WELLS + ASSOCIATES

1333 M STREET SE

COMPREHENSIVE TRANSPORTATION REPORT

July 2020

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Comprehensive Transportation Report

Washington, DC

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INTRODUCTION

OVERVIEW

This report presents a Comprehensive Transportation Review (CTR) conducted in support of the application for a 1st Stage and Consolidated Planned Unit Development (PUD) and related map amendment (ZC Case No. 20-60) filed by Felice Development Group (herein referred to as the Applicant). In conjunction with the proposed PUD, the Applicant proposes to redevelop the property located at 1333 M Street in southeast Washington, DC. The site of the PUD is located on Square 1025E, Lot 802; Square 1048S, Lots 1, 801, and 802; RES 129; and RES 299 in Ward 6, as shown on Figure 1.

The site currently is zoned PDR-4 and is occupied by two vacant buildings. At full build out, the proposed redevelopment will include approximately 900 residential units and 44,092 SF of ground floor retail uses in two buildings[1], as shown on Figure 2. In conjunction with the PUD, the property will be rezoned from PDR-4 to MU-9. The proposed redevelopment will be phased, as summarized in Table 1.

Table 1
Phasing Summary

Phase/Building Number	Residential Component	Retail Component
Phase I		
Building 1 – East Tower†	496 units	32,217 SF
Phase II		
Building 1 – West Tower	307 units	9,971 SF
Building 2	97 units	1,904 SF
Total	**900 units**	**44,092 SF**

† Two levels of below-grade parking will be constructed in conjunction with Phase 1 and will provide 168 parking spaces. The two levels will be located below the Building 1 East Tower and the site of the future Building 1 West Tower.

In conjunction with the redevelopment, the Applicant proposes to reconstruct M Street to current standards along the site frontage. Likewise, Virginia Avenue would be reestablished as a public street along the southwestern project frontage. A new private street would bisect the site connecting M Street and Virginia Avenue. Access to the proposed below-grade parking would be provided via two new curb cuts on M Street.

[1] Building 1 is comprised of two towers – the east tower and the west tower. Since a bridge will connect the two towers and a single below-grade parking structure is proposed beneath both towers, the building is considered a single building from a zoning compliance perspective.

STUDY OBJECTIVES

The purpose of this CTR was to evaluate the transportation conditions surrounding the project with and without the proposed redevelopment and to identify any impacts associated with the project. In order to assess the impact of the proposed redevelopment, this report:

- Evaluates existing traffic operations and safety conditions,
- Evaluates future traffic conditions without the proposed project,
- Evaluates future traffic conditions with the proposed project,
- Identifies existing mode choice alternatives,
- Identifies any traffic operational impacts associated with the proposed project,
- Identifies curbside management impacts,
- Evaluates effectiveness of the proposed loading facilities, and
- Recommends transportation improvements (including roadway, operational, and/or demand management strategies) to mitigate the impact of the project and promote the safe and efficient flow of vehicular and pedestrian traffic associated with the proposed redevelopment.

STUDY SCOPE

This study was undertaken to assess the impacts of the proposed redevelopment on the surrounding roadway network. The scope of the study and proposed methodologies were approved by the District Department of Transportation (DDOT) prior to beginning the study. The agreed upon scoping document is included in Appendix A.

The study area was selected based on those intersections that potentially could be affected by the proposed redevelopment. The following existing and proposed intersections were selected, in consultation with DDOT, for detailed analysis:

- M Street/Water Street,
- M Street/12th Street /I-695 Westbound Off-Ramp,
- M Street/11th Street/I-695 Eastbound On-Ramp,
- M Street/9th Street/Parsons Avenue,
- M Street/8th Street,
- 11th Street/I Street,
- 11th Street/I-695 Eastbound On/Off-Ramps,
- 11th Street/I-695 Westbound On/Off-Ramps,
- M Street/Proposed Virginia Avenue Extension,
- M Street/Proposed West Driveway,
- M Street/Proposed Private Roadway, and
- M Street/Proposed East Driveway.

EXISTING TRANSPORTATION FACILITIES

ROADWAY NETWORK

Regional access to and from the proposed project would be provided via Interstate 695. Local access would be provided via M Street and 11th Street. General details regarding the surrounding roadway segments, including functional classification, average daily traffic volume (ADT), and speed limit are summarized in Table 2.

Table 2
Roadway Segment Details

Roadway	Functional Classification	Average Daily Traffic (vehicles per day)	Speed Limit (miles per hour)
M Street (two-way)	Local†	4,400‡	25
I Street (one-way WB)	Collector	2,000*	Unposted¥
Water Street (two-way)	Local	400‡	Unposted
8th Street (two-way)	Minor Arterial	11,000*	25¥
9th Street (one-way NB)	Local	4,100‡	Unposted
11th Street (two-way)	Minor Arterial	9,000*	25
12th Street (one-way WB)	Local	N/A	Unposted

† West of 11th Street, M Street is classified as a Minor Arterial.

‡ ADT based on DDOT 2018 Traffic Volume Map.

* ADT estimated from 2020 baseline traffic volumes using an assumed "k" factor of 10%. 12th Street ADT is not available since volumes on 12th Street were not separated from volumes on the I-695 Westbound Off-Ramp.

¥ 15 mph speed limit "When Children are Present" signs are posted at the following locations: north of the 8th Street/L Street intersection for southbound traffic; north of the 8th Street/M Street intersection for northbound traffic; west of the I Street/12th Street intersection for westbound traffic.

At the request of DDOT, a tree preliminary tree inventory was conducted along M Street between Virginia Avenue and 11th Street and on 12th Street. The results of the evaluation are shown on Figure 3.

Planned Roadway Improvements

The Southeast Boulevard Project currently is in the planning stage and would transform the former Southeast Expressway into a boulevard between 11th Street and Barney Circle. The Southeast Boulevard Planning Study and Southeast Boulevard Feasibility Study were completed in 2015 and 2016, respectively. The Environmental Assessment began in 2017 but is not yet complete. Based on the work completed to-date, the following elements are expected to be included in the project:

- Four travel lanes (two in each direction) along the southern portion of the existing right-of-way;
- A potential bus transit support facility;
- Improvements to Barney Circle; and
- A pedestrian/bicycle connection to the waterfront.

MULTI-MODAL TRANSPORTATION FACILITIES

Overview

Over the years, the District has invested heavily in non-auto modes of transportation. These efforts have resulted in a world-class public transportation system and the first bikeshare program in North America. The District also has seen significant investment in private transportation options.

While many of these transportation options are available in the adjacent Navy Yard, Capitol Hill, and Barney Circle neighborhoods, as shown on Figure 4 and further described below, close-in connections to these options (within a ¼ mile of the site) currently are lacking for a couple of reasons: 1) the site is somewhat segregated from the transportation options in the Capitol Hill and Barney Circle neighborhoods by I-695 and 2) with limited development within ¼ mile of the site, there currently is no need for services and connections to be extended.

Public Transportation Facilities and Services

As shown on Figure 4, the subject site is located on M Street less than one mile east of the Navy Yard – Ballpark Metro Station and approximately ⅓ mile south of the Potomac Avenue Metro Station. The Navy Yard – Ballpark Metro Station provides access to Metro's Green line. Riders can transfer to the Blue, Orange, and Yellow lines at L'Enfant Plaza Metro Station or to the Red Line at Gallery Place – Chinatown Metro Station. The Potomac Avenue Metro Station provides access to Metro's Orange and Blue lines. Riders can transfer to the Yellow and Green lines at L'Enfant Plaza Metro Station or to the Red Line at Metro Center Metro Station. The minimum, maximum, and average headways for the Green, Blue, and Orange Lines are summarized in Table 3.

Table 3
Metrorail Headways (in minutes)†

Headway	Northbound/Westbound			Southbound/Eastbound		
	AM Peak Period 5:00 AM - 9:30 AM	Midday Period 9:30 AM - 3:00 PM	PM Peak Period 3:00 PM - 7:00 PM	AM Peak Period 5:00 AM - 9:30 AM	Midday Period 9:30 AM - 3:00 PM	PM Peak Period 3:00 PM - 7:00 PM
GREEN LINE (NAVY YARD – BALLPARK METRO STATION)						
Min	*	0:11	*	*	0:10	*
Max	*	0:12	*	*	0:14	*
Avg	*	0:12	*	*	0:12	*
BLUE LINE (POTOMAC AVENUE METRO STATION)						
Min	*	0:12	*	*	0:12	*
Max	*	0:12	*	*	0:12	*
Avg	*	0:12	*	*	0:12	*
ORANGE LINE (POTOMAC AVENUE METRO STATION)						
Min	*	0:12	*	*	0:12	*
Max	*	0:12	*	*	0:12	*
Avg	*	0:12	*	*	0:12	*

† Headways provided are pre Covid-19 headways. Currently, the Red Line is running at 15-minute weekday and 20-minute weekend headways. All other lines are running at 20-minute weekday and 30-minute weekend headways.
* Due to the high frequency of service, timetables for the peak hours (weekdays from 5:00 AM to 9:30 AM and from 3:00 PM to 7:00 PM are not published.

The Washington Metropolitan Area Transit Authority (WMATA) and DC Circulator currently provide extensive public bus service in the site vicinity. Thirteen Metrobus lines provide service with stops located within ½ mile of the site.

The Capitol Heights – Minnesota Avenue Line (V4) provides access between the Capitol Heights Metro Station and Anacostia Metro Station. In both directions, passengers can alight at the I Street/Potomac Avenue stop.

The Martin Luther King Jr. Avenue Limited Line (A9) stops at M Street/8th Street and provides service to the McPherson Square Metro Station to the north and Livingston to the south.

The U Street – Garfield Lines (90, 92) provide access between the Congress Heights Metro Station and the Duke Ellington Bridge. In both directions, passengers can alight at the O Street/11th Street stop.

The Pennsylvania Avenue Limited Line (39) stops at Pennsylvania Avenue/8th Street and provides service to Potomac Park to the west and the Naylor Road Metro Station to the east.

The Pennsylvania Avenue Lines (32, 34, 36) stops at Pennsylvania Avenue/Potomac Avenue and provide service to the Potomac Park to the west and the Naylor Road Metro Stations to the east.

The Friendship Heights – Southeast Line (30N, 30S) stops at Pennsylvania Avenue/Potomac Avenue and provides service to the Friendship Heights Metro Station to the west and the Southern Avenue Metro Station to the east.

The Bladensburg Road – Anacostia Line (B2) stops at Pennsylvania Avenue/15th Street when heading south to the Anacostia Metro Station. When heading north to Mount Rainier, passengers can board at Pennsylvania Avenue/Potomac Avenue.

The Fairfax Village Line (M6) stops at Potomac Avenue/14th Street and provides service to Fairfax Village to the east and the Potomac Avenue Metro Station to the west.

The site also is served by the Congress Heights – Union Station and the Eastern Market – L'Enfant Plaza, DC Circulator Lines. The Congress Heights – Union Station Circulator stops on 11th Street at the corner of O Street, which is two blocks west and two blocks south of the site. The Eastern Market – L'Enfant Plaza Circulator stops on 8th Street between Virginia Avenue and M Street, which is five blocks west and one block north of the site.

Figure 4 displays the bus routes that service the area surrounding the site and Table 4 presents the minimum, maximum, and average headways for Metrobus and DC Circulator routes in the site vicinity.

Table 4
Metrobus and DC Circulator Headways (in minutes)

Headway	Northbound/Westbound			Southbound/Eastbound		
	AM Peak Period 7:00 AM - 10:00 AM	**Midday Period** 10:00 AM - 4:00 PM	**PM Peak Period** 4:00 PM - 7:00 PM	**AM Peak Period** 7:00 AM - 10:00 AM	**Midday Period** 10:00 AM - 4:00 PM	**PM Peak Period** 4:00 PM - 7:00 PM
Capitol Heights – Minnesota Avenue Lines (V4)						
Min	0:12	0:16	0:16	0:16	0:14	0:16
Max	0:26	0:32	0:27	0:32	0:32	0:27
Avg	0:17	0:28	0:19	0:19	0:25	0:19
Anacostia – Eckington Line (P6)						
Min	0:10	0:15	0:15	0:14	0:15	0:09
Max	0:24	0:24	0:24	0:31	0:26	0:20
Avg	0:16	0:20	0:18	0:17	0:22	0:14
Martin Luther King Jr. Avenue Limited Line (A9)						
Min	0:15	N/A	N/A	N/A	N/A	0:14
Max	0:19	N/A	N/A	N/A	N/A	0:25
Avg	0:15	N/A	N/A	N/A	N/A	0:17

Table 4 (continued)
Metrobus and DC Circulator Headways (in minutes)

Headway	Northbound/Westbound			Southbound/Eastbound		
	AM Peak Period 7:00 AM - 10:00 AM	Midday Period 10:00 AM - 4:00 PM	PM Peak Period 4:00 PM - 7:00 PM	AM Peak Period 7:00 AM - 10:00 AM	Midday Period 10:00 AM - 4:00 PM	PM Peak Period 4:00 PM - 7:00 PM
U Street – Garfield Lines (90, 92)						
Min	0:06	0:10	0:06	0:10	0:10	0:02
Max	0:10	0:10	0:12	0:10	0:10	0:10
Avg	0:06	0:10	0:10	0:10	0:10	0:06
Pennsylvania Avenue Limited Line (39)						
Min	0:15	N/A	N/A	N/A	N/A	0:14
Max	0:25	N/A	N/A	N/A	N/A	0:22
Avg	0:17	N/A	N/A	N/A	N/A	0:17
Pennsylvania Avenue Lines (32, 34, 36)						
Min	0:01	0:10	0:09	0:04	0:01	0:03
Max	0:20	0:20	0:20	0:21	0:20	0:21
Avg	0:09	0:13	0:13	0:10	0:10	0:09
Friendship Heights – Southeast Line (30N, 30S)						
Min	0:24	0:30	0:29	0:29	0:29	0:19
Max	0:31	0:30	0:30	0:41	0:31	0:38
Avg	0:29	0:30	0:29	0:33	0:30	0:31
Bladensburg Road – Anacostia Line (B2)						
Min	0:05	0:05	0:10	0:09	0:04	0:07
Max	0:12	0:16	0:12	0:15	0:16	0:15
Avg	0:07	0:13	0:10	0:11	0:14	0:10
Fairfax Village Line (M6)						
Min	0:15	0:15	0:15	0:15	0:15	0:15
Max	0:20	0:22	0:15	0:20	0:20	0:15
Avg	0:16	0:19	0:15	0:17	0:19	0:15
DC Circulator Congress Heights – Union Station Line						
Min	0:10	0:10	0:10	0:10	0:10	0:10
Max	0:10	0:10	0:10	0:10	0:10	0:10
Avg	0:10	0:10	0:10	0:10	0:10	0:10
DC Circulator Eastern Market – L'Enfant Plaza Line						
Min	0:10	0:10	0:10	0:10	0:10	0:10
Max	0:10	0:10	0:10	0:10	0:10	0:10
Avg	0:10	0:10	0:10	0:10	0:10	0:10

Pedestrian Facilities

The existing and proposed pedestrian and bicycle facilities immediately surrounding the site are shown on Figure 5A. Likely walking routes to the Navy Yard and Potomac Avenue Metro Stations are shown on Figure 5B. The route to the Navy Yard Metro Station provides sidewalks along the entire route. Curb ramps are provided at all intersections, but tactile warning strips are missing on the ramps at the southwest corner of the M Street/11th Street intersection and on the northeast and northwest corners of the M Street/10th Street intersections. At the signalized intersections along the route to the Navy Yard Metro Station, pedestrian and countdown signal heads are present.

Along the route to the Potomac Avenue Metro Station, sidewalks are present along the entire route. Curb ramps are provided at all intersections. Pedestrian and countdown signal heads are missing on the north leg of the 14th Street/Potomac Avenue intersection but are present at all other signalized intersections along the route to the Potomac Avenue Metro Station.

MoveDC is a 25-year vision for the District's Transportation Infrastructure. Priorities outlined in moveDC have been incorporated in the District of Columbia's Statewide Transportation Improvement Program (DC STIP). MoveDC provides infrastructure and policy recommendations for all modes of transportation, including pedestrians.

According to the *Pedestrian Element* of moveDC, several opportunities for improvement exist within the District, including:

- Enhancing accessibility, which includes evaluating and improving uncontrolled crosswalks on high-speed multi-lane roadways and improving signalized intersections with high pedestrian crash rates;
- Improving the pedestrian network outside of downtown, which includes providing pedestrian facility enhancements where sidewalks are lacking;
- Making priority investments, which includes prioritizing pedestrian needs in critical locations near schools, transit stations, and high hazard locations;
- Promoting enforcement, which includes enforcement policy changes; and
- Improving intersection designs, which includes closing gaps in the pedestrian network and improvement in intersection lighting, crosswalks, signage, refuge islands, and pedestrian signalization/phasing.

Within the study area, the *Pedestrian Element's* Recommended Pedestrian Network includes new sidewalks along the alignment of N Street between I-695 and Water Street and new sidewalks along the alignment of 13th and 14th Streets between M and L Streets. The Recommended Pedestrian Network also shows a new sidewalk along the south side of M Street along the 1333 M Street frontage.

Concept plans developed thus far show potential pedestrian/bicycle connections across the CSX tracks to M Street along the 13th Street, 14th Street, and 15th Street rights-of-way. Importantly, the proposed project has been designed to accept and facilitate potential pedestrian/bicycle connections through the site.

Bicycle Facilities

Likely biking routes to the Navy Yard and Potomac Avenue Metro Stations and nearest bus stops within ½ mile of the site are shown on Figure 5B.

According to the *Bicycle Element* of moveDC, several opportunities for improvement exist within the District, including:

- Improving the cycling experience on bridges and approaches to bridges;
- Minimizing barriers such as complex intersections, security barriers, freeway ramps, and driveways;
- Expanding investment in the bicycle network beyond downtown; and
- Improving safety by educating all road users and increasing public awareness.

Within the study area, the *Bicycle Element's* Recommended Bicycle Network shows a future trail along the 11th Street Bridge.

Capital Bikeshare

Capital provides 4,300 bicycles at over 500 stations across Washington, DC, Arlington, VA, Alexandria, VA, Montgomery County, MD, and Fairfax County, VA.

Membership, which is required to use Capital Bikeshare, includes five options for joining: single trip ($2), 24 hours ($8), three days ($17), 30 days ($28), or one year ($85). Under any membership option, the first 30 minutes of use are free; users then are charged a usage fee for each additional 30-minute period. Bicycles can be returned to any station with an available dock.

As shown on Figure 4, two Bikeshare locations are located within ½ mile of the subject site: a 15-dock station at the Potomac Avenue/8th Street intersection and a 15-dock station at the Potomac Avenue/Pennsylvania Avenue intersection. Three additional Bikeshare stations lie just outside of the ½ mile radius: an 11-dock station at the 8th Street/I street intersection, a 18-dock station at the 12th Street/Pennsylvania Avenue intersection, and a 15-dock station at the 13th Street/E Street intersection.

The District of Columbia Capital Bikeshare Development Plan does not identify any future Capitol Bikeshare stations within the study area.

EXISTING CONDITIONS ANALYSIS

TRAFFIC VOLUMES

Vehicular turning movement counts for the study area were derived from available historical AM and PM peak hour traffic counts. The year and source of the traffic counts are summarized below in Table 5.

Table 5
Summary of Historical Data

Location	Source	Date
M Street/Water Street	M Street CSO TIS	2011
M Street/12th Street/11th Street Bridge Off-ramp	SE Blvd Study	2017
M Street/11th Street	SE Blvd Study	2016
M Street/9th Street/Parsons Street	NA	NA
M Street 8th Street	Quality Counts	2016
11th Street/I Street	SE Blvd Study	2015
11th Street/Southeast Boulevard (EB)	SE Blvd Study	2017
11th Street/Southeast Boulevard (WB)	SE Blvd Study	2017

The volumes were posted and checked to determine whether any significant imbalances occurred. Along the 11th Street corridor, fairly substantial decreases in traffic were evident between the WB SE Freeway ramps and I Street; however, since K Street is located between the two intersections and is one-way eastbound (away from the intersection), the loss of traffic between the SE Freeway and I Street can be explained. Some volume imbalances along the M Street corridor between 11th Street and 12th Street also were evident. The volumes were adjusted upward to balance between the two intersections (with the exception of the eastbound PM volume at 12th Street, which was adjusted downward to balance better with the corridor as a whole. Since no volumes were available for the M Street/9th Street/Parsons Street intersection, turning movement volumes at the intersection were taken from the *11th Street Bridges Final Environmental Impact Statement*. Through volumes on M Street were obtained from the adjacent intersections at 8th Street and 11th Street. The adjusted volumes for the entire study area were then factored to the year 2020 based on a 1.5 percent growth rate, with the exception of the M Street/Water Street intersection, which was not grown due to its limited connectivity. The resultant, 2020 AM and PM peak hour volumes are shown on Figure 6. Historical traffic count data are included in Appendix B.

OPERATIONAL ANALYSIS

Capacity Analysis

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the 2020 traffic volumes shown on Figure 6, existing lane use and traffic control shown on Figure 7, and existing traffic signal timings obtained from DDOT, included in Appendix C.

Synchro software (Version 10) was used to evaluate levels of service at the signalized and stop-controlled study intersections during the peak hours. Synchro is a deterministic model used to evaluate the effects of changing intersection geometrics, traffic demands, traffic control, and/or traffic signal settings and to optimize traffic signal timings. The levels of service reported were taken from the Highway Capacity Manual (HCM) 2000 reports generated by Synchro. Level of service descriptions are included in Appendix D. The results of the analyses are summarized in Table 6 and capacity analysis worksheets are included in Appendix E.

Table 6
Level of Service Summary
Existing and Background Conditions

Lane Group	Existing Conditions				Background Conditions			
	AM Peak		PM Peak		AM Peak		PM Peak	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
1. M Street/Water Street								
EBTR	0.04	A	0.07	A	0.04	A	0.07	A
WBLT	0.00	A	0.01	A	0.00	A	0.01	A
NBLR	0.02	A	0.01	A	0.02	A	0.01	A
2. M Street/12th Street								
EBT	0.22	C	0.05	C	0.24	C	0.05	C
WBT	0.22	C	0.11	C	0.24	C	0.11	C
NBLR	0.30	A	0.30	A	0.35	B	0.30	A
NBR	0.10		0.03		0.10		0.03	
Overall	**0.27**	**B**	**0.23**	**B**	**0.31**	**B**	**0.24**	**B**
3. M Street/11th Street								
EBL	0.51	E (57.8)	0.63	D	0.64	E (64.5)	0.77	D
EBLT	0.61		0.66		0.73		0.82	
EBR (695)	0.71		0.33		0.82		0.44	
EBR (11th)	0.15		0.68		0.16		0.68	
WBLT	0.65	D	0.48	E (55.7)	0.75	D	0.50	E (57.2)
WBR	0.11		0.63		0.13		0.67	
NBL	1.41	F (106.4)	1.01	F (99.6)	1.57	F (130.8)	1.01	F (99.6)
NBTR	0.73		0.97		0.79		0.97	
SBL (M+695)	1.59	E (75.8)	0.02	E (68.0)	1.72	F (81.8)	0.02	E (67.7)
SBL (695)	0.80		0.49		0.85		0.49	
SBT	0.48		0.86		0.51		0.86	
SBR	0.36		0.05		0.44		0.05	
Overall	**1.06**	**E (79.1)**	**0.78**	**E (64.0)**	**1.19**	**F (91.2)**	**0.85**	**E (65.3)**

Table 6 (continued)
Level of Service Summary
Existing and Background Conditions

Lane Group	Existing Conditions				Background Conditions			
	AM Peak		PM Peak		AM Peak		PM Peak	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
4. M Street/9th Street/Parsons Avenue								
EBLTR	0.29	A	0.60	B	0.33	A	0.67	B
WBLTR	0.41	A	0.14	A	0.47	A	0.14	A
NBLTR	0.24	D	1.54	F (308.0)	0.26	D	1.55	F (309.4)
Overall	**0.37**	**B**	**0.82**	**E (76.3)**	**0.42**	**B**	**0.87**	**E (72.7)**
5. M Street/8th Street								
EBT	0.26	A	0.46	A	0.30	A	0.53	B
WBT	0.44	A	0.20	A	0.50	B	0.20	A
SBL	0.89	E (58.5)	1.12	F (109.7)	0.99	E (73.5)	1.14	F (115.0)
SBR	0.21		0.08		0.36		0.08	
Overall	**0.56**	**B**	**0.63**	**C**	**0.62**	**C**	**0.69**	**C**
6. 11th Street/I Street								
WBLTR	0.99	E (68.5)	1.33	F (212.3)	1.07	F (90.6)	1.33	F (212.3)
NBL	1.90	F (156.3)	0.65	C	2.04	F (175.8)	0.65	C
NBT	0.54		0.58		0.58		0.58	
SBT	0.78	C	0.73	C	0.84	C	0.73	C
SBR	0.07		0.04		0.08		0.04	
Overall	**0.93**	**F (84.4)**	**0.85**	**E (66.6)**	**1.00**	**F (100.1)**	**0.85**	**E (66.6)**
7. 11th Street/I-695 EB Off-Ramp								
EBL	1.02	F (185.3)	0.58	F (652.7)	1.10	F (219.6)	0.58	F (656.6)
EBT	0.61		3.06		0.66		3.07	
EBR	1.39		0.69		1.49		0.69	
NBT	0.54	B	0.45	C	0.59	B	0.49	C
NBR	0.06		0.37		0.07		0.39	
SBLT	0.29	A	0.29	A	0.32	A	0.30	A
Overall	**0.86**	**E (72.4)**	**1.12**	**F (299.9)**	**0.93**	**F (84.2)**	**1.15**	**F (290.5)**
8. 11th Street/I-695 WB On-Ramp								
WBL	0.27	F (419.7)	0.11	E (57.7)	0.33	F (476.2)	0.12	E (57.6)
WBT	1.89		0.69		2.04		0.69	
WBR	0.02		0.02		0.02		0.02	
NBL	0.84	B	0.42	B	0.94	C	0.55	B
NBT	0.40		0.48		0.43		0.48	
SBT	0.70	D	0.73	D	0.75	D	0.49	C
SBR	0.60		0.09		0.67			
Overall	**1.24**	**F (182.8)**	**0.56**	**C**	**1.35**	**F (207.6)**	**0.62**	**C**

As shown in Table 6, under existing conditions, the following intersections operate with deficient levels of service (i.e. LOS E or LOS F):

- M Street/11th Street – AM and PM peak hours;
- M Street/9th Street/Parsons Avenue – PM peak hour;
- M Street/8th Street – AM and PM peak hours;
- 11th Street/I Street – AM and PM peak hours;
- 11th Street/I-695 EB Off-Ramp – AM and PM peak hours; and
- 11th Street/I-695 WB Off-Ramp – AM and PM peak hours.

Queue Analysis

A queue analysis was conducted under existing conditions. Both the 50th and 95th percentile queue lengths were calculated using HCM methodologies, as reported by Synchro. The results are summarized in Table 7. Queue reports are provided in Appendix E.

As shown in Table 7, several movements at the study intersections currently extend beyond their available storage. Queues that extend to adjacent intersections are typical in urban environments where intersections are closely spaced.

Table 7
Queue Summary
Existing and Background Conditions

Lane Group	Storage†	Existing Conditions				Background Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
		50th	95th	50th	95th	50th	95th	50th	95th
1. M Street/Water Street									
EBTR	225/600	NA	0	NA	0	NA	0	NA	0
WBLT	750/>2000	NA	0	NA	1	NA	0	NA	1
NBLR	1870	NA	1	NA	1	NA	1	NA	1
2. M Street/12th Street									
EBT	160	41	67	8	21	44	72	8	21
WBT	380	40	66	18	36	43	71	18	36
NBLR	NA	68	97	68	95	81	114	70	97
NBR	185/570‡	16	37	5	15	17	38	5	15

† All distances measured in feet to the nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the nearest driveway; the second is the distance to the nearest intersection.
‡ Distances provided are for the northbound right turn lane on 12th Street.

Table 7 (continued)
Queue Summary
Existing and Background Conditions

Lane Group	Storage	Existing Conditions				Background Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
		50th	95th	50th	95th	50th	95th	50th	95th
3. M Street/11th Street									
EBL	140	62	117	236	352	78	160	311	455
EBLT	240	66	137	238	356	82	177	320	502
EBR (695)	240	65	148	94	155	77	180	129	204
EBR (11th)	240	3	55	62	299	10	70	62	299
WBLT	220	175	235	126	175	210	277	132	182
WBR	200	0	42	161	273	5	49	183	298
NBL	360	475	679	177	358	538	748	177	358
NBTR	590	300	377	293	417	332	416	293	417
SBL (M+695)	120	141	171	3	14	158	182	3	14
SBL (695)	140	49	65	64	118	52	70	64	118
SBT	200	157	157	259	349	171	170	259	349
SBR	200	33	42	0	12	67	65	0	13
4. M Street/9th Street/Parsons Avenue									
EBLTR	225	38	54	178	220	45	65	219	269
WBLTR	225	68	79	16	27	96	105	17	28
NBLTR	175	44	94	538	753	48	101	540	756
5. M Street/8th Street									
EBT	230	47	64	122	152	55	75	150	186
WBT	225	125	155	41	56	149	183	42	57
SBL	90	190	345	281	462	217	397	290	472
SBR	260	13	66	0	40	36	100	0	41
6. I Street/11th Street									
WBLTR	125/290	235	362	278	453	283	404	278	453
NBL	90	166	297	53	123	183	319	53	123
NBT	270	153	242	172	268	171	270	172	268
SBT	315	247	404	240	375	278	473	240	375
SBR	90	0	6	0	0	0	9	0	0

† All distances measured in feet to the nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the nearest driveway; the second is the distance to the nearest intersection.

‡ Distances provided are for the northbound right turn lane on 12th Street.

Table 7 (continued)
Queue Summary
Existing and Background Conditions

Lane Group	Storage	Existing Conditions				Background Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
		50th	95th	50th	95th	50th	95th	50th	95th
7. I-695 EB Off-Ramp/11th Street									
EBL	130	163	316	109	182	187	343	109	182
EBT	1,560	93	159	1,120	1,363	100	180	1,124	1,368
EBR	1,560	551	767	208	315	617	838	208	315
NBT	90	67	95	154	184	80	124	175	207
NBR	125	5	11	102	164	8	15	111	176
SBLT	95	12	15	6	8	13	16	6	8
8. I-695 WB On-Ramp/11th Street									
WBL	215	57	106	15	40	70	125	17	44
WBT	215	763	900	105	152	844	981	105	152
WBR	90	0	0	0	0	0	0	0	0
NBL	95	269	319	138	192	300	396	188	252
NBT	95	3	3	33	39	3	3	20	23
SBT	40	213	314	251	364	234	342	251	364
SBR	40	120	231	0	2	145	266	0	2

† All distances measured in feet to the nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the nearest driveway; the second is the distance to the nearest intersection.

‡ Distances provided are for the northbound right turn lane on 12th Street.

Qualitative Safety Evaluation

According to the DDOT's *Vision Zero Plan*, serious injuries decreased for nearly all modes of transportation" in 2017, but fatalities increased. No fatal crashes occurred within the study area between 2014 and 2017. The goal of Vision Zero is no fatalities and no serious injuries on the transportation system. In order to achieve the Vision Zero goal, the *Vision Zero Plan* identifies a number of strategies to improve safety. The strategies are categorized into four themes: 1) create safer streets, 2) protect vulnerable users, 3) prevent dangerous driving, and 4) be transparent and responsive.

As discussed throughout this report, the proposed redevelopment will include several improvements to the transportation network that will further the Vision Zero goals. Specifically, these improvements include:

- Reconstruction of M Street to current standards, including the construction of a sidewalk on the south side and a trail on the north side of the street (this improvement furthers strategies under the following categories: creating safer streets and protecting vulnerable users);
- Construction of Virginia Avenue, including the construction of sidewalks on both sides of the street (this improvement furthers strategies under the following categories: creating safer streets and protecting vulnerable users); and
- Provision for PUDO zones on M Street and Virginia Avenue (this improvement furthers strategies under the following categories: creating safer streets and preventing dangerous driving).

FUTURE BACKGROUND CONDITIONS

TRAFFIC VOLUMES

Overview

In order to forecast year 2025 background traffic volumes in the study area without the proposed redevelopment, increases in traffic associated with growth outside the immediate site vicinity (regional growth) and increases in traffic associated with planned or approved but not yet constructed developments in the study area (pipeline developments) were considered.

Regional Growth

In order to account for potential increases in traffic associated with regional growth and developments outside of the study area, a growth rate was applied to the 2020 traffic volumes. DDOT's historical ADT volume maps were examined to determine an appropriate growth rate for the study area. The historical ADTs indicate that traffic volumes on M Street and 8th Street have grown by 1.38 percent and 1.77 percent per year, respectively. Historical ADTs on 11th Street and I Street show a decline in traffic volumes. However, the decreases likely are related to the removal of the ramp from the 11th Street Bridge to I Street and the construction activities associated with the 11th Street Bridge project. With the opening of the Southeast/Southwest Freeway ramps, traffic volumes on both I Street and 11th Street are expected to increase in the future. Therefore, a growth rate of 1.5 percent, compounded annually, was applied to the 2020 traffic volumes, with the exception of the M Street/Water Street intersection. Due to the limited connectivity of Water Street and M Street to the east, no growth was applied at that intersection.

Pipeline Developments

Five other developments that are planned in and around the study area were identified and considered in forecasting background traffic growth for the 2025 study year. Each pipeline development is summarized in Table 8, and the location of each is shown on Figure 8. Peak hour traffic volumes resulting from all pipeline developments combined are shown on Figure 9.

Table 8
Pipeline Development Summary

Project	Location	Size	Status	Completion (expected)
Callisto	816 Potomac Ave SE	14 residential units	Under construction	Q2 2020
The Europa	818 Potomac Ave SE	49 residential units	Under construction	Q4 2020
Arthur Capper Apartments	900 5th Street SE	162 Senior Units	Under construction	Q4 2020
DDOT HQ	250 M Street SE	189,000 SF Office	Under construction	Q1 2021
Yards Parcel G	1275 New Jersey Ave SE	290,422 SF Office 14,140 SF Ground Floor Retail	Under construction	2021

Background Forecasts

Background 2025 traffic forecasts (without the proposed redevelopment) were developed by combining the existing traffic volumes, regional growth, and site trips for each of the pipeline projects. The resulting 2025 background traffic forecasts are shown on Figure 10.

OPERATIONAL ANALYSIS

Capacity Analysis

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the existing lane use and traffic control shown on Figure 7, existing traffic signal timings, and future background traffic forecasts shown on Figure 10.

The level of service results for the 2025 background conditions without the proposed redevelopment are summarized in Table 6 and included Appendix F. As shown in Table 6, under background conditions, many of the study intersections will continue to operate with deficient levels of service (i.e. LOS E or LOS F). Intersections that operate under acceptable levels of service under existing conditions are projected to operate at acceptable conditions under background conditions.

Queue Analysis

A queue analysis was conducted for 2025 conditions without the proposed redevelopment. The 50th and 95th percentile queue lengths are summarized in Table 8. Queue reports are provided in Appendix F. As shown in Table 8, the 50th and 95th percentile queues are projected to increase by modest amounts throughout the study area as a result of increases in traffic associated with regional traffic growth and pipeline developments.

SITE ANALYSIS

OVERVIEW

The proposed PUD would include a multi-story mixed-use redevelopment that would contain approximately 900 residential units and approximately 44,092 SF of ground floor retail space in two buildings (Building 1 will include an East Tower and a West Tower, which will be connected above grade by a pedestrian bridge and below grade by the parking structure).

Site Access

The Applicant proposes to construct an extension of Virginia Avenue from the southeastern edge of the traffic circle. The Virginia Avenue extension will be approximately 450 feet long and built in conjunction with construction of Phase I. The Applicant also proposes to reconstruct M Street from the eastern edge of the existing traffic circle to the M Street/Water Street intersection, which will be built in conjunction with Phase 1. Both roadways will be public and constructed to current DDOT standards.

A new private roadway connecting M Street and Virginia Avenue also will be constructed during Phase I along the west side of the Building 1 East Tower. Access to loading operations for the Building 1 East and West Towers will be provided via the private roadway. Trucks and service vehicles can access the private roadway front-first by either M Street or Virginia Avenue and then will back into the loading berths from the private roadway. Trucks will then exit the loading area onto the private roadway and continue front-first onto either Virginia Avenue or M Street.

Due to the small footprint of Building 2 and its location in the corner of the site, any on-site loading facilities would have required that trucks back-in from M Street. Therefore, in lieu of on-site loading, the Applicant will request a curbside loading zone on M Street adjacent to Building 2. Diagrams showing the truck maneuvers in and out of the proposed private roadway and loading areas are included in Appendix G.

Pedestrian access for Building 1 West Tower will be provided via M Street, Virginia Avenue, and the arrival plaza immediately to the west of the building. Pedestrian access for Building 1 East Tower will be provided via M Street, the private roadway, and the Retail Plaza at the terminus of Virginia Avenue. Building 2 will be accessed from Virginia Avenue. Building 3 will be accessed by M Street, the Retail Plaza, and the 14th Street Plaza immediately to the west of the building.

The overall traffic circulation plan at the ground level is shown on Figure 11A. Bicycle circulation on the P1 and P2 levels is shown on Figure 11B. Loading facilities are shown on Figure 11C.

Loading Assessment

Loading requirements for the proposed redevelopment are prescribed by the Zoning Regulations of 2016 (ZR16) and are summarized in Table 10.

Table 10
Summary of Loading Requirements

Building/ Use	Use	Min Berths	Min S/D Spaces	Prop Berths	Prop S/D Spaces
Building 1*	Residential (803 DU) >50 units	1	1	2 (30' and 55')	1 (20')
	Retail (42,188 SF) > 20k GSF–100k GSF	2	1	1 (30')	1 (20')
Building 2†	Residential (97 DU) >50 units	1	1	0	0
	Retail (1,904 SF) <5k GSF	0	0	0	0
Total¥		**3**	**2**	**3**	**2**

* Per §901.8, when two or more uses share a building, they can share loading as long as internal access is provided from all uses requiring loading.
† Per §903.6, required loading berths may be provided in facilities designed to serve jointly two or more adjoining buildings or structures on lots that share a party wall or lot line or are separated only by an alley within a single square subject to certain conditions.
¥ Total of highest minimum loading berths per building.

As proposed, the redevelopment would include two 30-foot loading berths, one 55-foot loading berth, and two 20-foot service/delivery spaces. Therefore, the loading requirements of ZR16 would be met. In addition to the proposed on-site loading facilities, the Applicant will request an on-street curbside space adjacent to Building 2 to handle trash services for the building.

PROPOSED PARKING

Vehicular Parking

Based on parking requirements prescribed by ZR16, a total of 175 parking spaces are required for the proposed redevelopment: 149 spaces for the residential component and 26 spaces for the retail component. A summary of the parking required and provided is shown in Table 11.

Table 11
Summary of Vehicular Parking Requirements

Building/ Use	Required (per §701.5)	Off-street Parking Provided
Building 1 Residential (803 DU)	1 per 3 DU in excess of 4 units = [(803-4)/3] = 266 spaces	133 spaces
Building 1 Retail (42,188 SF)	1.33 per kSF in excess of 3 kSF = [(40,738-3,000)/1,000]*1.33 = 50 spaces[¥]	25 spaces
Building 2[‡] Residential (97 DU)	1 per 3 DU in excess of 4 units = [(97-4)/3] = 31 spaces	16 spaces provided in Building 1 garage[‡]
Building 2 Retail (1,904 SF)	No vehicular parking required for retail uses under 3 kSF	
Total	**349 spaces** **174 spaces with Metro Reduction[†]**	**174 spaces**

[†] Per §702.1(a) of ZR16, parking requirements may be reduced by 50 percent for sites located within ½ mile of a Metro station.
[‡] Per §701.8 of ZR16, parking spaces may be located on the same lot as the structure they are intended to serve or on another lot subject to certain conditions.
[¥] Per §709.1(a), the retail square footage (40,738 SF) excludes space dedicated to loading.

As shown in Table 11, 174 spaces are proposed in the garage below Building 1, thereby meeting the minimum parking requirement. Additionally, four on-street parking spaces are proposed on the private roadway on site.

While ZR16 does not include maximum parking caps, DDOT has established DDOT-Preferred Vehicle Parking Rates, expressed as maximums. The rates vary depending on the distance from Metrorail. Preferred maximum parking ratios for residential and retail uses within ¼ mile of Metrorail are 0.30 spaces per unit and 1.0 spaces per 1,000 SF, respectively. Accordingly, DDOT's preferred maximum parking supply for the proposed redevelopment would be 314 spaces. The proposed supply of 174 spaces is significantly below DDOT's preferred parking maximum.

In addition to the on-site parking proposed with the project, the reconfiguration of M Street and the reestablishment of Virginia Avenue will provide opportunities for additional on-street parking. As shown on the curbside management plan on Figure 12, 15 metered parking spaces are proposed on M Street and 10 are proposed on the south side of Virginia Avenue. Additionally, six pick-up/drop-off spaces are proposed on M Street in front of the West Tower and 14 pick-up/drop-off spaces are proposed on the north side of Virginia Avenue to accommodate Transportation Network Vehicles (e.g. Uber, Lyft, Via), taxis, and private vehicles picking up and dropping off passengers for the residences, retail uses, and the Waterfront Plaza.

Bicycle Parking

As summarized in Tables 12 and 13, 195 long-term and 57 short-term bicycle parking spaces are required for the proposed redevelopment. The proposed redevelopment will provide 196 long-term bicycle spaces on the P1 and P2 levels of the garage and on the P2 level of Building 2. Due to the grading of the site, bicyclist on the P2 level of the garage will be able to exit and enter the P2 level directly to and from the Lower Retail Plaza on the Water Street side of the building. Likewise, the 32 long-term bicycle parking spaces on the P2 level of Building 2 has direct access to the Lower Retail Plaza.

Table 12
Long-term Bicycle Parking Requirements

Building/Use	Required (per §802.1)	Provided
Building 1 Residential (803 DU)	1 space per 3 DU = 803/3 = 268 50 + (268-50)/2 = 159 spaces[†]	159 spaces
Building 1 Retail (42,188 SF)	1 space per 10,000 SF = 42,199/10,000 = 4 spaces	4 spaces
Building 2 Residential (97 DU)	1 space per 3 DU = 97/3 = 32 spaces	33 spaces
Building 2 Retail (1,904 DU)	Non-residential uses less than 4,000 SF do not require long-term bicycle spaces	0 spaces
Total	**195 spaces**	**196 spaces**

[†] ZR 16 (§802.2) indicates that after the first 50 spaces for a use are provided, additional spaces are required at ½ the rate specified in §802.1.

Table 13
Short-term Bicycle Parking Requirements

Building/Use	Required (per §802.1)	Provided
Building 1 Residential (803 DU)	1 space per 20 DU = 803/20 = 40 spaces	40 spaces
Building 1 Retail (42,188 SF)	1 space per 3,500 SF 12.63*1 = 12 spaces	12 spaces
Building 2 Residential (97 DU)	1 space per 20 DU = 97/20 = 5 spaces	6 spaces
Building 2 Retail (1,904 DU)	Non-residential uses less than 4,000 SF do not require short-term bicycle spaces	0 spaces
Total	**57 spaces**	**58 spaces**

TRIP GENERATION ANALYSIS

Total Person Trips

The total number of person trips generated by the proposed redevelopment would be comprised of vehicular trips and non-auto trips. The number of person trips generated by the proposed redevelopment was estimated by first estimating vehicular trips using the Institute of Transportation Engineers' (ITE) Trip Generation Manual. Land Use Code (LUC) 222 (Multi-family Housing – High Rise) and LUC 820 (Shopping Center) were used to estimate the total number of trips to/from the site. The number of dwelling units for residential use and the square footage of retail use were used as the independent variables. The trip generation for the site is summarized in Table 14.

The number of vehicle trips estimated by the Trip Generation Manual was converted to person trips using an average vehicle occupancy obtained from DDOT's Comprehensive Transportation Review Guidelines.

As shown on Table 14, the proposed redevelopment is expected to generate 629 AM peak hour person trips and 923 PM peak hour person trips.

Table 14
Trip Generation Summary

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Multi-family High Rise (900 DU)						
Baseline Vehicle Trips[1]	64	201	265	192	123	315
Total Person Trips (1.18 ppl/veh)[2]	75	238	313	226	145	371
Auto Person Trips (40%)[3]	*30*	*95*	*125*	*91*	*58*	*149*
Transit Person Trips (20%)[3]	*15*	*48*	*63*	*45*	*29*	*74*
Bicycle Person Trips (7%)[3]	*5*	*17*	*22*	*16*	*10*	*26*
Pedestrian (33%)[3]	*25*	*78*	*103*	*74*	*48*	*122*
Vehicle Trips	**25**	**81**	**106**	**77**	**49**	**126**
Retail – LUC 820 (44,092 SF)						
Baseline Vehicle Trips[1]	108	66	174	145	158	303
Total Person Trips (1.82 ppl/veh)[2]	196	120	316	265	287	552
Auto Person Trips (40%)[3]	78	48	126	106	115	221
Transit Person Trips (20%)[3]	39	24	63	53	57	110
Bicycle Person Trips (7%)[3]	14	8	22	19	20	39
Pedestrian (33%)[3]	65	40	105	87	95	182
New Vehicle Trips	**43**	**26**	**69**	**58**	**63**	**121**
Development Totals						
Baseline Vehicle Trips	171	267	439	337	280	618
Total Person Trips (1.82 ppl/veh)	271	358	629	491	432	923
Auto Person Trips (40%)	108	143	251	196	173	370
Transit Person Trips (20%)	54	72	126	98	86	185
Bicycle Person Trips (7%)	19	25	44	34	30	65
Pedestrian (33%)	90	118	208	161	142	305
New Vehicle Trips	**68**	**107**	**175**	**135**	**112**	**248**

[1] Trips estimated using Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition.
[2] Average vehicle occupancies taken from DDOT's Comprehensive Transportation Review Guidelines.
[3] Mode splits based on a review of ITE Trip Generation 10th Edition Supplement (LUC 232), TripsDC, and CTPP data.

Non-auto Trips

A substantial portion of the trips generated by the proposed redevelopment would be made via non-auto modes of transportation. The percentage of site-generated trips that would use public transportation is dependent on the proximity of the site to transit stops, the walkability of the surrounding area, the availability of bicycle infrastructure, the degree to which the use of public transit is encouraged, such as by implementation of a transportation demand management (TDM) program, and the availability of parking on-site. In order to estimate the percent of trips made by various modes of transportation, Census Transportation Planning Products (CTPP) data, ITE data, and TripsDC data were reviewed. The data are summarized in Table 15.

Table 15
Summary of Mode Split Data

Mode	ITE 10th Edition Supplement		CTPP Mode Split	Trips DC		Proposed Mode Split
	AM Mode Split	PM Mode Split		AM Mode Split	PM Mode Split	
Vehicle Person-Trips	35%	36%	37.6%	44%	39%	**40%**
Transit Person-Trips	19%	16%	36.8%	19%	13%	**20%**
Walk Person-Trips	44%	44%	18.7%	32%	42%	**33%**
Bicycle Person-Trips	2%	3%	2.3%	5%	6%	**7%**

Based on the data, non-auto modes of transportation are expected to account for 60 percent of the trips generated by the project or 378 person trips during the AM peak hour and 554 person trips during the PM peak hour. Of the 60 percent non-auto trips, 20 percent are expected to be made by transit, 33 percent are expected to be made on foot, and seven percent are expected to be made by bicycle.

Vehicle Trips

Forty percent of the trips generated by the proposed redevelopment are expected to be made by made by autos. Based on average vehicle occupancy of 1.18 persons/vehicle for residential trips and 1.82 persons/vehicle for retail trips (as provided in DDOT's *CTR Guidelines*), 175 AM peak hour vehicle trips and 248 PM peak hour vehicle trips would be expected for the project.

SITE TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of peak hour vehicle site trips generated by the proposed redevelopment was based on general traffic patterns and the proximity of the site to major arterial roadways. The trip distributions were approved by DDOT during the scoping process and are shown on Figure 13 and summarized in the Table 16.

Table 16
Site Trip Distributions

Direction	Retail Distribution	Residential Distribution
To/from the west via I-695	10%	40%
To/from the west via M Street	20%	25%
To/from the east via Southeast Freeway	10%	5%
To/from the north via 8th Street/9th Street	10%	0%
To/from the north via 11th Street[†]	35%	15%
To/from the south via 11th Street/12th Street	15%	10%
To/from the south via Parsons Street	0%	5%
Total	**100%**	**100%**

[†] For the retail distribution, a portion of the traffic coming to/from the north via 11th Street will enter/exit the study area via I Street, as shown on Figure 13.

The trip distributions shown in Table 16 were applied to the vehicle trip generation for the proposed redevelopment. The resulting traffic assignments for the proposed redevelopment are shown on Figure 13. Individual site trip assignments for the residential and retail components are included in Appendix H.

TOTAL FUTURE CONDITIONS

TRAFFIC FORECASTS

Total future traffic forecasts with the proposed redevelopment were determined by combining the background volumes shown on Figure 10 with the site trip volumes shown on Figure 13. The resultant 2025 total future traffic forecasts shown on Figure 14.

OPERATIONAL ANALYSIS

Capacity Analysis

Capacity analyses were performed at the study intersections using the existing lane use and traffic control shown on Figure 7, existing traffic signal timings, and the total future peak hour traffic forecasts shown on Figure 14. The level of service results for the 2025 total future conditions with the proposed redevelopment are summarized in Table 17 and are included in Appendix I. For comparative purposes, the levels of service for background conditions also are presented again in Table 17.

By comparing total future levels of service (with the proposed redevelopment) to background levels of service (without the proposed redevelopment), the impact of the proposed development can be identified. In accordance with DDOT methodology, an impact is defined as follows:

- Degradation of an approach or overall intersection level of service to LOS E or LOS F from background to total future conditions,
- The volume-to-capacity (v/c) ratio for the intersection increases to 1.0 or greater from background to total future conditions, or
- An increase in v/c ratio or delay by five percent or more for locations where an approach or intersection is already a LOS E or LOS F under background conditions, or a lane group v/c ratio exceeds 1.0 under background conditions.

Table 17
Level of Service Summary
Background and Total Future Conditions

Lane Group	Background Conditions				Total Future Conditions			
	AM Peak		PM Peak		AM Peak		PM Peak	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
1. M Street/Water Street[†]								
EBTR	0.04	A	0.07	A		A		A
WBLT	0.00	A	0.01	A		A		A
NBLR	0.02	A	0.01	A		A		A
2. M Street/12th Street								
EBT	0.24	C	0.05	C	0.31	C	0.20	C
WBT	0.24	C	0.11	C	0.37	C	0.25	C
NBLR	0.35	B	0.30	A	0.35	B	0.31	A
NBR	0.10		0.03		0.11		0.06	
Overall	**0.31**	**B**	**0.24**	**B**	0.35	B	**0.29**	**B**
3. M Street/11th Street								
EBL	0.64	E (64.5)	0.77	D	0.70	E (68.0)	0.82	D
EBLT	0.73		0.82		0.82		0.86	
EBR (695)	0.82		0.44		0.82		0.44	
EBR (11th)	0.16		0.68		0.16		0.68	
WBLT	0.75	D	0.50	E (57.2)	0.82	D	0.58	E (67.1)
WBR	0.13		0.67		0.29		0.86	
NBL	1.57	F (130.8)	1.01	F (99.6)	1.57	F (130.8)	1.01	F (99.6)
NBTR	0.79		0.97		0.79		0.97	
SBL (M+695)	1.72	F (81.8)	0.02	E (67.7)	2.22	F (127.2)	0.65	E (70.1)
SBL (695)	0.85		0.49		0.85		0.49	
SBT	0.51		0.86		0.51		0.86	
SBR	0.44		0.05		0.44		0.05	
Overall	**1.19**	**F (91.2)**	**0.85**	**E (65.3)**	**1.24**	**F (103.7)**	**0.91**	**E (68.1)**
4. M Street/9th Street/Parsons Avenue								
EBLTR	0.33	A	0.67	B	0.34	A	0.70	B
WBLTR	0.47	A	0.14	A	0.49	B	0.16	A
NBLTR	0.26	D	1.55	F (309.4)	0.26	D	1.56	F (314.9)
Overall	**0.42**	**B**	**0.87**	**E (72.7)**	**0.44**	**B**	**0.89**	**E (72.6)**

[†] Under total future conditions, the intersection was analyzed as a single lane roundabout using SIDRA. For roundabouts, SIDRA does not provide the v/c ratio.

Table 17 (continued)
Level of Service Summary
Background and Total Future Conditions

Lane Group	Background Conditions				Total Future Conditions			
	AM Peak		PM Peak		AM Peak		PM Peak	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
5. M Street/8th Street								
EBT	0.30	A	0.53	B	0.31	A	0.55	B
WBT	0.50	B	0.20	A	0.51	B	0.21	A
SBL	0.99	E (73.5)	1.14	F (115.0)	1.00	E (76.6)	1.16	F (120.8)
SBR	0.36		0.08		0.38		0.08	
Overall	**0.62**	**C**	**0.69**	**C**	**0.64**	**C**	**0.70**	**C**
6. I Street/11th Street								
WBLTR	1.07	F (90.6)	1.33	F (212.3)	1.08	F (93.9)	1.36	F (227.2)
NBL	2.04	F (175.8)	0.65	C	2.07	F (175.1)	0.67	C
NBT	0.58		0.58		0.61		0.61	
SBT	0.84	C	0.73	C	0.86	D	0.77	C
SBR	0.08		0.04		0.04		0.04	
Overall	**1.00**	**F (100.1)**	**0.85**	**E (66.6)**	**1.02**	**F (102.2)**	**0.88**	**E (70.2)**
7. I-695 EB Off-Ramp/11th Street								
EBL	1.10	F (219.6)	0.58	F (656.6)	1.10	F (232.1)	0.58	F (640.7)
EBT	0.66		3.07		0.66		3.07	
EBR	1.49		0.69		1.53		0.78	
NBT	0.59	B	0.49	C	0.62	B	0.52	C
NBR	0.07		0.39		0.08		0.41	
SBLT	0.32	A	0.30	A	0.34	A	0.33	A
Overall	**0.93**	**F (84.2)**	**1.15**	**F (290.5)**	**0.96**	**F (87.3)**	**1.18**	**F (279.5)**
8. I-695 WB On-Ramp/11th Street								
WBL	0.33	F (476.2)	0.12	E (57.6)	0.35	F (474.4)	0.19	E (57.4)
WBT	2.04		0.69		2.04		0.69	
WBR	0.02		0.02		0.02		0.02	
NBL	0.94	C	0.55	B	0.98	C	0.58	B
NBT	0.43		0.48		0.44		0.50	
SBT	0.75	D	0.73	D	0.79	D	0.80	D
SBR	0.67		0.09		0.67		.09	
Overall	**1.28**	**F (207.6)**	**0.72**	**C**	**1.32**	**F (205.7)**	**0.76**	**C**

Table 17 (continued)
Level of Service Summary
Background and Total Future Conditions

Lane Group	Background Conditions				Total Future Conditions			
	AM Peak		PM Peak		AM Peak		PM Peak	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
9: M Street/Virginia Avenue†‡								
EBTR		NA		NA		A		A
WBLT		NA		NA		A		A
NBLR		NA		NA		A		A
10: M Street/West Site Driveway								
EBTR	NA	NA	NA	NA	0.05	A	0.10	A
WBLT	NA	NA	NA	NA	0.00	A	0.00	A
NBLR	NA	NA	NA	NA	0.07	A	0.09	B
11: M Street/Private Roadway								
EBTR	N/A	N/A	N/A	N/A	0.03	A	0.05	A
WBLT	N/A	N/A	N/A	N/A	0.00	A	0.00	A
NBLR	N/A	N/A	N/A	N/A	0.00	A	0.00	A
12: M Street/East Site Driveway								
EBTR	N/A	N/A	N/A	N/A	0.02	A	0.05	A
WBLT	N/A	N/A	N/A	N/A	0.00	A	0.00	A
NBLR	N/A	N/A	N/A	N/A	0.06	A	0.07	A

† Under total future conditions, the intersection was analyzed as a single lane roundabout using SIDRA. For roundabouts, SIDRA does not provide the v/c ratio.
‡ The M Street/Virginia Avenue intersection was not analyzed under background conditions since Virginia Avenue doesn't currently exist as a public street.

Based on the above criteria, the following intersections would be impacted as a result of the proposed redevelopment:

- M Street/11th Street – the eastbound approach, southbound approach, and overall intersection during the AM peak hour and the westbound approach during the PM peak hour;
- M Street/8th Street – the southbound approach during the PM peak hour;
- I Street/11th Street – the westbound approach and overall intersection during the PM peak hour; and
- I-695 EB Off-Ramp/11th Street – the eastbound approach during the AM peak hour.

Each impacted intersection is discussed in more detail below.

M Street/11th Street

This intersection recently was overhauled with the construction of improvements associated with the 11th Street Bridge project. Specifically, the intersection was converted from an intersection with three approaches (11th Street south of the intersection was one-way southbound) to an intersection with four approaches (to accommodate traffic heading northbound off of the 11th Street Bridge). Additionally, the southbound approach was widened from two lanes to five lanes, and the eastbound approach was widened from three lanes to four lanes. Despite these improvements, under both 2020 existing conditions and 2025 background conditions (without the proposed redevelopment), three of the four approaches would operate at or above capacity (i.e. a LOS E or LOS F). As such, it is unlikely that additional capacity could be achieved within the confines of the existing intersection. Nevertheless, the following lane reassignments were evaluated to determine whether intersection operations could approve:

- Conversion of the shared southbound left turn lane for I-695 and M Street westbound to an exclusive left turn lane for M Street westbound;
- Conversion of the shared left/through lanes on the eastbound and westbound approaches to exclusive through lanes to allow for removal of split phasing on M Street; and
- Conversion of the westbound right turn lane to a shared through/right turn lane (to maintain two westbound through lanes).

None of the improvements identified above would provide any measurable improvement of traffic operations at the intersection. Therefore, TDM strategies are recommended in lieu of physical changes at the intersection.

M Street/8th Street

During the PM peak hour, the impact to the southbound approach can be mitigated by converting southbound approach from and exclusive left turn lane and an exclusive right turn lane to an exclusive left turn lane and a shared left/right turn lane. The east leg of M Street currently has three receive lanes; as such, dual left turn lanes on the southbound approach can be accommodated.

The modified lane configuration also was tested during the AM peak hour and did not have a negative effect on AM operations.

I Street/11th Street

During the PM peak hour, the impact to the westbound approach and the overall intersection can be mitigated by implementing No Parking during the PM rush on the north side of I Street, which already is posted No Parking during the AM rush.

I-695 EB Off-Ramp/11th Street

During the AM peak hour, the impact to the eastbound approach could be mitigated by converting the eastbound through lane to a shared through/left lane. However, such a change would create an adverse impact during the PM peak hour. Therefore, TDM strategies are recommended in lieu of physical changes at the intersection.

The results of the improvement analysis are summarized in Table 18 and included in Appendix J.

Table 18
Level of Service Summary
Background and Total Future Conditions with Improvements

Lane Group	Background Conditions				Total Future Conditions with Improvements			
	AM Peak		PM Peak		AM Peak		PM Peak	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
5. M Street/8th Street								
EBT	0.30	A	0.53	B	0.31	A	0.55	B
WBT	0.50	B	0.20	A	0.51	B	0.21	A
SBL	0.99	E (73.5)	1.14	F (115.0)	0.72	D	0.72	D
SBR	0.36		0.08					
Overall	**0.62**	**C**	**0.69**	**C**	**0.56**	**B**	**0.59**	**B**
6. I Street/11th Street								
WBLTR	1.07	F (90.6)	1.33	F (212.3)	1.08	F (93.9)	0.66	D
NBL	2.04	F (175.8)	0.65	C	2.07	F (175.1)	0.67	C
NBT	0.58		0.58		0.61		0.61	
SBT	0.84	C	0.73	C	0.86	D	0.77	C
SBR	0.08		0.04		0.04		0.04	
Overall	**1.00**	**F (100.1)**	**0.85**	**E (66.6)**	**1.02**	**F (102.2)**	**0.72**	**C**

Queue Analysis

A queue analysis was conducted for 2025 total future conditions. The 50th and 95th percentile queue lengths were calculated using HCM methodologies, as reported by Synchro. The results are summarized in Table 19 and queue reports are provided in Appendix I. For comparative purposes, the Background queues also are presented again in Table 19.

By comparing total future levels of service (with the proposed redevelopment) to background levels of service (without the proposed redevelopment), the impact of the proposed development can be identified. In accordance with DDOT methodology, an impact is defined as follows:

- A 95th percentile queue that exceeds available storage as a result of total future conditions or
- An increase in 95th percentile queues by 150 feet or more when comparing total future conditions to background conditions.

As shown in Table 19, only the westbound right turn lane at the M Street/11th Street intersection during the PM peak hour would be impacted significantly based on the above criteria. As discussed previously, TDM strategies are recommended to mitigate the impact at the M Street/11th Street intersection.

Table 19
Queue Summary
Background and Total Future Conditions

Lane Group	Storage†	Background Conditions				Total Future Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
		50th	95th	50th	95th	50th	95th	50th	95th
1. M Street/Water Street*									
EBTR	225/600		0		0		6.5		7.5
WBLT	750/>2000		0		1		7.7		11.7
NBLR	1870		1		1		1.5		0.9
2. M Street/12th Street									
EBT	160	44	72	8	21	58	92	37	62
WBT	380	43	71	18	36	70	106	46	74
NBLR	NA	81	114	70	97	81	114	70	97
NBR	185/570‡	17	38	5	15	19	41	8	23
3. M Street/11th Street									
EBL	140	78	160	311	455	86	180	336	520
EBLT	240	82	177	320	502	91	201	350	547
EBR (695)	240	77	180	129	204	77	180	129	204
EBR (11th)	240	10	70	62	299	12	70	62	299
WBLT	220	210	277	132	182	231	306	158	213
WBR	200	5	49	183	298	38	102	261	476
NBL	360	538	748	177	358	538	748	177	358
NBTR	590	332	416	293	417	332	416	293	417
SBL (M+695)	120	158	182	3	14	222	241	85	162
SBL (695)	140	52	70	64	118	52	71	64	118
SBT	200	171	170	259	349	170	171	259	349
SBR	200	67	65	0	13	66	64	0	13

† All distances measured in feet to the nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the nearest driveway; the second is the distance to the nearest intersection.

‡ Distances provided are for the northbound right turn lane on 12th Street.

* For unsignalized intersections and roundabouts, Synchro and SIDRA do not provide 50th percentile queues.

Table 19 (continued)
Queue Summary
Background and Total Future Conditions

Lane Group	Storage†	Background Conditions				Total Future Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
		50th	95th	50th	95th	50th	95th	50th	95th
4. M Street/9th Street/Parsons Avenue									
EBLTR	225	45	65	219	269	49	69	231	265
WBLTR	225	96	105	17	28	111	116	19	31
NBLTR	175	48	101	540	756	48	101	546	761
5. M Street/8th Street									
EBT	230	55	75	150	186	57	77	156	194
WBT	225	149	183	42	57	154	189	45	61
SBL	90	217	397	290	472	222	406	298	482
SBR	260	36	100	0	41	38	102	0	41
6. I Street/11th Street									
WBLTR	125/290	283	404	278	453	288	410	290	467
NBL	90	183	319	53	123	186	322	55	130
NBT	270	171	270	172	268	183	289	187	293
SBT	315	278	473	240	375	290	492	259	406
SBR	90	0	9	0	0	0	9	0	0
7. I-695 EB Off-Ramp/11th Street									
EBL	130	187	343	109	182	187	343	109	182
EBT	1,560	100	180	1,124	1,368	100	180	1,124	1,368
EBR	1,560	617	838	208	315	643	865	242	388
NBT	90	80	124	175	207	94	140	186	219
NBR	125	8	15	111	176	10	19	116	183
SBLT	95	13	16	6	8	13	16	6	8
8. I-695 WB On-Ramp/11th Street									
WBL	215	70	125	17	44	75	131	25	59
WBT	215	844	981	105	152	844	981	105	152
WBR	90	0	0	0	0	0	0	0	0
NBL	95	300	396	188	252	318	429	202	265
NBT	95	3	3	20	23	3	3	21	23
SBT	40	234	342	251	364	250	364	282	406
SBR	40	145	266	0	2	145	266	0	2

† All distances measured in feet to the nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the nearest driveway; the second is the distance to the nearest intersection.

Table 19 (continued)
Queue Summary
Background and Total Future Conditions

Lane Group	Storage†	Background Conditions				Total Future Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
		50th	95th	50th	95th	50th	95th	50th	95th
9: M Street/Virginia Avenue*,¥									
EBTR		NA	NA	NA	NA				
WBLT		NA	NA	NA	NA				
NBLR		NA	NA	NA	NA				
10: M Street/West Site Driveway									
EBTR		Future Intersection				NA	0	NA	0
WBLT						NA	0	NA	0
NBLR						NA	6	NA	7
11: M Street/Private Roadway									
EBTR		Future Intersection				NA	0	NA	0
WBLT						NA	0	NA	0
NBLR						NA	0	NA	0
12: M Street/East Site Driveway									
EBTR		Future Intersection				NA	0	NA	0
WBLT						NA	0	NA	0
NBLR						NA	5	NA	6

† All distances measured in feet to the nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the nearest driveway; the second is the distance to the nearest intersection.

* For unsignalized intersections and roundabouts, Synchro and SIDRA do not provide 50th percentile queues.

¥ The M Street/Virginia Avenue intersection was not analyzed under background conditions since Virginia Avenue doesn't currently exist as a public street.

TRANSPORTATION DEMAND MANAGEMENT PLAN

OVERVIEW

Traffic and parking congestion can be solved in one of two ways: 1) increase supply or 2) decrease demand. Increasing supply requires building new roads, widening existing roads, building more parking spaces, or operating additional transit service. These solutions are often infeasible in constrained conditions in urban environments and, where feasible, can be expensive, time consuming, and in many instances, unacceptable to businesses, government agencies, and/or the general public. The demand for travel and parking can be influenced by TDM plans. Typical TDM measures include incentives to use transit or other non-auto modes of transportation, bicycle and pedestrian amenities, parking management, alternative work schedules, telecommuting, and better management of existing resources. TDM plans are most effective when tailored to a specific project or user group. A summary of the proposed TDM strategies for the project is provided below:

Residential Strategies:

- The cost of vehicle parking will be unbundled from the lease or purchase agreement for each residential unit.
- Transportation Coordinators will be identified for the planning, construction, and operations phases of development. The Transportation Coordinators will act as points of contact with DDOT, goDCgo, and Zoning Enforcement. Transportation Coordinators' contact information will be provided to goDCgo. Transportation Coordinators' duties will include:
    - Conducting an annual commuter survey of residents on-site, and reporting TDM activities and data collection efforts to goDCgo once per year.
    - Developing, distributing, and marketing various transportation alternatives and options to the residents, including promoting transportation events (i.e., Bike to Work Day, National Walking Day, Car Free Day) on property website and in any internal building newsletters or communications.
    - Providing welcome packets to all new residents that should, at a minimum, include the Metrorail pocket guide, brochures of local bus lines (Circulator and Metrobus), carpool and vanpool information, CaBi coupon or rack card, Guaranteed Ride Home (GRH) brochure, and the most recent DC Bike Map. Brochures can be ordered from DDOT's goDCgo program by emailing info@godcgo.com.
    - Providing residents who wish to carpool with detailed carpooling information and will be referred to other carpool matching services sponsored by the Metropolitan Washington Council of Governments (MWCOG) or other comparable service if MWCOG does not offer this in the future.
    - Posting all TDM commitments on website, allowing the public to see what commitments have been promised.

- Transportation Coordinators will receive TDM training from goDCgo to learn about the TDM conditions for this project and available options for implementing the TDM Plan.
- Transportation Coordinators will subscribe to goDCgo's residential newsletter.
- One free $10 SmarTrip card and an annual Capital Bikeshare membership will be provided for each residential unit at initial occupancy.
- Short- and long-term bicycle parking will be provided in accordance with the requirements of ZR16. Under the current development program, a minimum of 46 short-term and 192 long-term residential bicycle spaces will be provided. Long-term bicycle space will be provided free of charge to residents.

Retail Strategies

- The cost of parking will be unbundled from the cost to lease retail space.
- Transportation Coordinators will be identified for the planning, construction, and operations phases of development. The Transportation Coordinators will act as points of contact with DDOT, goDCgo, and Zoning Enforcement. Transportation Coordinator's contact information to goDCgo. The Transportation Coordinator's duties will include:
    - Conducting an annual commuter survey of employees on-site, and reporting TDM activities and data collection efforts to goDCgo once per year.
    - Developing, distributing, and marketing various transportation alternatives and options to employees, including promoting transportation events (i.e., Bike to Work Day, National Walking Day, Car Free Day) on property website and in any internal building newsletters or communications.
    - Posting "getting here" information in a visible and prominent location on the website with a focus on non-automotive travel modes. Also, links will be provided to goDCgo.com, CommuterConnections.com, transit agencies around the metropolitan area, and instructions for [customers, attendees, patrons] discouraging parking on-street in Residential Permit Parking (RPP) zones. Demonstrating to goDCgo that tenants with 20 or more employees are in compliance with the DC Commuter Benefits Law and participate in one of the three transportation benefits outlined in the law (employee-paid pre-tax benefit, employer-paid direct benefit, or shuttle service), as well as any other commuter benefits related laws that may be implemented in the future.
    - Providing employees who wish to carpool with detailed carpooling information, including information for other carpool matching services sponsored by the MWCOG or other comparable service.
- Transportation Coordinators will receive TDM training from goDCgo to learn about the TDM conditions for this project and available options for implementing the TDM Plan.
- Two showers and two lockers will be provided for retail employees who bike, walk, or jog to work, in accordance with ZR16 requirements.

- Short- and long-term bicycle parking will be provided in accordance with the requirements of ZR16. Under the current development program, a minimum of 12 short-term and four long-term retail bicycle spaces will be provided. Long-term bicycle space will be provided free of charge to all employees.

DDOT's CTR Guidelines also include provisions for Enhanced and Enhanced + strategies, which are intended for projects that are parked more than 10 percent over DDOT's preferred parking ratio or where traffic impacts were identified in the study area. As previously mentioned, the parking supply for the proposed redevelopment is significantly below (45 percent lower) DDOT's preferred parking maximum.

The following additional strategies are proposed as mitigation measures to address the impacts identified in the preceding sections:

- Fund and install a 23-dock Capital Bikeshare (CaBi) station with 12 bikes and fund one-year of maintenance and operations costs.
- Provide an annual CaBi membership for each residential unit at initial occupancy
- Provide a bicycle repair station in the garage.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this study are as follows:

1. The redevelopment of 1333 M Street would include demolishing the existing vacant uses on the site to allow for the construction of a mixed-use project including residential and retail uses.
2. The proposed redevelopment will include approximately 900 residential units and 44,092 SF of general retail space. The proposed redevelopment is anticipated to generate 175 AM peak hour vehicle trips and 248 PM peak hour vehicle trips.
3. The proposed project will make significant improvements to the multi-modal transportation system in the vicinity of the site, including:
    - Reconstruction of M Street to meet current DDOT standards, including a new sidewalk on the south side of the street;
    - Addition of on-street parking on the south side of M Street (a total of 15 metered parking spaces and 10 PUDO spaces are proposed);
    - Relocation of the existing trail on the south side of M Street, which is disrepair and is missing sections, to the north side of M Street where it will connect to the existing trail to the west of the site;

- Construction of Virginia Avenue, south of M Street, which includes 10 on-street metered parking spaces on the south side of the street and 14 PUDO spaces on the north side of the street; and
- Vehicular, bicycle, and pedestrian connections through the site to the Waterfront facilitated by the private roadway, the Waterfront Plaza, and the 14th Street Plaza.

4. The proposed project will accommodate future pedestrian/bicycle connections over the railroad tracks contemplated by the Southeast Boulevard Project.

5. In accordance with ZR16, 149 on-site parking spaces would be required for the residential component and 26 spaces would be required for the retail component. The proposed project will include 149 residential spaces (in the below-grade parking garage) and 25 retail spaces (19 in the garage and six on the private street). Therefore, relief from the parking requirements will be required for one retail parking space.

6. The subject site will be served by a variety of transportation options, including Metrorail (with the Navy Yard – Ballpark Metro Station located within one mile of the site and the Potomac Avenue Metro Station located within ⅓ mile of the site), Metrobus, and DC Circulator. In order to improve connections to these transportation options, the Applicant is proposing sidewalk and trail improvements along M Street and Virginia Avenue.

7. In order to reduce the number of vehicle trips generated by the proposed redevelopment, the Applicant will implement a TDM Plan, which will encourage the use on non-auto modes of transportation. The TDM Plan includes additional measures beyond DDOT's recommended baseline strategies to offset impacts of the project.

8. A number of improvements could be implemented to improve future conditions. These improvements include the following:

   - Restripe the southbound approach at the M Street/8th Street intersection to provide an exclusive left turn lane and a shared left/right turn lane in lieu of the existing exclusive left turn lane and an exclusive right turn lane.
   - At the 11th Street/I Street intersection, implement "No Parking" during the PM rush on the north side of I Street, which already is posted "No Parking" during the AM rush.

9. With the implementation of the improvements at the M Street/8th Street and 11th Street/I Street intersections and the implementation of the TDM Plan, the proposed redevelopment is not expected to have a significant impact in the study area.

FIGURES

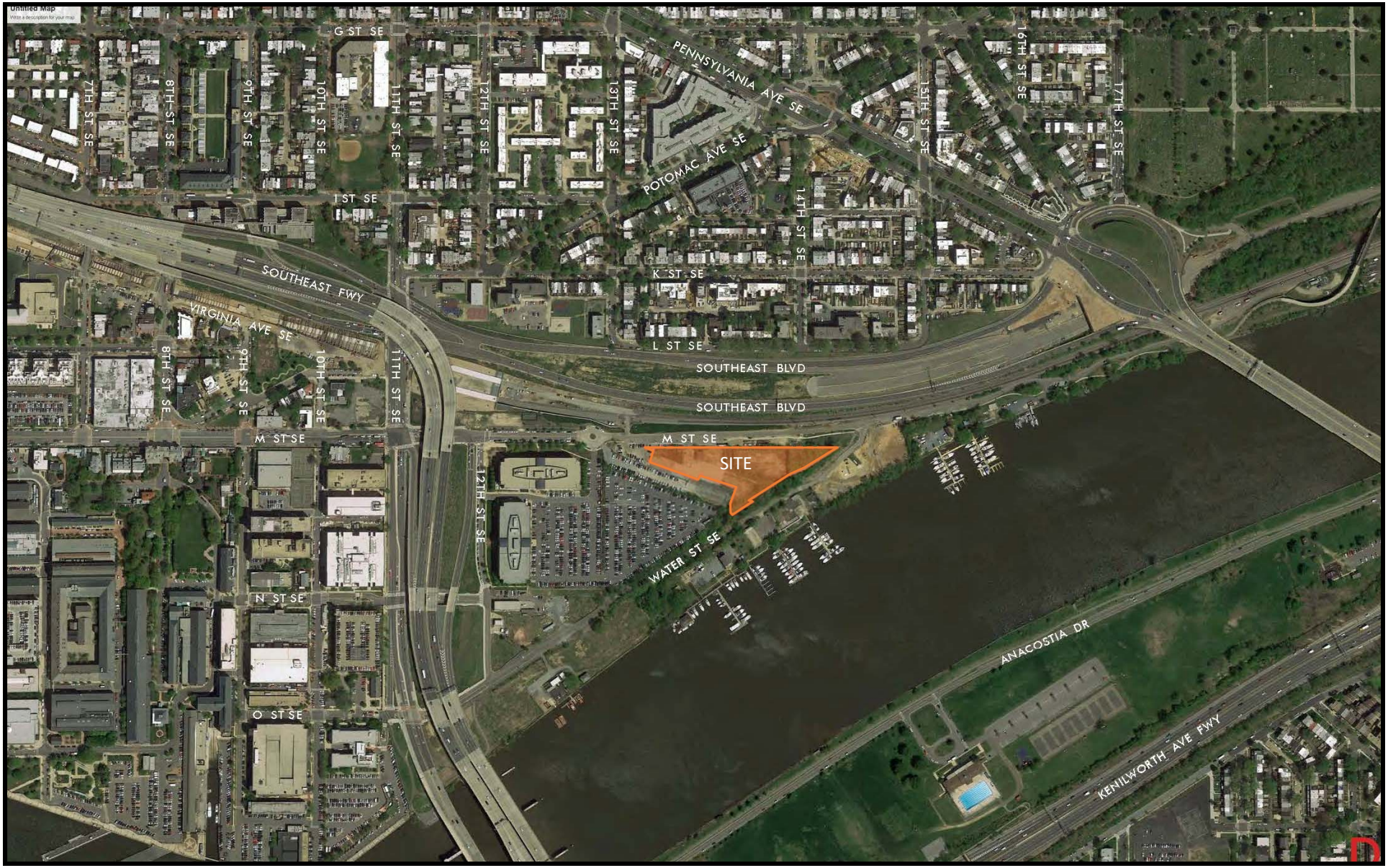
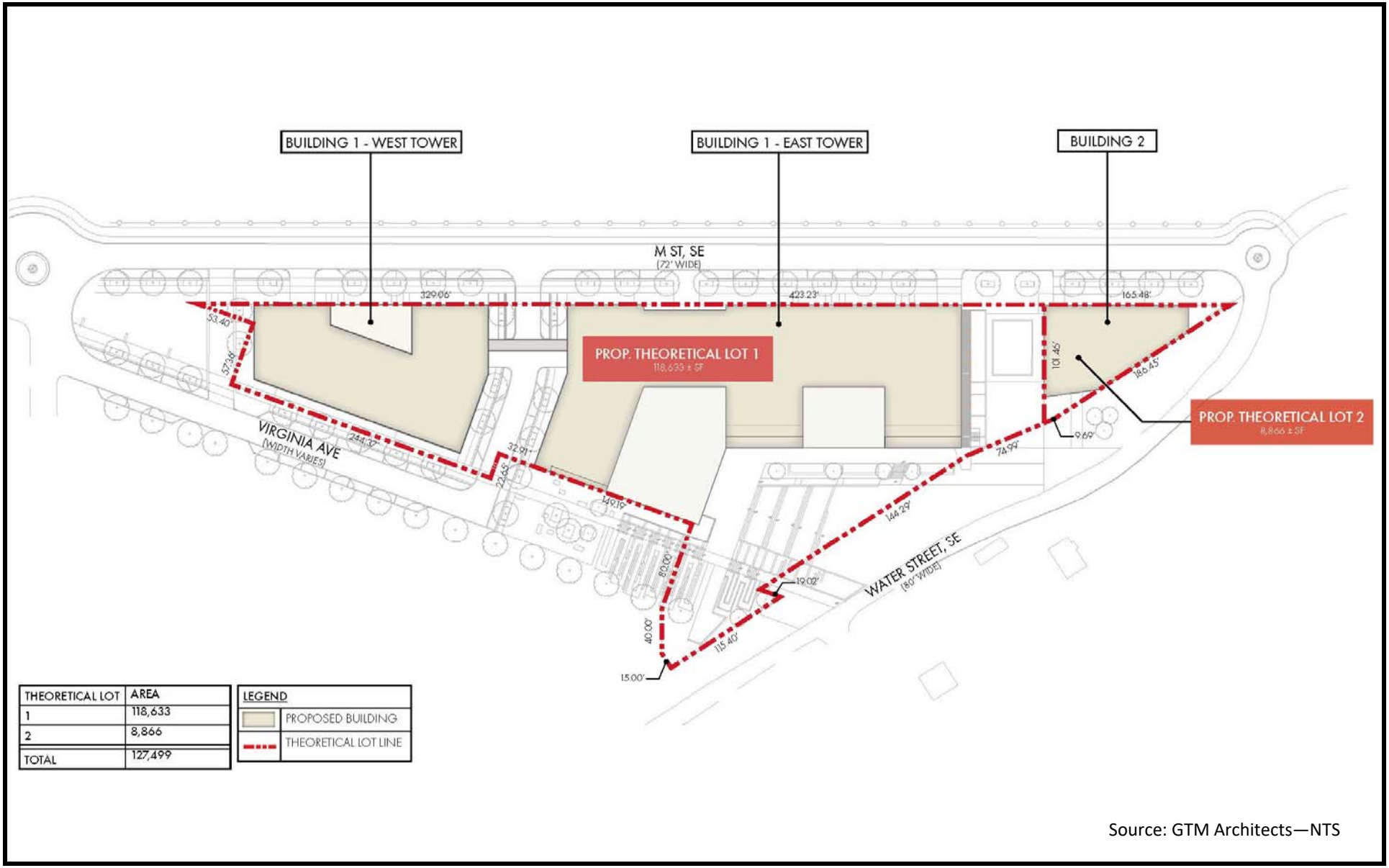


Figure 1
Site Location

NORTH

1333 M Street SE
Washington, DC



Source: GTM Architects—NTS

Figure 2
Proposed Plan

NORTH

1333 M Street SE
Washington, DC

● Existing Tree ● Dying/Dead Tree ● Missing Tree

Note: Tree Inventory based on 2017 Google Streetview.

Figure 3
Preliminary Tree Inventory

NORTH
1333 M Street SE
Washington, DC

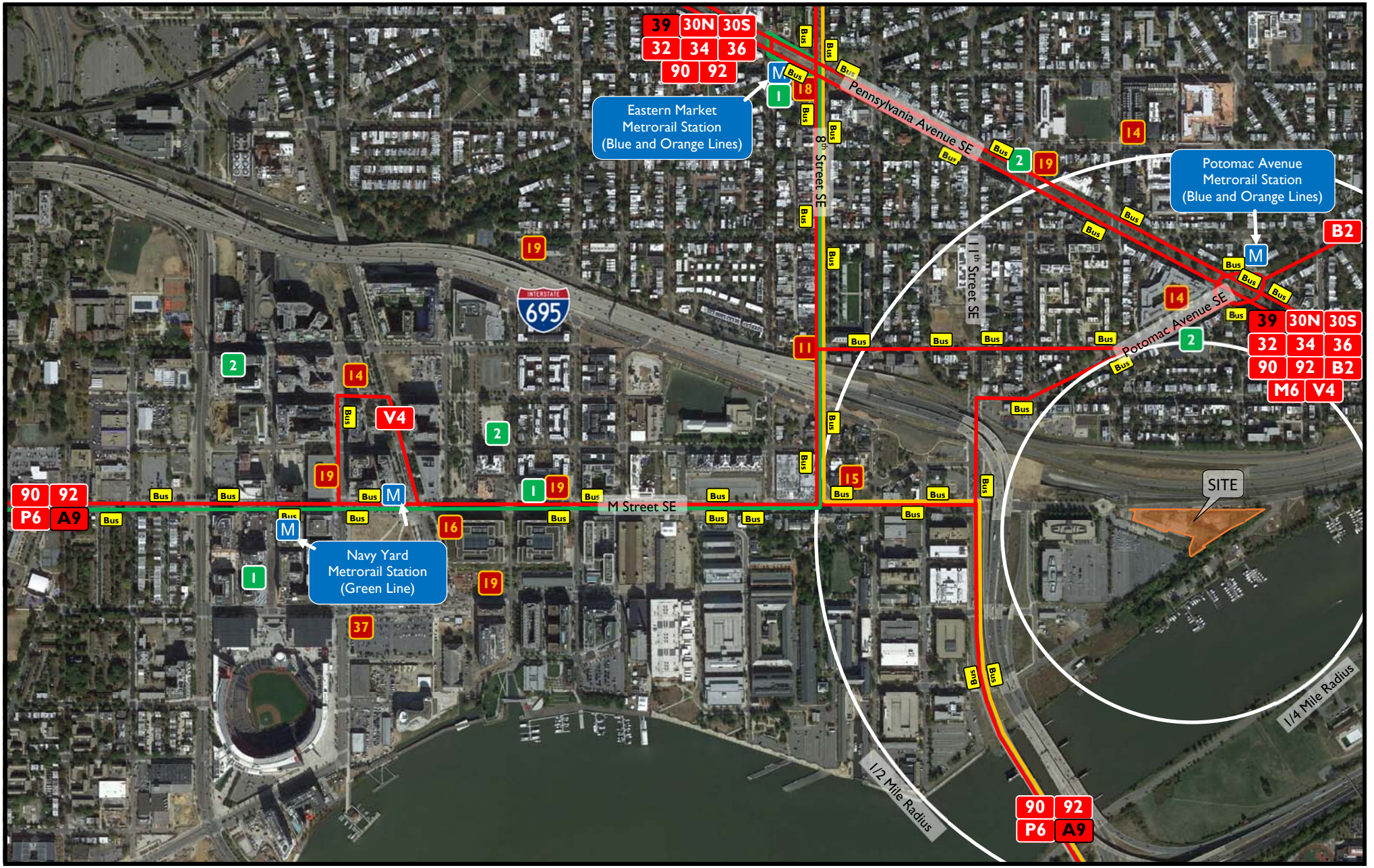


Figure 4
Multimodal Transportation Network

- # Zipcar Locations (Number of Zipcars)
- # Capitol Bikeshare Locations (Number of Docks)
- M Metrorail Station
- Bus Bus Stop
- XX Metrobus Major Route
- XX MetroExtra Route
- DC Circulator Route (Congress Heights - Union Station)
- DC Circulator Route (Eastern Market - L'Enfant Plaza)

NORTH

1333 M Street SE
Washington, DC

Figure 5A
Pedestrian and Bicycle Facilities Adjacent to Site

10' Paved Trail Section
On-Street Shared Use Trail
Sub-Standard Trail Section in Disrepair
Proposed 10' Paved Trail Section

NORTH

1333 M Street SE
Washington, DC

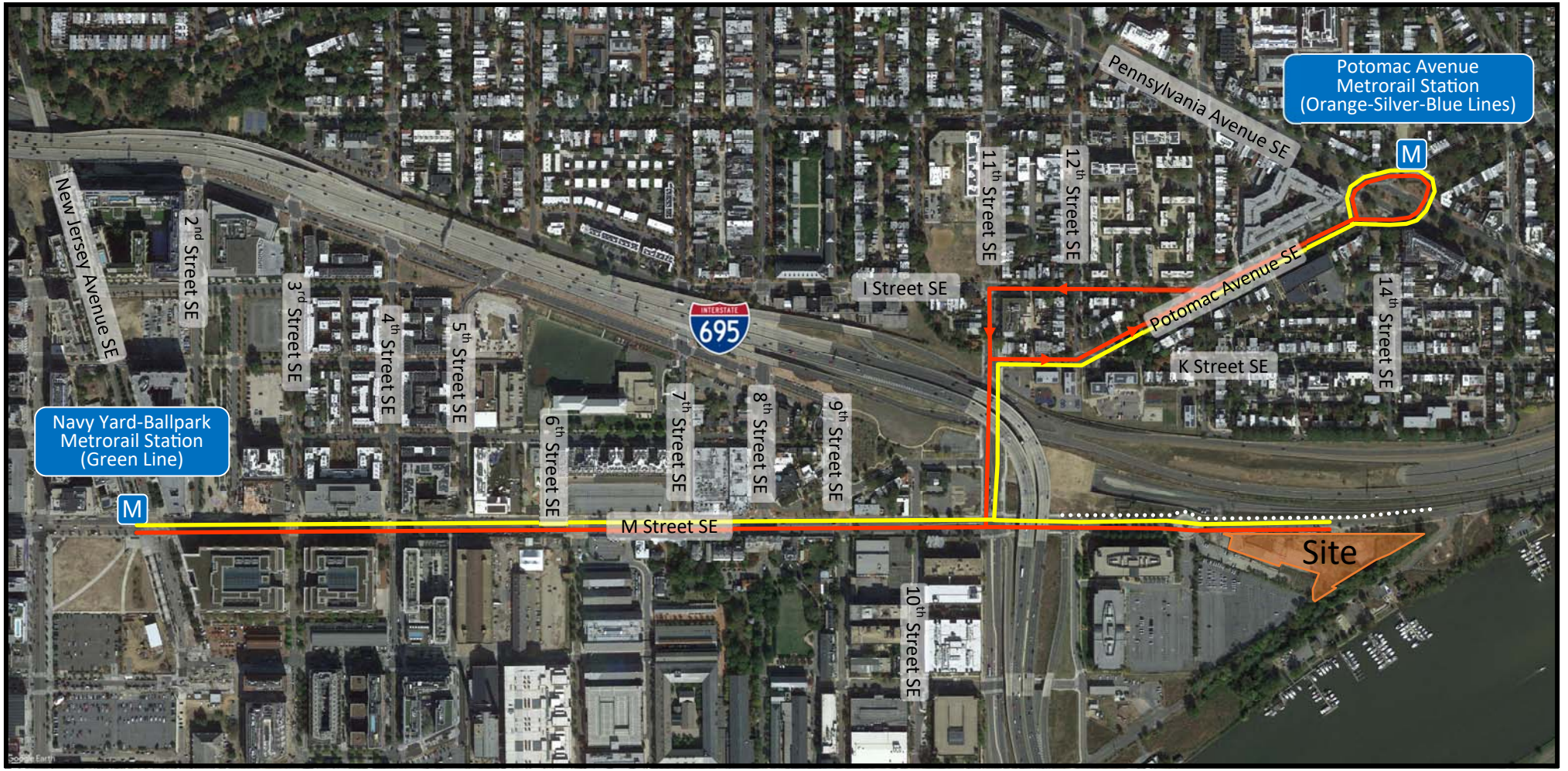


Figure 5B
Likely Pedestrian and Bicycle Routes to Metro Stations

NORTH
1333 M Street SE
Washington, DC

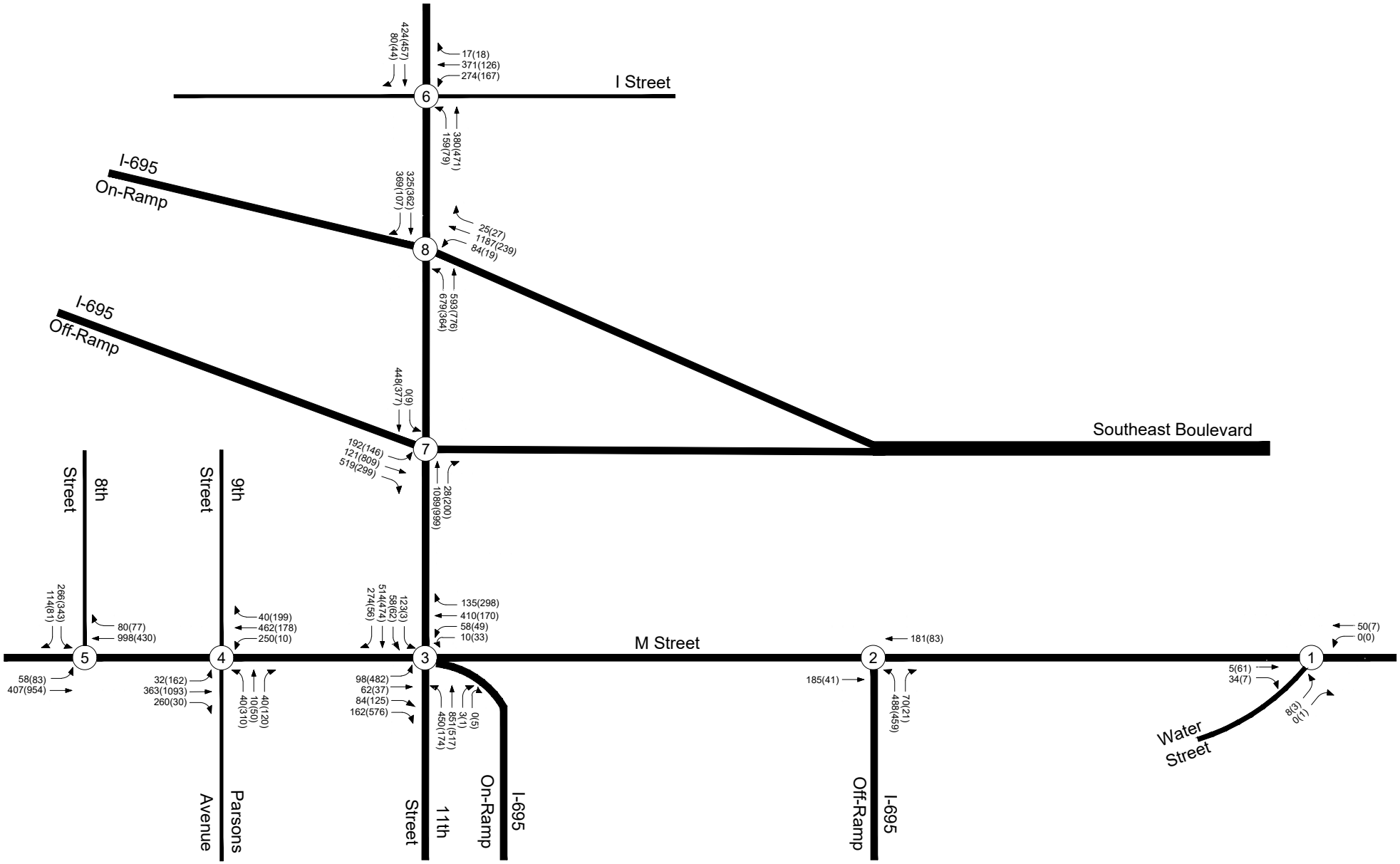


Figure 6

2020 Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000(000)

NORTH

1333 M Street SE
Washington, DC

O:\PROJECTS\8001-8500\8060 1333 M STREET SE\GRAPHICS\8060 VOLUME FIGURES.DWG

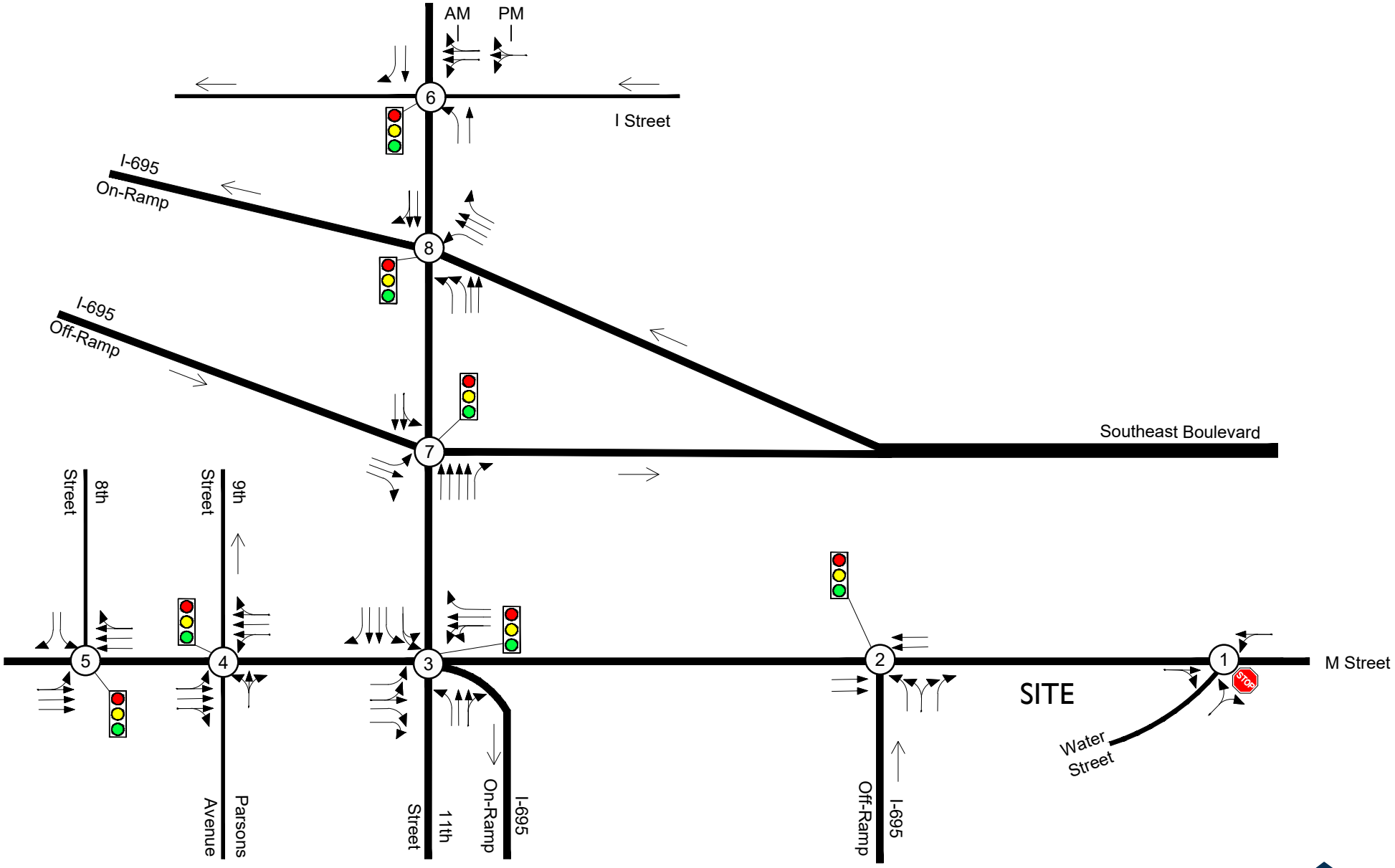
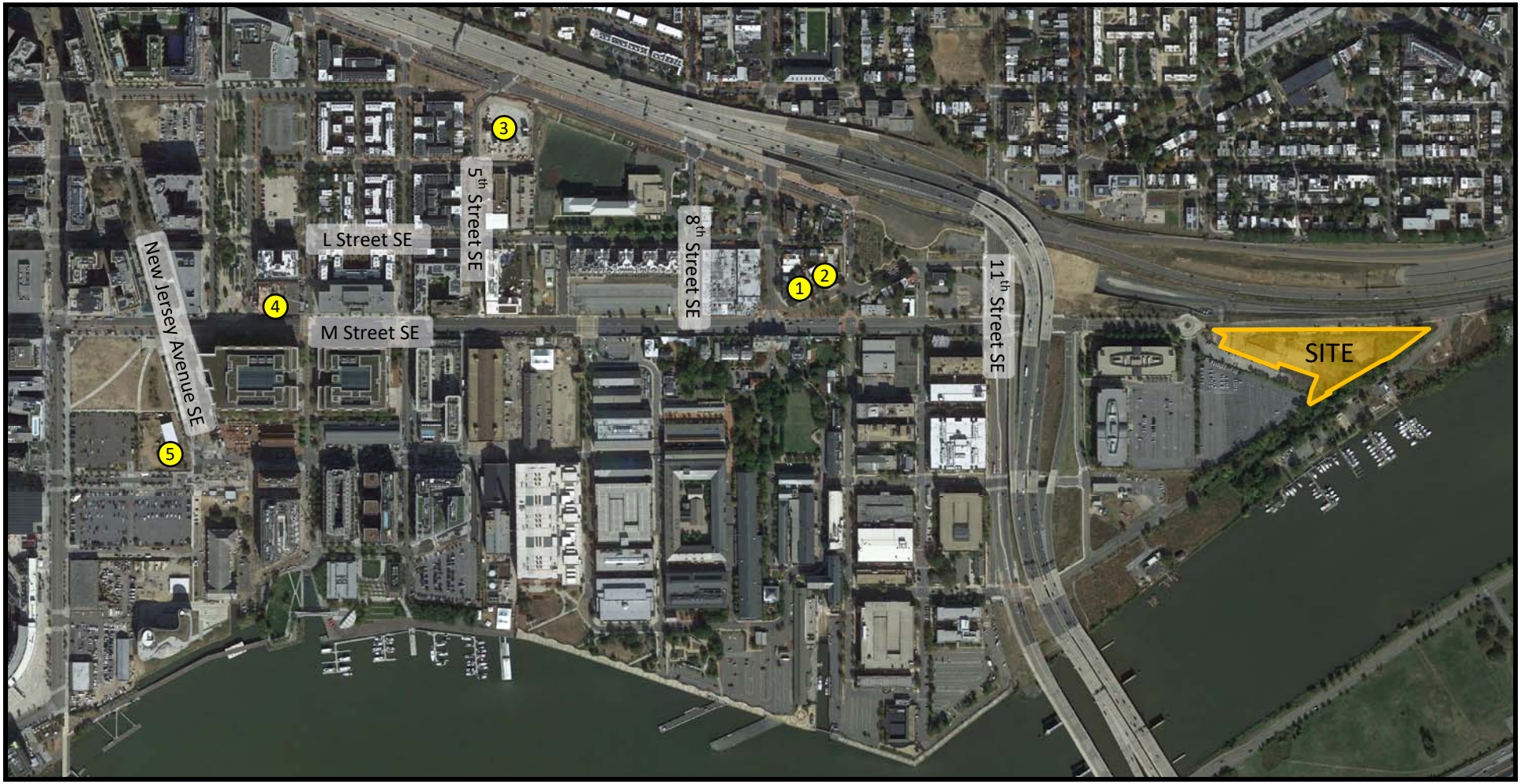


Figure 7
Existing Lane Use and Traffic Control

1333 M Street SE
Washington, DC



1. Callisto - 816 Potomac Avenue SE - 14 residential units - under construction, expected completion 2nd Quarter of this year.
2. The Europa - 818 Potomac Avenue SE - 49 residential units - under construction, expected completion 4th Quarter of this year.
3. Arthur Capper Apartments - 900 5th Street SE - 162 senior housing units - under construction, expected completion 4th Quarter of this year.
4. DDOT HQ - 250 M Street SE - 189,000 SF office - under construction, expected completion 1st Quarter 2021.
5. Yards Parcel G - 1275 New Jersey Avenue SE - 290,422 SF office, 14,140 SF retail, under construction, expected completion 2021.

Figure 8
Location of Pipeline Developments

NORTH
1333 M Street SE
Washington, DC

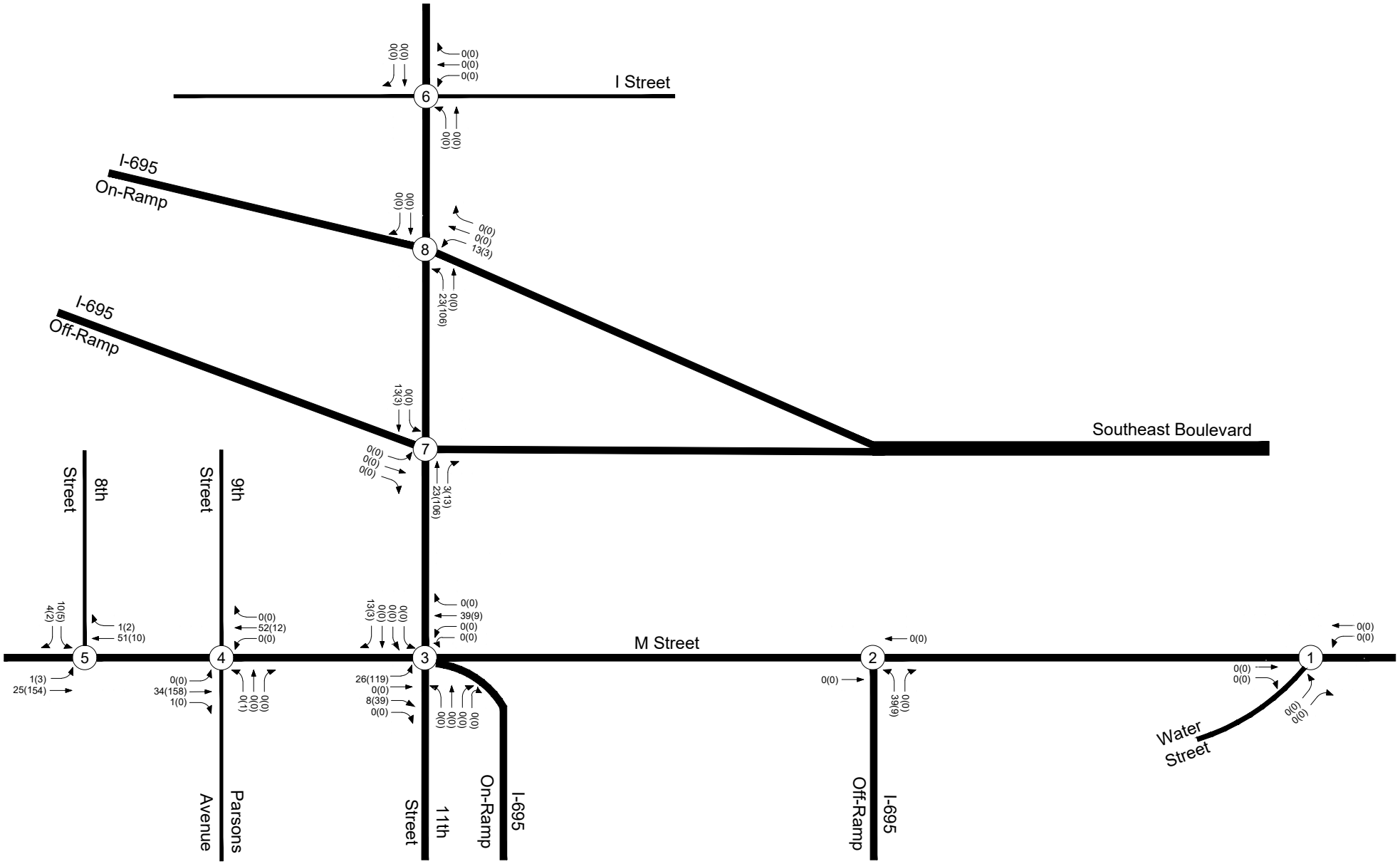


Figure 9

Peak Hour Pipeline Traffic Volumes

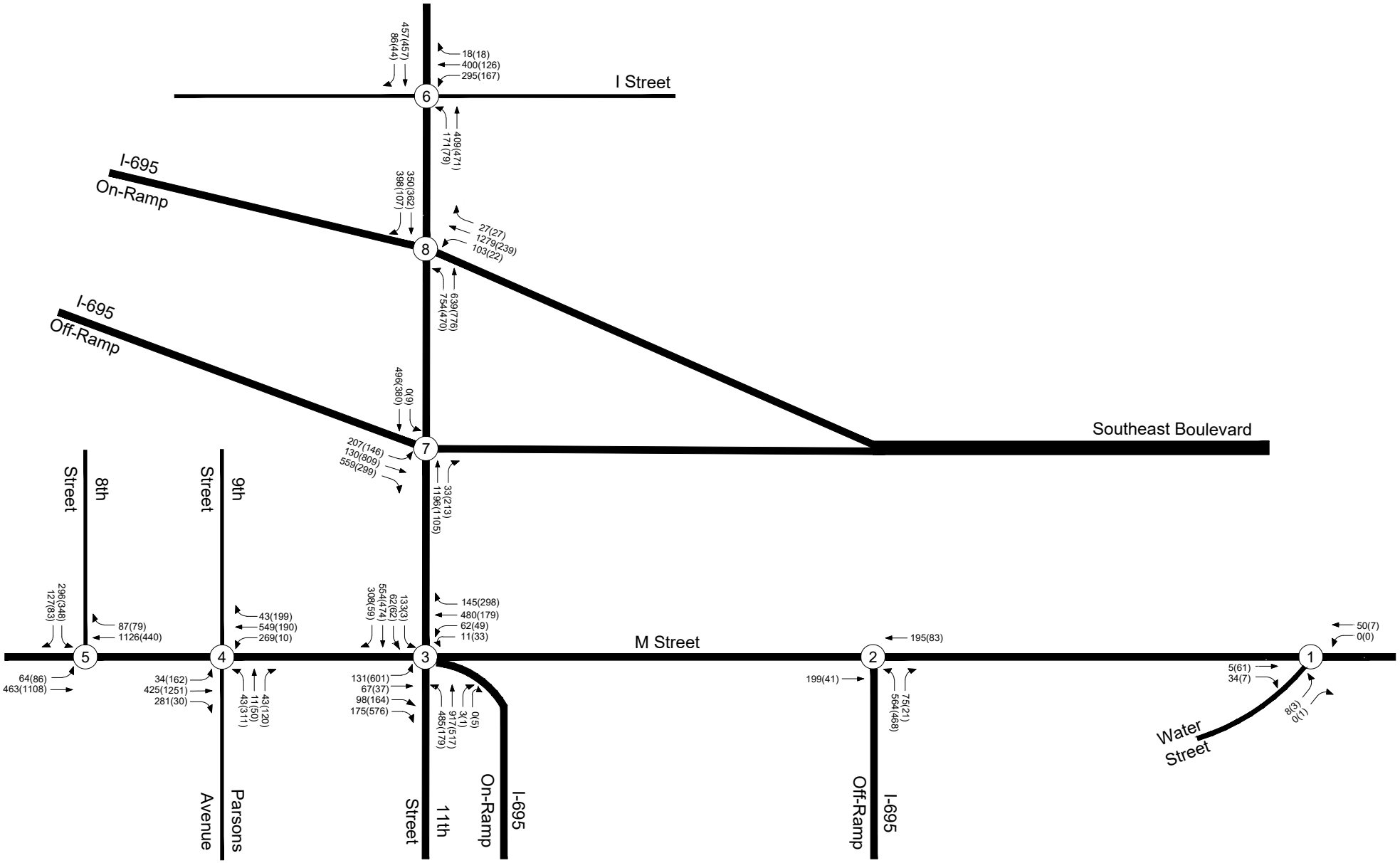


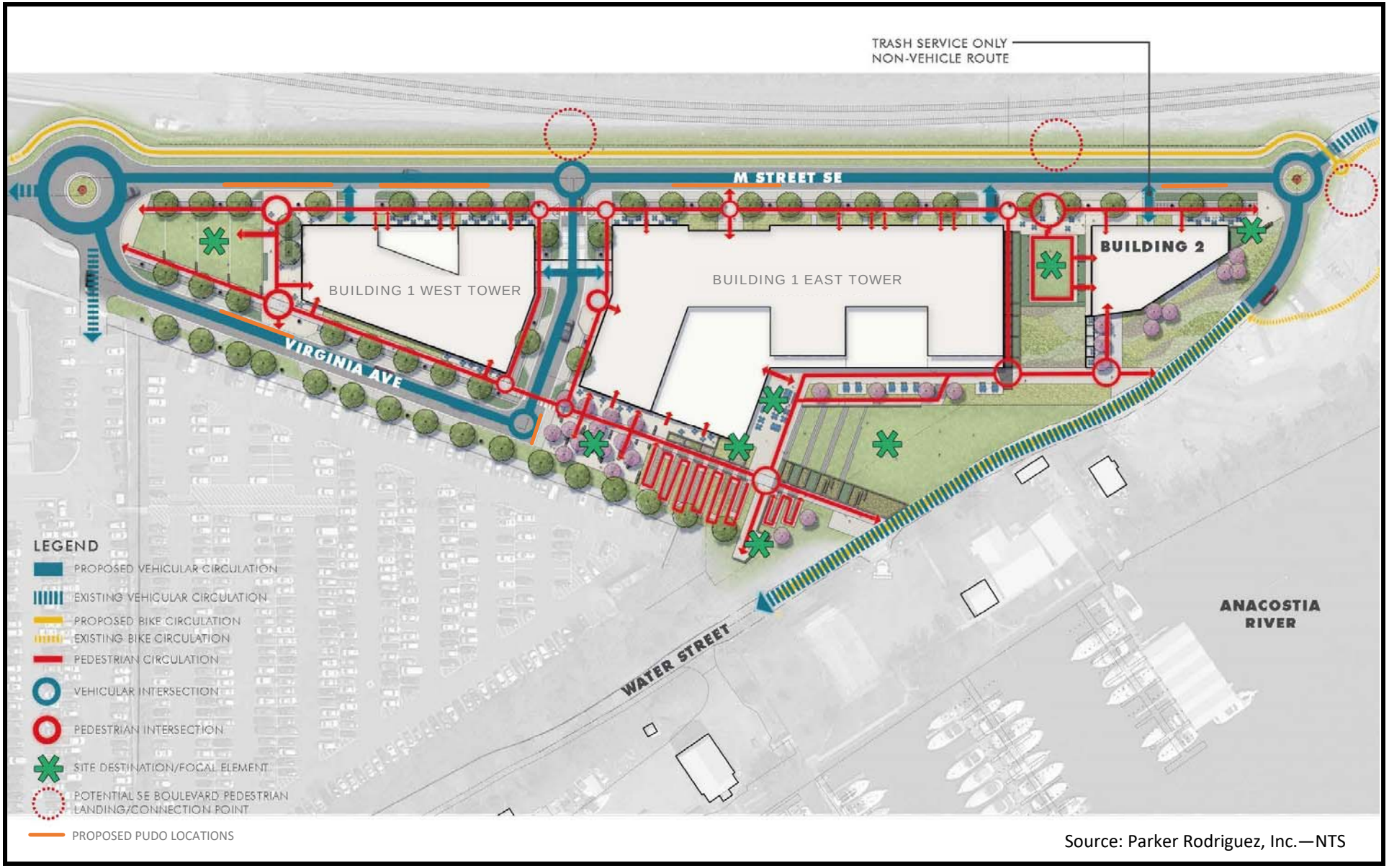
Figure 10

2025 Background Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000(000)

NORTH

1333 M Street SE
Washington, DC



Source: Parker Rodriguez, Inc.—NTS

Figure 11A
Proposed Site Circulation

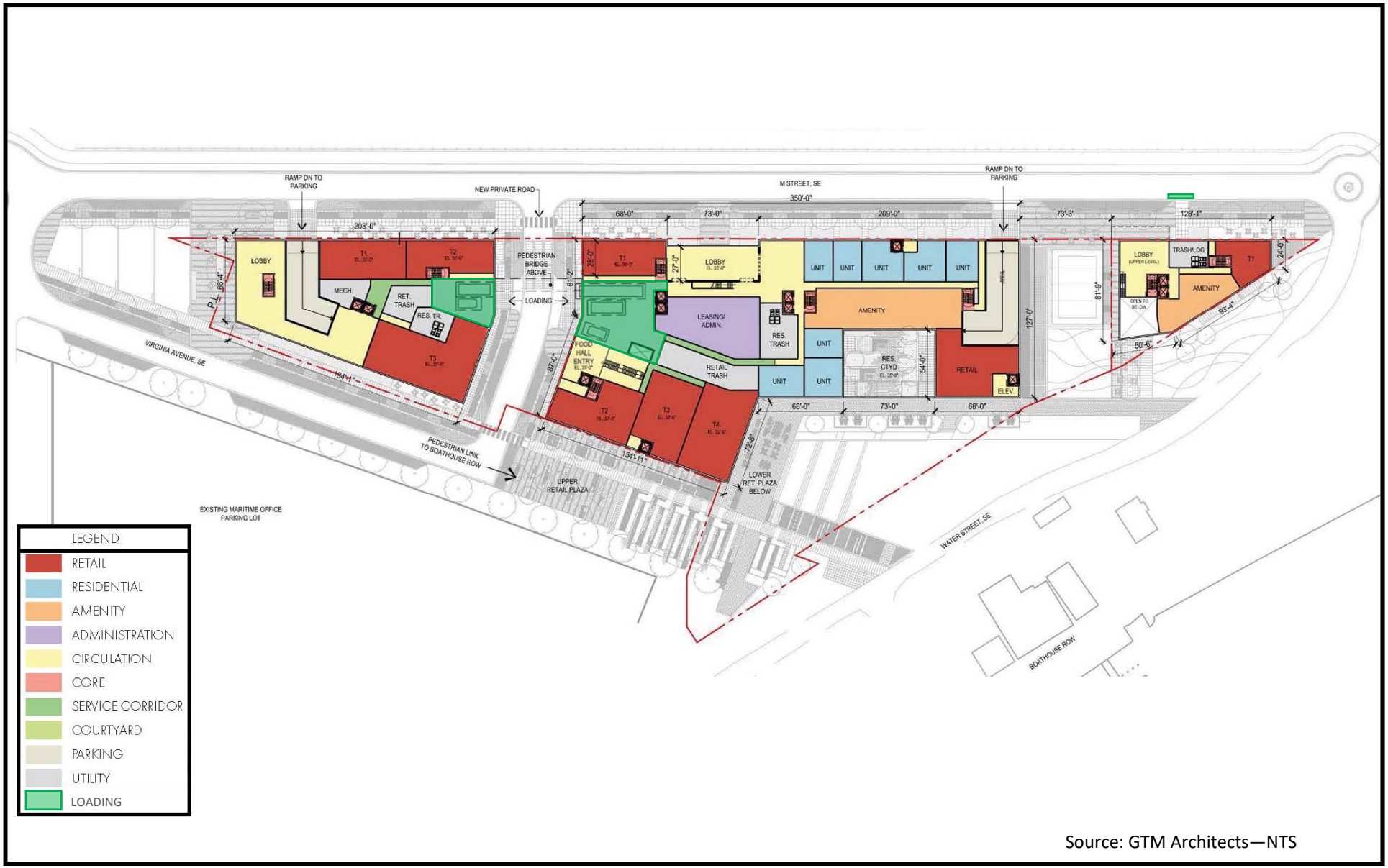
NORTH

1333 M Street SE
Washington, DC

Figure 11B
Proposed Bicycle Circulation

NORTH

1333 M Street SE
Washington, DC



Source: GTM Architects—NTS

Figure 11C
Proposed Loading Facilities

NORTH

1333 M Street SE
Washington, DC

Figure 12
Curbside Management

NORTH
1333 M Street SE
Washington, DC

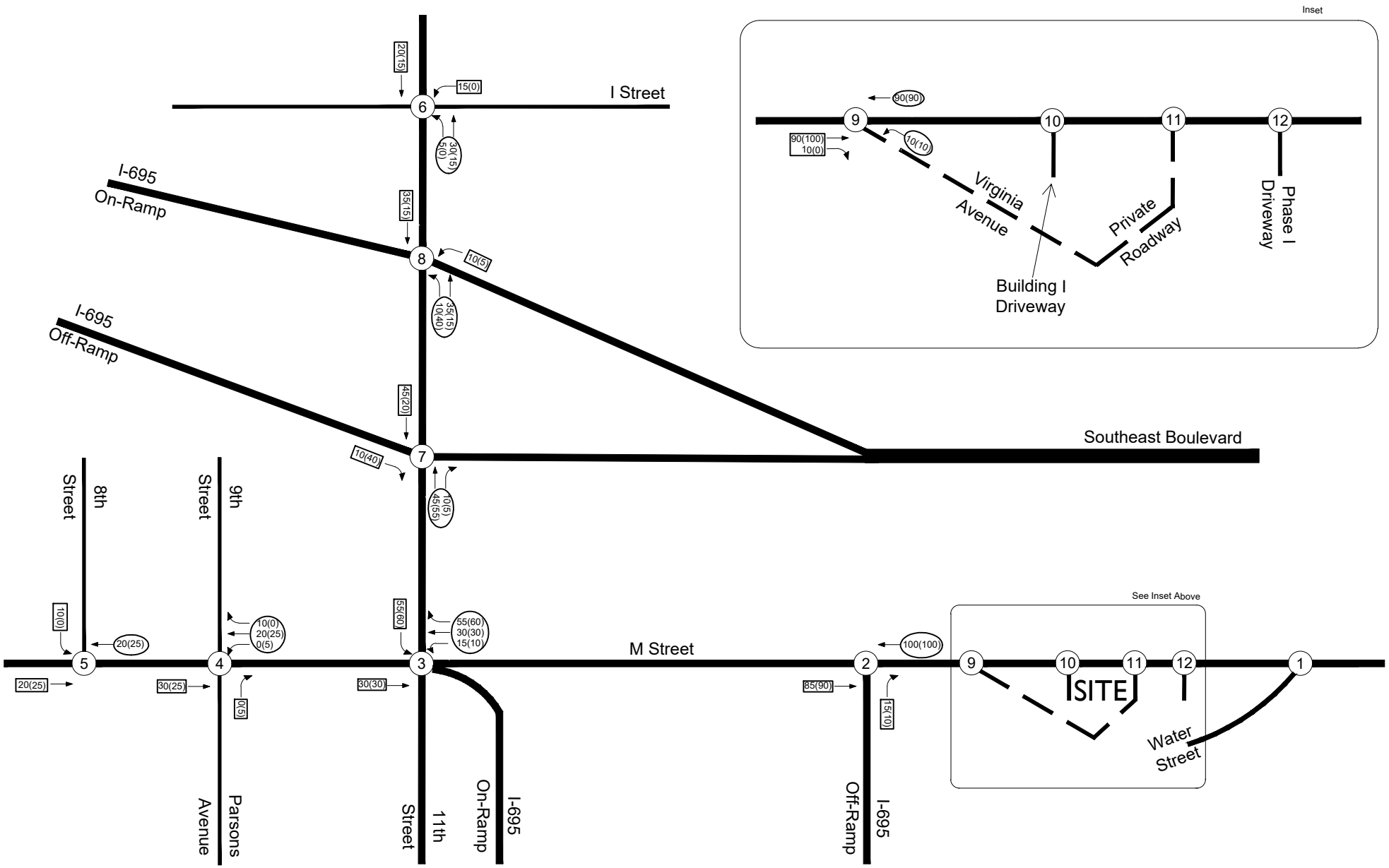


Figure 13A

Peak Hour Site Trip Distribution

XX(XX) - Inbound Retail (Residential) Trip Assignment (%)

XX(XX) - Outbound Retail (Residential) Trip Assignment (%)

NORTH

1333 M Street SE

Washington, DC

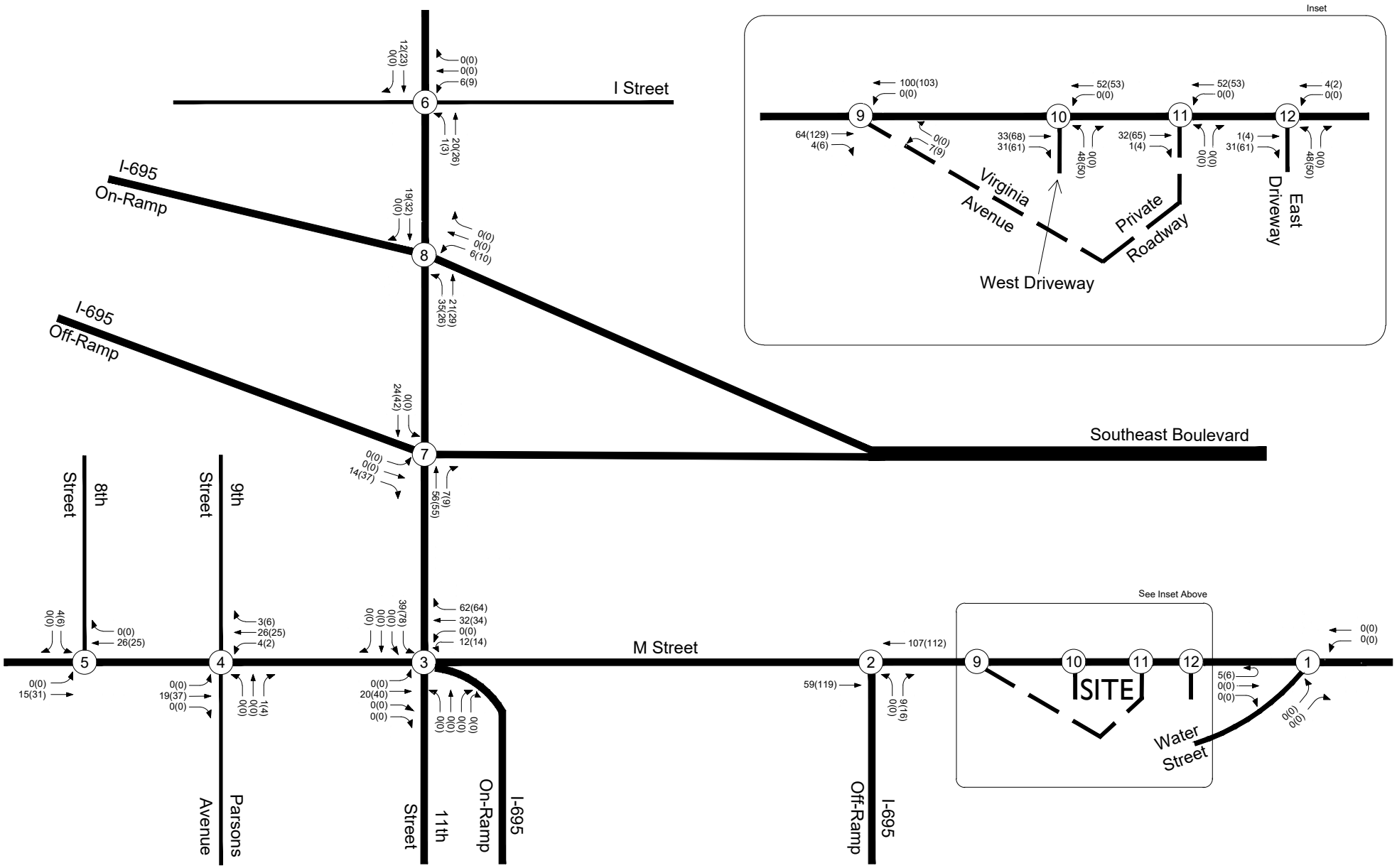


Figure 13B

Peak Hour Site Trip Assignment

AM PEAK HOUR
PM PEAK HOUR
000(000)

NORTH

1333 M Street SE
Washington, DC

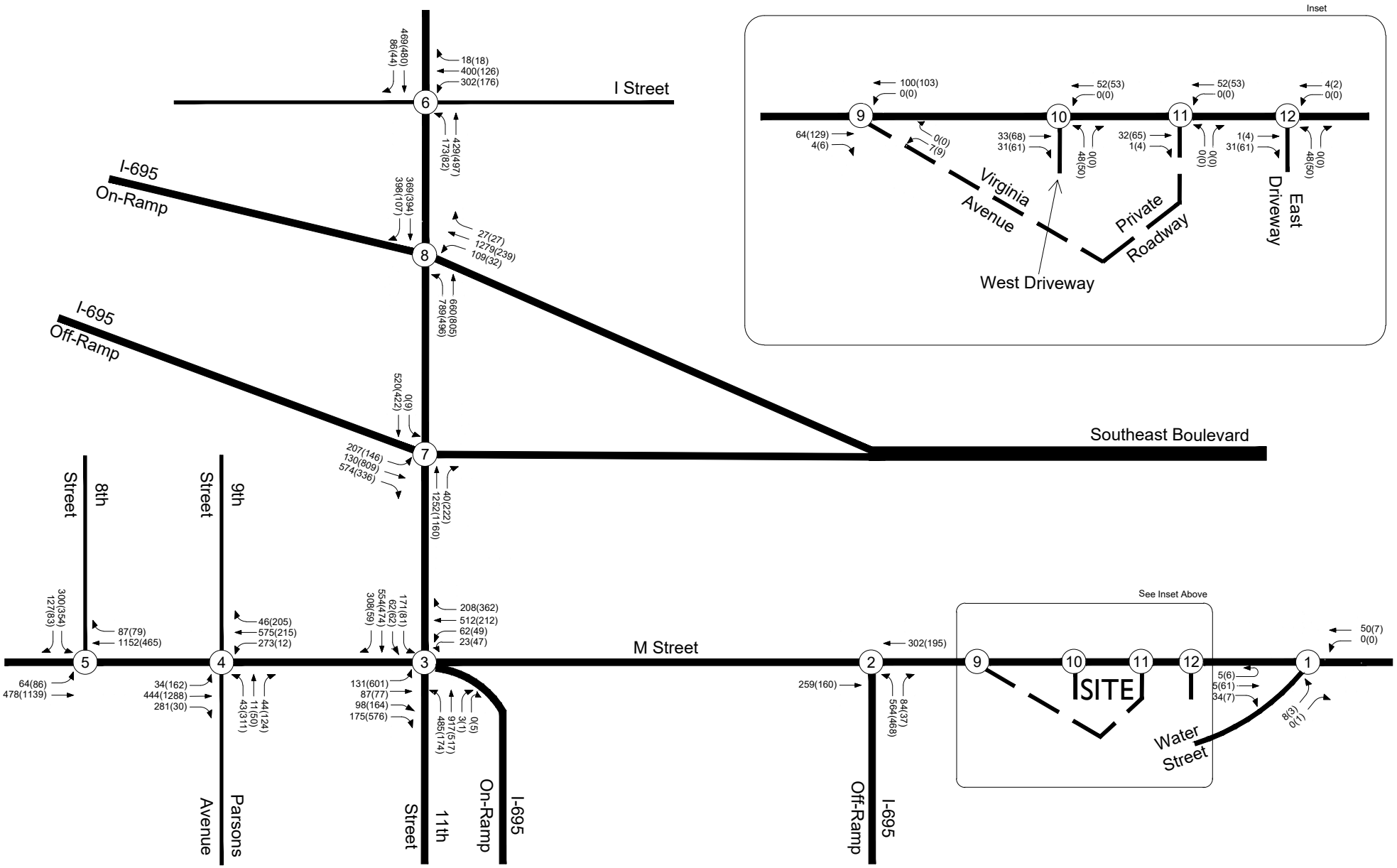


Figure 14

2025 Total Future Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000(000)

NORTH

1333 M Street SE
Washington, DC