 veh/hr	125 veh/hr	19 veh/hr	102 veh/hr	120 veh/hr		
Transit	126 ppl/hr	15 ppl/hr	141 ppl/hr	21 ppl/hr	115 ppl/hr	136 ppl/hr		
Bike	14 ppl/hr	2 ppl/hr	16 ppl/hr	3 ppl/hr	13 ppl/hr	16 ppl/hr		
Walk	14 ppl/hr	2 ppl/hr	16 ppl/hr	3 ppl/hr	13 ppl/hr	16 ppl/hr		

3: IMPACTS REVIEW

This section of the report focuses on the influence and impact site generated traffic will have on the local transportation network, with the following purpose:

- To provide information to the District Department of Transportation (DDOT) and other agencies on how the development of the site will influence the local transportation network. This report accomplishes this by identifying the potential trips generated by the site on all major modes of travel and where these trips are expected to travel to and from.
- To determine if development of the site will lead to adverse impacts on the local transportation network. This report accomplishes this by projecting future conditions with and without development of the site and performing analysis of intersection delays. These delays are compared to the acceptable levels of delay set by DDOT standards to determine if the project will negatively impact the study area. The report describes what improvements to the transportation network are needed to mitigate adverse impacts.

3.1 Site Transportation Demand

3.1.1 Base Trip Generation

Traditionally, trip generation for a proposed development is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation*, 8th Edition. For this report, the methodology was supplemented to account for the urban nature of the site (*Trip Generation* provides data for non-urban, low transit use sites) and to generate trips for multiple modes. The following summarizes the methodology that was used in this study.

First, ITE *Trip Generation* was used to develop base vehicular-trip rates, not accounting for reductions due to mode split. The Shopping Center trip rate was applied in lieu of individual trip rates, such as bank, pharmacy, and supermarket, for the retail uses because applying individual rates would not account for interaction between the retail uses (shoppers visiting more than one store). The Shopping Center trip rate accounts for these uses and interactions.

Second, the vehicle-trips were converted to person-trips by assuming an average vehicle occupancy of 1.1 persons per vehicle, based on the Census Data Transportation Planning Package (CTPP) 2000. Table 6 and Table 7 show the base number of trips generated by the proposed development for Phase 1 and for Phases 2-4, respectively.

Table 6: Base Vehicle- and Person-Trip Generation (Phase 1 Only)

Land Use	Size*		Trip Generation for Phase 1						Weekday Total
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Vehicle Trips									
Retail	12,520	Square Feet	8	5	13	23	24	47	538
Residential	324	Dwelling Units	32	130	162	127	69	196	2,088
Total Vehicle-Trips			40	135	175	150	93	243	2,626
Person-Trips									
Retail	1,1	Persons/Vehicle	9	5	14	25	27	52	592
Residential	1,1	Persons/Vehicle	35	143	178	140	76	216	2,297
Total Person-Trips			44	148	192	165	103	268	2,889

Table 7: Base Vehicle- and Person-Trip Generation (Phases 2, 3, and 4)

Land Use	Size*		Trip Generation for Phases 2, 3, and 4						Weekday Total
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Vehicle Trips									
Retail (Phase 2)	5,850	Square Feet	4	2	6	11	11	22	252
Retail (Phase 4)	5,000	Square Feet	3	2	5	9	10	19	216
Office (Phase 3)	326,675	Square Feet	426	58	484	76	369	445	3,320
Hotel (Phase 4)	400	Rooms	164	118	282	138	143	281	3,568
Residential (Phase 2)	282	Dwelling Units	28	114	142	112	61	173	1,834
Total Vehicle-Trips			625	294	919	346	594	940	9,190
Person-Trips									
Retail	1,1	Persons/Vehicle	8	4	12	22	23	45	515
Office	1,1	Persons/Vehicle	469	63	532	84	406	490	3,652
Hotel	1,1	Persons/Vehicle	180	130	310	152	157	309	3,925
Residential	1,1	Persons/Vehicle	31	125	156	123	67	190	2,017
Total Person-Trips			688	322	1,010	381	653	1,034	10,109

3.1.2 Mode Split

Following the base trip generation shown in Section 3.1.1, the trips were split into each mode: transit (consisting of both Metrorail and Metrobus/DC Circulator), walking, biking, and vehicle. Each land use was analyzed by mode separately in order to account for varying mode splits. The mode split estimates for the RiverFront PUD were developed using survey information contained in several sources, WMATA's 2005 Development-Related Ridership Survey, WMATA's Station Site and Access Planning Manual, Commuter Connections' 2010 State of the Commute Survey Report, results from the 2000 U.S. Census, and files from Gorove/Slade's library. The following describes in detail how the mode split assumptions were assembled based on information from these sources.

Retail Uses

The main source of mode split information for retail sites is WMATA's *Ridership Survey*. Contained within the report are summaries of mode splits for five retail sites within the Metropolitan area, and one within the District. The one site within the District was the U Street area, which of all of the sites surveyed is the closest in characteristics to the RiverFront, as it is a 'main street' retail area with ground floor retail mixed in with other land uses. Table 8 summarizes the mode split information for the U Street site, and all of the retail sites surveyed.

Table 8: WMATA Ridership Survey Mode Split for Retail Sites

Retail Location	Mode			
	Metrorail	Metrobus & Other Transit	Auto	Walk & Other
Central Business District	44%	13%	19%	25%
All sites surveyed	29%	8%	36%	27%

Although the U Street site is closest in characteristics to the RiverFront PUD, in order to maintain a conservative assumption, this report uses the mode splits for the all retail sites surveyed as a basis for assumptions. This report uses the following mode split assumptions for retail:

- Vehicle: 35%
- Transit: 40%
- Walk: 20%
- Bike: 5%

Office Uses

WMATA's 2005 *Development-Related Ridership Survey* has generally been used as the standard source for developing mode split estimates. Information provided within the report shows that office sites in the central business district and all office sites surveyed had the following mode splits, shown in Table 9.

Table 9: WMATA Ridership Survey Mode Split for Office Sites

Office Location	Mode			
	<i>Metrorail</i>	<i>Metrobus & Other Transit</i>	<i>Auto</i>	<i>Walk & Other</i>
Central Business District	63%	12%	21%	5%
All sites surveyed	25%	9%	62%	6%

The central business district mode split is an average of several sites surveyed. Applying it to the RiverFront PUD may not be appropriate because the sites surveyed do not have similar characteristics, such as the amount of parking per square foot of space, walking distance to Metrorail and employee benefits for non-auto commuters. Notably, the walking distance from RiverFront to the Navy Yard station is longer than all of the central business district sites surveyed. *The Ridership Survey* includes an analysis that concludes that the percentage ridership via Metrorail decreases 0.96% for every 100 feet the site is located from a Metrorail station. Applying this to RiverFront, using a starting assumption of 63% and an average walking distance of 2200 feet, the expected Metrorail mode split for RiverFront would be 42%.

Using data from other office sites surveyed in WMATA's report would also not be appropriate, because they also differ greatly. Each site has significantly more parking spaces per square foot of office space. Even more notable is that the *Ridership Survey* notes that 72% of the office commuters that responded to the survey were offered subsidized or free parking by their employers. The Transportation Demand Management (TDM) plan for the RiverFront PUD contains measures that will ensure that the parking garage will be priced at market rate for the majority of users, including office workers.

Information contained within the 2010 *State of the Commute* report shows why only offering market rate pricing will have a large influence on the office mode split. Table 10 shows the mode split difference between all commuters surveyed in the State of the Commute surveys split between whether the commuter was offered free parking.

Table 10: Mode Split Difference Based on Free Parking (Entire DC Area)

Parking Benefit	Mode				
	Drive Alone	Carpool	Bus	Train	Walk/Bike
Free Parking	82%	6%	3%	5%	4%
No Free Parking	42%	10%	11%	32%	6%

The *State of the Commute* report also contains responses of mode splits for all commuters employed in the District, as follows:

- Drive alone: 42%
- Carpool: 11%
- Bus: 10%
- Metrorail: 31%
- Commuter Rail: 2%
- Bike: 1%
- Walk: 3%

Because these surveys are from sites averaged across the entire District, and not just sites from the CBD like the WMATA *Ridership Survey*, this study uses these mode splits as a starting point for building assumptions for the RiverFront.

The following steps were taken to assemble the mode split estimates, starting with the *State of Commute's* average for all office sites within the District. The amount of transit use was assumed to be 40%, because it is expected that the RiverFront PUD will have similar transit use to both all employment sites in the District (43%) and of all sites surveyed that charge for parking (42%) per the *State of the Commute* survey. The amount of cycling was set to 3%, to reflect the site's location near the Anacostia Riverfront Trail and the amount of residents located within a 10-15 minute bicycle ride from the site. Similarly, the walk mode split was increased to reflect the number of existing and future residents living within in walking distance of the site, compared to the District average as a whole.

Thus, the assumptions on office mode split for the RiverFront are as follows:

- Vehicle: 50%
- Transit: 40%
- Walk: 7%
- Bike: 3%

Residential Uses

Several sources provide mode split information that can be used to develop mode split estimates for future residents of the RiverFront, including results from the 2000 census, WMATA's *Ridership Survey* of residential sites within the District, and the *State of the Commute* report that contains the average mode split of commuters who live in the District. The mode splits from these three sources are shown in Table 11.

Table 11: Mode Split Information for Residential Uses

Information Source	Mode			
	<i>Train</i>	<i>Metrobus & Other Transit</i>	<i>Auto</i>	<i>Walk & Other</i>
2000 Census ¹	20%	25%	33%	22%
State of the Commute ²	27%	14%	48%	11%
WMATA Ridership Survey ³	50%	6%	18%	26%

Of these three sources of information, the one that most closely contains the transportation characteristics of the RiverFront PUD would be the census information from the tracts where it is located. The sites that comprise the *Ridership Survey's* average mode splits do not compare well based on location and distance from the Metrorail station. The *State of the Commute* is an average for the entire District, and the difference between its mode splits and the census data make sense, given that the census tracts adjacent to the RiverFront site have high quality bus service.

Thus, this report uses the census information as a starting point for assembling residential mode split assumptions. The following steps were taken to assemble the mode split estimates, using this data as a starting point.

- The amount of transit use was assumed to be 40%, slightly less than the census tracts surrounding it (45%).
- The amount of cycling was set to 5%, to reflect the site's location near the Anacostia Riverfront Trail and the amount of residents located within a 10-15 minute bicycle ride from the site.
- Similarly, the walk mode split was set to 15% to reflect the amount of existing and future resident in walking distance of the site, compared to the District average as a whole. The total amount of bicycling and walking totals 20%, which is close to the 'Walk & Other' percentages observed in the census data.

Thus, the assumptions for residential mode split at the RiverFront are as follows:

- Vehicle: 40%
- Transit: 40%
- Walk: 15%
- Bike: 5%

Hotel Uses

The main source of mode split information for hotel sites is WMATA's *Ridership Survey*. Contained within the report are summaries of mode splits for four retail sites within the Metropolitan area. Table 12 summarizes the mode split information of the hotel sites surveyed.

Table 12: WMATA Ridership Survey Mode Split for Hotel Sites

Office Location	Mode			
	<i>Metrorail</i>	<i>Metrobus & Other Transit</i>	<i>Auto</i>	<i>Walk & Other</i>
All sites surveyed	27%	4%	38%	31%

¹ Weighted average for responses from census tracts 64 and 72

² Survey respondents that live within the District

³ For 'CBD' locations, which includes all residential sites surveyed within the District

This report uses the mode splits for the all retail sites surveyed as a basis for assumptions, stating with assuming that transit use of hotel traffic will be 30%, similar to the WMATA survey results.

- Drive: 45%
- Transit: 30%
- Walk: 20%
- Bike: 5%

Summary

Table 13 summarizes the mode split assumptions.

Table 13: Mode Split Assumptions

Land Use	Mode Split			
	Vehicle	Transit	Walk	Bike
Retail	35%	40%	20%	5%
Office	50%	40%	7%	3%
Residential	40%	40%	15%	5%
Hotel	45%	30%	20%	5%

3.1.3 Multi-Modal Trip Generation

Based on the trip generation calculations outlined in Section 3.1.1 and the mode split assumptions shown in Section 3.1.2 (and summarized in Table 13), Table 14 shows the resulting calculations by mode for Phase 1. Phase 1 of the proposed PUD will generate approximately 69 vehicular trips, 77 transit trips, 30 walking trips, and 10 bicycle trips during the morning peak hour; 95 vehicular trips, 107 transit trips, 42 walking trips, and 14 bicycle trips during the afternoon peak hour; and 1,023 vehicular trips, 1,156 transit trips, 463 walking trips, and 145 bicycle trips during a typical weekday.

Table 15 shows the resulting calculations by mode for Phases 2, 3, and 4. The remaining phases of the proposed PUD will generate approximately 429 vehicular trips, 373 transit trips, 124 walking trips, and 41 bicycle trips during the morning peak hour; 432 vehicular trips, 383 transit trips, 134 walking trips, and 42 bicycle trips during the afternoon peak hour; and 4,161 vehicular trips, 3,652 transit trips, 1,447 walking trips, and 433 bicycle trips during a typical weekday.

Table 14: Trip Generation for Proposed Development by Mode (Phase 1 Only)

Land-Use/Mode	Trip Generation by Mode for Phase 1						Daily Total
	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	
Vehicle Trips							
Retail	3	1	4	8	8	16	188
Residential	13	52	65	51	28	79	835
<i>Total New Vehicle Trips</i>	16	53	69	59	36	95	1,023
Transit Person-Trips							
Retail	4	2	6	10	11	21	237
Residential	14	57	71	56	30	86	919
<i>Total New Transit Person-Trips</i>	18	59	77	66	41	107	1,156

Land-Use/Mode	Trip Generation by Mode for Phase 1						Daily Total
	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	
Walking Person-Trips							
Retail	2	1	3	5	5	10	118
Residential	5	22	27	21	11	32	345
<i>Total New Walking Person-Trips</i>	7	23	30	26	16	42	463
Bicycling Person-Trips							
Retail	0	1	1	1	2	3	30
Residential	2	7	9	7	4	11	115
<i>Total New Bicycling Person-Trips</i>	2	8	10	8	6	14	145
Total Trips*	43	143	186	159	99	258	2,787

* - Combination of person-trips and vehicle-trips

Table 15: Trip Generation for Proposed Development by Mode (Phases 2, 3, and 4)

Land-Use/Mode	Trip Generation by Mode for Phases 2, 3, and 4						Daily Total
	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	
Vehicle Trips							
Retail	3	1	4	7	8	15	164
Office	213	29	242	37	186	223	1,659
Residential	74	52	126	62	64	126	1,605
Hotel	11	46	57	45	23	68	733
<i>Total New Vehicle Trips</i>	301	128	429	151	281	432	4,161
Transit Person-Trips							
Retail	3	2	5	9	9	18	206
Office	188	25	213	34	162	196	1,461
Residential	54	39	93	46	47	93	1,178
Hotel	12	50	62	49	27	76	807
<i>Total New Transit Person-Trips</i>	257	116	373	138	245	383	2,652
Walking Person-Trips							
Retail	2	0	2	4	5	9	103
Office	33	4	37	6	28	34	256
Residential	36	26	62	30	32	62	785
Hotel	5	18	23	18	11	29	303
<i>Total New Walking Person-Trips</i>	76	48	124	58	76	134	1,447
Bicycling Person-Trips							
Retail	0	1	1	1	1	2	26
Office	14	2	16	3	12	15	110
Residential	9	7	16	8	7	15	196
Hotel	2	6	8	6	4	10	101
<i>Total New Bicycling Person-Trips</i>	25	16	41	18	24	42	433
Total Trips*	659	308	967	365	626	991	9,693

* - Combination of person-trips and vehicle-trips

E: Trip Generation for Background Developments

Trip Generation - 950 South Cap (300 du)

300 high-rise residential dwelling units

Step 1: Base trip generation using ITEs' *Trip Generation*

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	220	300 du	30 veh/hr	121 veh/hr	151 veh/hr	119 veh/hr	64 veh/hr	183 veh/hr
<i>Calculation Details:</i>			20%	80%	=0.49(x)+3.73	65%	35%	=0.55(x)+17.65

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Apartments	1.13 ppl/veh	34 ppl/hr	137 ppl/hr	171 ppl/hr	134 ppl/hr	73 ppl/hr	207 ppl/hr

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	Auto	50%	17 ppl/hr	69 ppl/hr	86 ppl/hr	67 ppl/hr	37 ppl/hr	104 ppl/hr
Apartments	Transit	40%	14 ppl/hr	54 ppl/hr	68 ppl/hr	54 ppl/hr	29 ppl/hr	83 ppl/hr
Apartments	Bike	3%	1 ppl/hr	4 ppl/hr	5 ppl/hr	4 ppl/hr	2 ppl/hr	6 ppl/hr
Apartments	Walk	7%	2 ppl/hr	10 ppl/hr	12 ppl/hr	9 ppl/hr	5 ppl/hr	14 ppl/hr

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
High-rise Apartments	1.13 ppl/veh	15 veh/hr	61 veh/hr	76 veh/hr	59 veh/hr	33 veh/hr	92 veh/hr

Trip Gen Summary for Residential

Mode	AM Peak Hour			PM Commuter Peak Hour		
	In	Out	Total	In	Out	Total
Auto	15 veh/hr	61 veh/hr	76 veh/hr	59 veh/hr	33 veh/hr	92 veh/hr
Transit	14 ppl/hr	54 ppl/hr	68 ppl/hr	54 ppl/hr	29 ppl/hr	83 ppl/hr
Bike	1 ppl/hr	4 ppl/hr	5 ppl/hr	4 ppl/hr	2 ppl/hr	6 ppl/hr
Walk	2 ppl/hr	10 ppl/hr	12 ppl/hr	9 ppl/hr	5 ppl/hr	14 ppl/hr

Mode Split Assumptions - Former Congressional

Residential Component

Description of residential component of project:

The development will contain approximately 690 residential dwelling units, 13,393 S.F. of retail and 196 hotel rooms.

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Residents (TAZ 20372)	34%	0%	40%	3%	24%	0%	0%
Census Tract - Residents (CT 72)	32%	4%	32%	3%	23%	3%	2%
State of the Commute 2016 (of District residents)	35%	4%	42%	16%		3%	
WMATA Ridership Survey (average for U-Street Station Area)	22%		51%	27%		---	
WMATA Ridership Survey (average for Suburban-Inside the Beltway)	39%		49%	12%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	40%	40%	5%	15%	---

Notes: -Census data (CTPP) used as basis for assumptions
 '-Census data adjusted based on parking supply

Retail Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Silver Spring Neighbourhood Center)	67%		19%	14%		---	
WMATA Ridership Survey (Ballston Common)	43%		30%	27%		---	

Mode Split assumed in TIS:

Use	Mode					
	Drive	Pass-by	Transit	Bike	Walk	Telecommute/Other
Neighborhood Retail Mode Split	45%		10%	10%	35%	---

Notes: -Two WMATA survey sites listed are more applicable to the ground-floor neighborhood retail

Hotel Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Holiday Inn Arlington)	67%		17%	17%		---	
WMATA Ridership Survey (Crystal City - Hyatt Regency)	24%		34%	42%		---	
WMATA Ridership Survey (Goliday Inn - Silver Spring)	54%		12%	33%		---	

Mode Split assumed in TIS:

Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Hotel Mode Split	55%	25%	0%	20%	---

Notes: -Three WMATA survey sites listed are applicable to the hotel component of the project

Trip Generation - Former Congressional

Residential (800 du), Retail (44,000 S.F.)

Step 1: Base trip generation using ITEs' Trip Generation

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	220	800 du	75 veh/hr	213 veh/hr	288 veh/hr	215 veh/hr	137 veh/hr	352 veh/hr	2176 veh	2176 veh	4352 veh
Calculation Details:			26%	74%	=0.36X	61%	39%	=0.44X	50%	50%	=5.44X
Retail	820	44,000 sf	25 veh/hr	16 veh/hr	41 veh/hr	81 veh/hr	87 veh/hr	168 veh/hr	831 veh	830 veh	1661 veh
Calculation Details:			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	50%	50%	=37.75(X/1000)

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	89 ppl/hr	251 ppl/hr	340 ppl/hr	254 ppl/hr	162 ppl/hr	415 ppl/hr	2568 ppl	2568 ppl	5135 ppl
Retail	1.82 ppl/veh	46 ppl/hr	29 ppl/hr	75 ppl/hr	147 ppl/hr	158 ppl/hr	306 ppl/hr	1512 ppl	1511 ppl	3023 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	Auto	40%	36 ppl/hr	100 ppl/hr	136 ppl/hr	102 ppl/hr	64 ppl/hr	166 ppl/hr	1027 ppl	1027 ppl	2054 ppl
Apartments	Transit	40%	36 ppl/hr	100 ppl/hr	136 ppl/hr	102 ppl/hr	64 ppl/hr	166 ppl/hr	1027 ppl	1027 ppl	2054 ppl
Apartments	Bike	5%	4 ppl/hr	13 ppl/hr	17 ppl/hr	13 ppl/hr	8 ppl/hr	21 ppl/hr	128 ppl	129 ppl	257 ppl
Apartments	Walk	15%	13 ppl/hr	38 ppl/hr	51 ppl/hr	38 ppl/hr	24 ppl/hr	62 ppl/hr	385 ppl	385 ppl	770 ppl
Retail	Auto	45%	21 ppl/hr	13 ppl/hr	34 ppl/hr	66 ppl/hr	72 ppl/hr	138 ppl/hr	680 ppl	680 ppl	1360 ppl
Retail	Transit	10%	5 ppl/hr	3 ppl/hr	8 ppl/hr	15 ppl/hr	16 ppl/hr	31 ppl/hr	151 ppl	151 ppl	302 ppl
Retail	Bike	10%	5 ppl/hr	3 ppl/hr	8 ppl/hr	15 ppl/hr	16 ppl/hr	31 ppl/hr	151 ppl	151 ppl	302 ppl
Retail	Walk	35%	16 ppl/hr	10 ppl/hr	26 ppl/hr	51 ppl/hr	56 ppl/hr	107 ppl/hr	529 ppl	529 ppl	1058 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	31 veh/hr	84 veh/hr	115 veh/hr	86 veh/hr	55 veh/hr	141 veh/hr	870 veh	871 veh	1741 veh
Retail	1.82 ppl/veh	12 veh/hr	7 veh/hr	19 veh/hr	36 veh/hr	40 veh/hr	76 veh/hr	374 veh	374 veh	747 veh

Trip Gen Summary for CSX Parcel East

Mode	AM Peak Hour			PM Peak Hour			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	43 veh/hr	91 veh/hr	134 veh/hr	122 veh/hr	95 veh/hr	217 veh/hr	1244 veh	1245 veh	2488 veh
Transit	41 ppl/hr	103 ppl/hr	144 ppl/hr	117 ppl/hr	80 ppl/hr	197 ppl/hr	1178 ppl/hr	1178 ppl/hr	2356 ppl/hr
Bike	9 ppl/hr	16 ppl/hr	25 ppl/hr	28 ppl/hr	24 ppl/hr	52 ppl/hr	279 ppl/hr	280 ppl/hr	559 ppl/hr
Walk	29 ppl/hr	48 ppl/hr	77 ppl/hr	89 ppl/hr	80 ppl/hr	169 ppl/hr	914 ppl/hr	914 ppl/hr	1828 ppl/hr

Mode Split Assumptions - The Garrett

Residential Component

Description of residential component of project:

The development will contain approximately 690 residential dwelling units, 13,393 S.F. of retail and 196 hotel rooms.

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Residents (TAZ 20372)	34%	0%	40%	3%	24%	0%	0%
Census Tract - Residents (CT 72)	32%	4%	32%	3%	23%	3%	2%
State of the Commute 2016 (of District residents)	35%	4%	42%	16%		3%	
WMATA Ridership Survey (average for U-Street Station Area)	22%		51%	27%		---	
WMATA Ridership Survey (average for Suburban-Inside the Beltway)	39%		49%	12%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	40%	40%	5%	15%	---

Notes: -Census data (CTPP) used as basis for assumptions

'-Census data adjusted based on parking supply

Retail Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Silver Spring Neighbourhood Center)	67%		19%	14%		---	
WMATA Ridership Survey (Ballston Common)	43%		30%	27%		---	

Mode Split assumed in TIS:

Use	Mode					
	Drive	Pass-by	Transit	Bike	Walk	Telecommute/Other
Neighborhood Retail Mode Split	45%		10%	10%	35%	---

Notes: -Two WMATA survey sites listed are more applicable to the ground-floor neighborhood retail

Hotel Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Holiday Inn Arlington)	67%		17%	17%		---	
WMATA Ridership Survey (Crystal City - Hyatt Regency)	24%		34%	42%		---	
WMATA Ridership Survey (Goliday Inn - Silver Spring)	54%		12%	33%		---	

Mode Split assumed in TIS:

Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Hotel Mode Split	55%	25%	0%	20%	---

Notes: -Three WMATA survey sites listed are applicable to the hotel component of the project

Trip Generation - The Garrett

Use (375 du), Use (1500S.F.) Use (196 rooms)

Step 1: Base trip generation using ITEs' Trip Generation

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	220	375 du	35 veh/hr	100 veh/hr	135 veh/hr	101 veh/hr	64 veh/hr	165 veh/hr	1020 veh	1020 veh	2040 veh
Calculation Details:			26%	74%	=0.36X	61%	39%	=0.44X	50%	50%	=5.44X
Retail	820	15,000 sf	9 veh/hr	5 veh/hr	14 veh/hr	27 veh/hr	30 veh/hr	57 veh/hr	283 veh	283 veh	566 veh
Calculation Details:			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	50%	50%	=37.75(X/1000)

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	41 ppl/hr	118 ppl/hr	159 ppl/hr	119 ppl/hr	76 ppl/hr	195 ppl/hr	1204 ppl	1204 ppl	2407 ppl
Retail	1.82 ppl/veh	16 ppl/hr	9 ppl/hr	25 ppl/hr	49 ppl/hr	55 ppl/hr	104 ppl/hr	515 ppl	515 ppl	1030 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	Auto	40%	16 ppl/hr	48 ppl/hr	64 ppl/hr	48 ppl/hr	30 ppl/hr	78 ppl/hr	482 ppl	481 ppl	963 ppl
Apartments	Transit	40%	16 ppl/hr	48 ppl/hr	64 ppl/hr	48 ppl/hr	30 ppl/hr	78 ppl/hr	482 ppl	481 ppl	963 ppl
Apartments	Bike	5%	2 ppl/hr	6 ppl/hr	8 ppl/hr	6 ppl/hr	4 ppl/hr	10 ppl/hr	60 ppl	60 ppl	120 ppl
Apartments	Walk	15%	6 ppl/hr	18 ppl/hr	24 ppl/hr	18 ppl/hr	11 ppl/hr	29 ppl/hr	181 ppl	180 ppl	361 ppl
Retail	Auto	45%	7 ppl/hr	4 ppl/hr	11 ppl/hr	22 ppl/hr	25 ppl/hr	47 ppl/hr	232 ppl	232 ppl	464 ppl
Retail	Transit	10%	2 ppl/hr	1 ppl/hr	3 ppl/hr	5 ppl/hr	5 ppl/hr	10 ppl/hr	52 ppl	51 ppl	103 ppl
Retail	Bike	10%	2 ppl/hr	1 ppl/hr	3 ppl/hr	5 ppl/hr	5 ppl/hr	10 ppl/hr	52 ppl	51 ppl	103 ppl
Retail	Walk	35%	6 ppl/hr	3 ppl/hr	9 ppl/hr	17 ppl/hr	19 ppl/hr	36 ppl/hr	180 ppl	181 ppl	361 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	14 veh/hr	40 veh/hr	54 veh/hr	41 veh/hr	25 veh/hr	66 veh/hr	408 veh	408 veh	816 veh
Retail	1.82 ppl/veh	4 veh/hr	2 veh/hr	6 veh/hr	12 veh/hr	14 veh/hr	26 veh/hr	127 veh	127 veh	255 veh

Trip Gen Summary for CSX Parcel East

Mode	AM Peak Hour			PM Peak Hour			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	18 veh/hr	42 veh/hr	60 veh/hr	53 veh/hr	39 veh/hr	92 veh/hr	535 veh	535 veh	1071 veh
Transit	18 ppl/hr	49 ppl/hr	67 ppl/hr	53 ppl/hr	35 ppl/hr	88 ppl/hr	534 ppl/hr	532 ppl/hr	1066 ppl/hr
Bike	4 ppl/hr	7 ppl/hr	11 ppl/hr	11 ppl/hr	9 ppl/hr	20 ppl/hr	112 ppl/hr	111 ppl/hr	223 ppl/hr
Walk	12 ppl/hr	21 ppl/hr	33 ppl/hr	35 ppl/hr	30 ppl/hr	65 ppl/hr	361 ppl/hr	361 ppl/hr	722 ppl/hr

Mode Split Assumptions - Capper Residential

Residential Component

Description of residential component of project:

The development will contain approximately 690 residential dwelling units, 13,393 S.F. of retail and 196 hotel rooms.

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Residents (TAZ 20372)	34%	0%	40%	3%	24%	0%	0%
Census Tract - Residents (CT 72)	32%	4%	32%	3%	23%	3%	2%
State of the Commute 2016 (of District residents)	35%	4%	42%	16%		3%	
WMATA Ridership Survey (average for U-Street Station Area)	22%		51%	27%		---	
WMATA Ridership Survey (average for Suburban-Inside the Beltway)	39%		49%	12%		---	

Mode Split assumed in TIS:

Land Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	40%	40%	5%	15%	---

Notes: -Census data (CTPP) used as basis for assumptions
 '-Census data adjusted based on parking supply

Retail Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Silver Spring Neighbourhood Center)	67%		19%	14%		---	
WMATA Ridership Survey (Ballston Common)	43%		30%	27%		---	

Mode Split assumed in TIS:

Use	Mode					
	Drive	Pass-by	Transit	Bike	Walk	Telecommute/Other
Neighborhood Retail Mode Split	45%		10%	10%	35%	---

Notes: -Two WMATA survey sites listed are more applicable to the ground-floor neighborhood retail

Hotel Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
WMATA Ridership Survey (Holiday Inn Arlington)	67%		17%	17%		---	
WMATA Ridership Survey (Crystal City - Hyatt Regency)	24%		34%	42%		---	
WMATA Ridership Survey (Goliday Inn - Silver Spring)	54%		12%	33%		---	

Mode Split assumed in TIS:

Use	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Hotel Mode Split	55%	25%	0%	20%	---

Notes: -Three WMATA survey sites listed are applicable to the hotel component of the project

Trip Generation - Capper Residential

Residential (322 du), Retail (9,250 S.F.)

Step 1: Base trip generation using ITEs' Trip Generation

Land Use	Land Use Code	Quantity (x)	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	220	322 du	30 veh/hr	86 veh/hr	116 veh/hr	87 veh/hr	55 veh/hr	142 veh/hr	876 veh	876 veh	1752 veh
Calculation Details:			26%	74%	=0.36X	61%	39%	=0.44X	50%	50%	=5.44X
Retail	820	9,250 sf	6 veh/hr	3 veh/hr	9 veh/hr	17 veh/hr	18 veh/hr	35 veh/hr	175 veh	174 veh	349 veh
Calculation Details:			62%	38%	=0.94(X/1000)	48%	52%	=3.81(X/1000)	50%	50%	=37.75(X/1000)
Calculation Details:			#REF!	#REF!	#REF!	#REF!	#REF!	=0.75(x)-26.02	#REF!	#REF!	#REF!

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	35 ppl/hr	101 ppl/hr	137 ppl/hr	103 ppl/hr	65 ppl/hr	168 ppl/hr	1034 ppl	1034 ppl	2067 ppl
Retail	1.82 ppl/veh	11 ppl/hr	5 ppl/hr	16 ppl/hr	31 ppl/hr	33 ppl/hr	64 ppl/hr	319 ppl	317 ppl	635 ppl

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour			Daily		
			In	Out	Total	In	Out	Total	In	Out	Total
Apartments	Auto	40%	14 ppl/hr	41 ppl/hr	55 ppl/hr	41 ppl/hr	26 ppl/hr	67 ppl/hr	414 ppl	413 ppl	827 ppl
Apartments	Transit	40%	14 ppl/hr	41 ppl/hr	55 ppl/hr	41 ppl/hr	26 ppl/hr	67 ppl/hr	414 ppl	413 ppl	827 ppl
Apartments	Bike	5%	2 ppl/hr	5 ppl/hr	7 ppl/hr	5 ppl/hr	3 ppl/hr	8 ppl/hr	52 ppl	51 ppl	103 ppl
Apartments	Walk	15%	5 ppl/hr	16 ppl/hr	21 ppl/hr	15 ppl/hr	10 ppl/hr	25 ppl/hr	155 ppl	155 ppl	310 ppl
Retail	Auto	45%	5 ppl/hr	2 ppl/hr	7 ppl/hr	14 ppl/hr	15 ppl/hr	29 ppl/hr	144 ppl	142 ppl	286 ppl
Retail	Transit	10%	1 ppl/hr	1 ppl/hr	2 ppl/hr	3 ppl/hr	3 ppl/hr	6 ppl/hr	32 ppl	32 ppl	64 ppl
Retail	Bike	10%	1 ppl/hr	1 ppl/hr	2 ppl/hr	3 ppl/hr	3 ppl/hr	6 ppl/hr	32 ppl	32 ppl	64 ppl
Retail	Walk	35%	4 ppl/hr	2 ppl/hr	6 ppl/hr	11 ppl/hr	11 ppl/hr	22 ppl/hr	112 ppl	110 ppl	222 ppl

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2017 NHTS, Table 16)	AM Peak Hour			PM Peak Hour			Daily		
		In	Out	Total	In	Out	Total	In	Out	Total
Apartments	1.18 ppl/veh	12 veh/hr	35 veh/hr	47 veh/hr	35 veh/hr	22 veh/hr	57 veh/hr	351 veh	350 veh	701 veh
Retail	1.82 ppl/veh	3 veh/hr	1 veh/hr	4 veh/hr	8 veh/hr	8 veh/hr	16 veh/hr	79 veh	78 veh	157 veh

Trip Gen Summary for CSX Parcel East

Mode	AM Peak Hour			PM Peak Hour			Daily		
	In	Out	Total	In	Out	Total	In	Out	Total
Auto	15 veh/hr	36 veh/hr	51 veh/hr	43 veh/hr	30 veh/hr	73 veh/hr	430 veh	428 veh	858 veh
Transit	15 ppl/hr	42 ppl/hr	57 ppl/hr	44 ppl/hr	29 ppl/hr	73 ppl/hr	446 ppl/hr	445 ppl/hr	891 ppl/hr
Bike	3 ppl/hr	6 ppl/hr	9 ppl/hr	8 ppl/hr	6 ppl/hr	14 ppl/hr	84 ppl/hr	83 ppl/hr	167 ppl/hr
Walk	9 ppl/hr	18 ppl/hr	27 ppl/hr	26 ppl/hr	21 ppl/hr	47 ppl/hr	267 ppl/hr	265 ppl/hr	532 ppl/hr