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2100 2nd Street, SW
Comprehensive Transportation Review

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INTRODUCTION

Overview

This report presents a Comprehensive Transportation Review (CTR) conducted in conjunction with the proposal by 2100 2nd Street, SW LLC (herein referred to as the Applicant) to redevelop the property of the former Coast Guard Headquarters situated on Square 0613 (Lot 0010) located at Buzzard Point in southwest Washington, DC. The site is currently zoned CG-5 and is generally bounded by 1st Street to the east, 2nd Street to the west, V Street to the north, and the Anacostia River to the south. The site location is shown on Figure 1.

The Applicant proposes to renovate and convert the existing building to include approximately 485 residential dwelling units, approximately 33,368 SF of retail space, and approximately 38,087 SF of restaurant space (including 8,000 SF of restaurant space on the water)[1]. The proposed plans for the project utilize the site's location along the Anacostia Waterfront to create a unique experience including restaurants with outdoor seating along the southern edge of the property overlooking the river. Ground floor retail along V Street, 1st Street, and 2nd Street combined with generous sidewalks and tenant zones will activate the area and promote and facilitate pedestrian traffic in the area. Full size plan excerpts are included in Appendix A.

The existing building includes approximately 1,028 parking spaces in two below-grade levels and on the mezzanine level. With the proposed redevelopment, the number of parking spaces would be significantly reduced to provide approximately 372 spaces. Access to the parking facilities is proposed via one curb cut on 2nd Street. A total of five loading berths and two service/delivery spaces would be provided with the proposed redevelopment. Access to the loading facilities is proposed via two curb cuts on 2nd Street and one curb cut on 1st Street.

The purpose of this report is to:

- Evaluate existing traffic operational and safety conditions,
- Evaluate future traffic conditions without the proposed redevelopment,
- Evaluate future traffic conditions with the proposed redevelopment,
- Identify existing mode choice alternatives,
- Identify any traffic operational impacts associated with the proposed redevelopment,
- Evaluate the appropriateness of the proposed parking,

[1] Note that the square footage does not include space devoted to parking or loading functions.

- Evaluate effectiveness of the proposed loading facilities, and
- Recommend transportation improvements (including roadway, operational, and demand management strategies) to mitigate the impact of the redevelopment and promote the safe and efficient flow of vehicular and pedestrian traffic associated with the proposed redevelopment.

Study Scope

In order to assess the impacts of the proposed development on the surrounding roadway network, the Applicant commissioned this transportation impact study. 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 B.

The study area was selected based on those roadway segments that potentially could be impacted by the proposed development. The following intersections were identified for detailed analysis and agreed to by DDOT:

- 2nd Street/P Street,
- 2nd Street/Q Street,
- 2nd Street/R Street,
- 2nd Street/T Street,
- 2nd Street/V Street,
- 1st Street/V Street,
- 1st Street/T Street, and
- 1st Street/R Street/Potomac Avenue.

TRANSPORTATON FACILITIES

Roadway Network

Existing Conditions

General details regarding the surrounding roadway segments, including functional classification, average daily traffic volume (ADT), and speed limit are summarized in Table 1. All roadways in the study area operate as two-way streets, with two exceptions. Currently, 2nd Street operates as a southbound one-way street and 1st Street operates as a northbound one-way street. In addition, V Street east of 1st Street operates as a one-way eastbound.

Table 1
Existing Conditions by Roadway Segment Details

Roadway	Functional Classification	Average Daily Traffic* (vehicles per day)	Speed Limit (miles per hour)
2nd Street	Collector	1,500	25
1st Street	Local	3,800	25
P Street	Minor Arterial	7,600	25
Q Street	Local	N/A	25†
R Street	Local	N/A	25†
T Street	Local	N/A	25†
V Street	Collector/Local‡	1,500	25†
Potomac Avenue	Collector	5,900	25

* The ADT volume is based on DDOT historical traffic volume data collected in 2014, which are the most recent data available.
† Speed limit unposted in the study area; assumed to be 25 mph.
‡ The functional classification of V Street is collector between 2nd Street and 1st Street, and local between 1st Street and Half Street.

At the request of DDOT, the Applicant also conducted an inventory of curbside signage and payment mechanisms in the surrounding area. This inventory is included as Figure 2A.

Future Conditions

A number of roadway improvements are proposed in the Buzzard Point neighborhood as a result of the construction of the new soccer stadium, the proposed South Capitol Street Corridor improvements, and improvements proposed in conjunction with approved developments in the area.

As requested by DDOT, the following improvements from the Buzzard Point Vision Framework and Implementation Plan are anticipated to be complete prior to build out of the River Point project:

- Conversion of 2nd Street from one-way to two-ways,
- Closure of R Street between Half and 1st Streets,
- Conversion of Potomac Avenue from two-ways to one-way westbound between the Circle and Half Street,
- Conversion of R Street from two-ways to one-way eastbound between Half Street and South Capitol Street,

- Conversion of Q Street from two-ways to one-way westbound between Half Street and South Capitol Street,
- A vehicular connection for 1st Street between Potomac Ave and T Street which will operate as two-way street with northbound right out from 1st Street to Potomac Avenue, right in from R Street to 1st Street, and left in from Potomac Avenue to 1st Street with some traffic restrictions on days where soccer games are scheduled, and
- Completion of South Capitol Street Circle.

Likewise, the following improvements associated with approved projects in the area are anticipated to be complete prior to completion of the River Point project:

- Installation of appropriate signing and pavement markings for Water Street between Half Street and S Street,
- Installation of curb extensions at the Water Street/T Street intersection to ensure roadway widths on each side match,
- Reconstruction and realignment of V Street between 1st Street and Half Street to provide two 10-foot travel lanes and an eight-foot parking lane on either side of the roadway, and to re-center the roadway within the right-of-way.
- Reconstruction of 1st Street south of V Street to provide two 10-foot travel lanes and an eight-foot parking lane on either side of the roadway.

Multi-Modal Transportation Facilities

Existing Public Transportation Facilities and Services

Public transportation facilities in the vicinity of the site are limited given the fact that the Buzzard Point area largely is undeveloped. As the Buzzard Point area redevelops, beginning with the construction of the new DC United Soccer Stadium and continuing with the recent approvals for projects at 1900 Half Street and 88 V Street, along with the subject redevelopment of Coast Guard Headquarters, public transportation services are expected to be extended to the area. In fact, several property owners in Buzzard Point and the Capitol Riverfront Business Improvement District (BID) have met with the Washington Metropolitan Area Transit Authority (WMATA) about the potential to extend bus service to the area as early as 2018. WMATA is in the process of developing route options and potential bus stop locations in conjunction with the property owners, the BID, and DDOT. These options will likely be presented to WMATA's Board in July with public hearings anticipated in Fall 2017. Final approval on the routes by the Board could occur as early as December 2017. One of the most promising options discussed with WMATA would include the extension of Route 74, which currently runs along P Street SW between Half Street and 4th Street. According to WMATA, Route 74 currently is under-utilized and could benefit from the increased demand resulting from the redevelopment of Buzzard Point. Extension of the route is not anticipated to add significant increases in route times.

Metrorail Service

The proposed project is located approximately one mile from both the Navy Yard Metro Station and Waterfront Metro Station. The Navy Yard Metro Station and Waterfront Metro Station provide access to the Metro Green line. Riders can transfer to the Blue, Orange, Silver, and Yellow lines at L'Enfant Plaza Metro Station or to the Red Line at Gallery Place-Chinatown Metro Station.

The minimum, maximum, and average headways for the Green Line are summarized in Table 2.

Table 2
Metrorail Headways (in minutes)

Headway*	**AM Rush** 5:00 AM – 9:30 AM	**Midday** 9:30 AM – 3:00 PM	**PM Rush** 3:00 PM – 7:00 PM	**Evening** 7:00 PM – 9:30 PM	**Late Night** 9:30 PM – Close	**Weekend** Open – 9:30 PM	**Weekend** 9:30 PM – Close
GREEN LINE (NAVY YARD - BALLPARK METRO STATION/WATERFRONT METRO STATION)							
Min	0:06	0:12	0:06	0:12	0:20	0:12	0:20
Max	0:06	0:12	0:06	0:12	0:20	0:15	0:20
* Headways presented represent headways in both directions.							

According to WMATA's Metrorail Station Access and Capacity Study, the Navy Yard Metro Station had the 14th highest pedestrian access during the PM peak period in 2002 out of the 86 stations studied (the Silver Line was not open at the time of the study). The station also is among the list of high forecasted development stations and is expected to see an increase in ridership of 80 percent between 2005 and 2030. The projected increase in ridership is based on an anticipated 87.2 percent increase in households and 61.3 percent increase in jobs in the area during the same time period. Similarly, the Waterfront Metro Station is expected to see an increase in ridership of approximately 11.4 percent between 2005 and 2030.

The Metrorail Station Access and Capacity Study provided a list of recommendations for the Navy Yard Metro Station, including the following:

- Relocate kiosk, fare gate and fare card vendor to surface,
- Add additional fare gates and fare card vendors,
- Construct new stair between mezzanine and platform, and

- Install new elevator between surface and platform.

These improvements were made at the west station entrance in conjunction with the construction of the office building at 55 M Street prior to the opening of Nationals' Park. The improvements tripled the operating capacity of the station (from 5,000 to 15,000 persons per hour).

Bus Service

The site also is approximately one mile from bus stops serving nine WMATA routes, the DC Circulator, Maryland Transit Authority (MTA), Potomac and Rappahannock Transportation Commission (PRTC), and Loudon County Transit routes. Stops on P Street currently are served by one Metrobus route (74). Stops along M Street are served by five Metrobus routes (P6, V1, V4, A9, & W9); the DC Circulator Union Station – Navy Yard route, which provides direct access to the most important intercity rail and bus terminal in the metro area; Loudoun County Commuter buses; MTA Commuter buses; and PRTC Commuter buses. Stops on South Capitol Street are served by three Metrobus routes (P17, P19, and W13).

The minimum, maximum, and average headways for the WMATA and DC Circulator routes are provided in Table 3. The minimum, maximum, and average headways for the commuter bus routes are provided in Table 4.

Table 3
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
Martin Luther King Jr. Avenue Limited Line (A9)						
Min	0:10	N/A	N/A	N/A	N/A	0:13
Max	0:20	N/A	N/A	N/A	N/A	0:21
Avg	0:15	N/A	N/A	N/A	N/A	0:16
Anacostia – Eckington Line (P6)						
Min	0:12	0:16	0:14	0:15	0:15	0:15
Max	0:20	0:22	0:30	0:30	0:23	0:20
Avg	0:15	0:19	0:17	0:16	0:30	0:16

Table 3 (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
Oxon Hill – Fort Washington Line (P17)						
Min	0:14	N/A	N/A	N/A	N/A	0:10
Max	0:35	N/A	N/A	N/A	N/A	0:29
Avg	0:20	N/A	N/A	N/A	N/A	0:17
Oxon Hill – Fort Washington Line (P19)						
Min	0:10	N/A	N/A	N/A	N/A	0:09
Max	0:17	N/A	N/A	N/A	N/A	0:28
Avg	0:13	N/A	N/A	N/A	N/A	0:18
Benning Heights – M Street Line (V1)						
Min	0:16	N/A	N/A	N/A	0:22	0:19
Max	0:29	N/A	N/A	N/A	0:22	0:22
Avg	0:22	N/A	N/A	N/A	0:22	0:22
Capitol Heights – Minnesota Avenue Line (V4)						
Min	0:12	0:19	0:16	0:15	0:16	0:16
Max	0:21	0:38	0:25	0:30	0:30	0:20
Avg	0:16	0:30	0:18	0:19	0:25	0:18
Convention Center – Southwest Waterfront Line (74)						
Min	N/A	N/A	0:18	0:15	N/A	N/A
Max	N/A	N/A	0:26	0:18	N/A	N/A
Avg	N/A	N/A	0:20	0:16	N/A	N/A
L'Enfant Plaza – Coast Guard Limited Line (W9)						
Min	0:14	N/A	N/A	N/A	0:08	0:14
Max	0:30	N/A	N/A	N/A	0:08	0:35
Avg	0:21	N/A	N/A	N/A	0:08	0:24
Bock Road Line (W13)						
Min	0:00	N/A	N/A	N/A	N/A	0:00
Max	0:20	N/A	N/A	N/A	N/A	0:30
Avg	0:14	N/A	N/A	N/A	N/A	0:19
DC Circulator Union Station – Navy Yard 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

Table 4
Commuter Bus Headways (in minutes)

Headway	Northbound/Westbound		Southbound/Eastbound	
	AM Peak Period	PM Peak Period	AM Peak Period	PM Peak Period
MTA Commuter Bus: Columbia and Silver Spring – Washington DC (315)				
Min	N/A	0:20	0:20	N/A
Max	N/A	0:40	0:28	N/A
Avg	N/A	0:25	0:22	N/A
MTA Commuter Bus: Charlotte Hall/Waldorf –Washington DC (735)				
Min	0:15	N/A	N/A	0:15
Max	0:30	N/A	N/A	0:30
Avg	0:21	N/A	N/A	0:20
Loudon County Transit Commuter Bus: Arlington, VA & Washington, DC				
Min	N/A	0:02	0:05	N/A
Max	N/A	0:37	1:24	N/A
Avg	N/A	0:15	0:41	N/A
PRTC OmniRide: Dale City – Washington Navy Yard (D300)				
Min	N/A	0:14	0:25	N/A
Max	N/A	1:47	0:31	N/A
Avg	N/A	0:56	0:28	N/A

Existing bus and Metrorail service is shown on Figure 2B.

Existing Pedestrian Facilities

The District of Columbia Pedestrian Master Plan (the Pedestrian Plan) strives to make Washington, DC safer and more walkable by improving sidewalks, roadway crossings, and the quality of the pedestrian environment as well as by ensuring that the District's policies and procedures support walking.

The Pedestrian Plan provides an overview of existing pedestrian conditions, recommends new pedestrian projects and programs, establishes performance measures, and provides a plan for implementation through 2018. The Pedestrian Plan also estimates areas of pedestrian activity and deficiency.

As part of the Pedestrian Plan, eight priority corridors (one in each ward) were identified based on areas of heavy pedestrian traffic and deficient walking conditions. The priority corridor in Ward 6 is M Street between 6th Street SW and Isaac Hull SE. None of the study intersections are included in the priority corridor.

Per DDOT's request, an assessment of existing conditions for all pedestrian facilities within one block of the proposed development, including the route to the nearest Metro Station, was conducted. The results of this assessment are depicted on Figure 3. A summary of the existing pedestrian facilities provided at each of the study intersections is presented in Table 5. Based on field observations made in the study area, current construction activities may account for some existing gaps in the pedestrian network.

Table 5
Pedestrian Inventory by Intersection

Intersection	Pedestrian Heads/ Countdown	Type of Crosswalks	One Ramp/ Crosswalk	Tactile Warning Strip
2nd Street/P Street (Unsignalized)	N/A	All Legs – High Visibility	Yes	Yes
2nd Street/Q Street (Unsignalized)	N/A	West Leg – High Visibility Note 1	No Note 2	No Note 2
2nd Street/R Street (Unsignalized)	Note 3			
2nd Street/T Street (Unsignalized)	Note 3			
2nd Street/V Street (Unsignalized)	N/A	East leg – High Visibility Note 4	No Note 5	No Note 6
1st Street/V Street (Unsignalized)	N/A	All Legs – High Visibility Note 7	No Note 8	No Note 9
1st Street/T Street (Unsignalized)	Note 10			
1st Street/R Street/Potomac Avenue (Unsignalized)	Note 11			

1. Crosswalk only along the western leg.
2. Ramps missing on the northeast and southeast corner of the intersection.
3. No crosswalk present at the intersection, since the sidewalk is present only on 2nd Street.
4. Crosswalk present only on the eastern leg.
5. One ramp on northwest corner, one ramp on northeast corner, one ramp on southwest corner, and two ramps on southeast corner.
6. Tactile warning strip missing on all ramps. Crosswalk only on the western and northern legs.
7. One ramp on northeast corner, two ramps on northwest corner, and one ramp on southwest corner.
8. Tactile warning strips are only present for the ramp on the northwest corner of the intersection.
9. No crosswalk present at the intersection, since there are no sidewalks on 1st Street and T Street.
10. No crosswalk present since no sidewalks are present on R Street, Potomac Avenue, and 1st Street.

Planned/Programmed Pedestrian Improvements

In conjunction with the approval of the proposed redevelopment of 1900 Half Street, the developer of the project will construct a Riverwalk from the rear of the property to the riverbank of the Anacostia River and will be designed and constructed to tie in to the proposed Riverwalk Trail as it is completed on adjacent properties. The developer also agreed to install missing sidewalks and crosswalks along Half Street SW, Water Street SW, and T Street SW, and to construct a sidewalk along the east side of Half Street, between T Street and S Street.

As a part of the DC United Stadium Study, improvements to the sidewalks along Half Street north of S Street to Potomac Avenue and along Potomac Avenue to South Capitol Street, and along 2nd Street and R Street are proposed.

As part of the 88 V Street zoning approval, DDOT requested that a minimum six-foot sidewalk be constructed along the east side of 1st Street between T Street and V Street.

Existing Bicycle Facilities

The District of Columbia Bicycle Master Plan (the Bicycle Plan) seeks to create a more bicycle-friendly city by establishing high-quality bicycle facilities and programs that are safe and convenient.

The Bicycle Plan provides bicycle levels of service (BLOS) for roadways in the District where bicycles share the road with vehicles. The Bicycle Plan also reports the number of bicycle crashes that occurred between 2000 and 2002.

Finally, the Bicycle Plan identifies areas and corridors that are barriers to cyclists. These barriers include "freeways, railroad and highway grade separations, neighborhoods with heavy traffic, and other impediments to bicycle travel." No such barriers were identified in the vicinity of the site.

Planned/Programmed Bicycle Improvements

In conjunction with the 1900 Half Street redevelopment, a cycle track will be constructed along T Street, between the Riverwalk and Water Street.

As a part of the DC United Stadium, the following cycle tracks are proposed to be constructed within the vicinity of the site:

- West side of 2nd Street in between R Street and V Street,
- North side of R Street in between 2nd Street and 1st Street, and
- North side of Potomac Avenue in between 1st Street and South Capitol Street.

Capital Bikeshare

Capital Bikeshare is an automated bicycle rental or bicycle sharing program that provides over 3,700 bicycles at 440 stations across Washington, DC, Arlington, VA, Alexandria, VA, Montgomery County, MD, and Fairfax County, VA.

Membership, which is required to use Capital Bikeshare, includes four options for joining: single trip ($2), 24 hours ($8), three days ($17), 30 days ($28), or one year ($85). During WMATA's SafeTrack Initiative, Capital Bikeshare is piloting a single trip fare for $2.
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 2B, the closest Bikeshare stations are located more than ½ mile from the site at 1st Street/N Street, SE and M Street/4th Street, SW. The station on 1st Street/N Street, SE includes 39 docks and the station on M Street/4th Street, SW includes 23 docks.

The District of Columbia Capital Bikeshare Development Plan outlines a system-wide expansion plan including 99 new Bikeshare stations by the end of 2018 and 21 existing stations to be expanded by the end of 2017. In the vicinity of the site, the nearest new Bikeshare station is identified on P Street east of 4th Street and is slated for completion in 2018.

The developer for the 1900 Half Street redevelopment will install a Capital Bikeshare station in the vicinity of the project.

As a part of the DC United Stadium project, one or more Capital Bikeshare are proposed around the stadium.

Car Sharing Services

Three car-sharing providers currently operate in the District. Zipcar requires a $25 application fee and members can choose from three plans: occasional driving plan - $70 per year (pay as you go based on the standard hourly or daily rate), monthly plan - $7 per month (pay as you go based on the standard hourly or daily rate), or extra value plan - $50 per month $75 per month (1 month rollover), $125 per month (2 month rollover), and $250 per month (2 month rollover) (after using up the monthly cash, pay as you go based on a discounted hourly or daily rate). Cars must be returned to the same designated parking spaces from which they were picked up. Currently, there are no Zipcars located near the site.

Car2Go requires a one-time $5 application fee. Once registered, a member card is issued, which enables members to access an available car. Car2Go members can choose from two plans: smart fortwo – $0.32 per minute/$15 per hour/$59 per day, and Mercedes-Benz CLA & GLA – $0.45 per minute/$19 per hour/$79 per day. No reservation is required and car

usage is charged by the minute, with hourly and daily maximum fees. Unlike Zipcar, a Car2Go vehicle does not have to be returned to its original location; a Car2Go vehicle can be parked in any unrestricted curbside parking space, in any metered/paystation curbside parking space (without paying meter/paystation fees), or in any residential permit parking space. Car2Go currently has 500 vehicles in the District.

Enterprise CarShare requires one-time $25 application fee and $40 annual membership fee. Cars can be reserved by the hour or day (hourly and daily fees are charged per usage). In the District, cars must be returned to their original location. One Enterprise Carshare vehicle is located just within a mile of the site in the parking lot on the southeast corner of 1st Street/N Street. All car sharing locations are shown on Figure 2B.

EXISTING CONDITONS ANALYSIS

Traffic Volumes

Vehicular turning movement, bicycle, and pedestrian counts were conducted by Wells + Associates on February 16, 2017 from 7:00 AM to 10:00 AM and from 4:00 PM to 7:00 PM, and March 2, 2017 from 7:00 AM to 9:00 AM and from 5:00 PM to 7:00 PM. AM and PM peak hours for each of the study intersections were determined individually to provide the most conservative peak hour analysis.

Existing vehicular peak hour traffic volumes are shown on Figure 4. Pedestrian volumes are shown on Figure 5. Traffic count data are included in Appendix C.

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 6, baseline traffic volumes shown on Figure 4, and pedestrian volumes shown on Figure 5.

Synchro software (Version 9, Build 906) was used to evaluate levels of service at the study intersections for the AM and PM peak hours. Synchro is a macroscopic 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 2000 (HCM) and HCM 2010[2] reports generated by Synchro. Level of service descriptions are included in Appendix D.

[2] For the Existing Conditions, HCM 2010 did not report the LOS and Queues at 1st Street/V Street; therefore, HCM 2000 was used to report the LOS and Queue.

The results of the analyses are summarized in Table 6. Capacity analysis worksheets are included in Appendix E.

As shown in Table 6, under existing conditions, the study intersections operate at overall levels of service D or better. No lane group operates at a LOS E or LOS F under existing conditions.

Table 6
Level of Service Summary

Approach	Existing Conditions		Background Conditions		Total Future Conditions	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. 2nd Street/P Street						
EBLTR	A	C	B	D	B	E [44.9]
WBLTR	A	A	A	A	B	B
NBLTR	A	B	A	B	A	B
SBLTR	B	B	B	B	B	B
Overall	**B**	**C**	**B**	**C**	**B**	**D**
2. 2nd Street/Q Street						
EBLTR	B	C	B	D	B	D
WBLTR	B	B	B	B	B	C
NBLTR†	N/A	N/A	A	A	A	A
SBLTR	A	A	A	A	A	A
3. 2nd Street/R Street						
WBL*	A	A	N/A	N/A	N/A	N/A
WBLR†	N/A	N/A	A	A	A	D
NBTR†	N/A	N/A	A	A	A	A
SBLT	A	A	A	A	A	A
4. 2nd Street/T Street						
WBL* WBLR†	A	A	A	A	A	B
NBTR†	N/A	N/A	A	A	A	A
SBLT	A	A	A	A	A	A

[x.x] = unsignalized intersection control delay in sec/veh
(x.x) = signalized intersection control delay in sec/veh
* Denotes existing lane configuration.
† Denotes lane configuration proposed with DC United Stadium project.

Table 6 (continued)
Level of Service Summary

Approach	Existing Conditions		Background Conditions		Total Future Conditions	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
5. 2nd Street/V Street						
EBTR*	A	A	N/A	N/A	N/A	N/A
EBLTR†	N/A	N/A	A	A	A	A
WBLT*	A	A	N/A	N/A	N/A	N/A
WBLTR†	N/A	N/A	A	A	A	B
NBLR*	A	A	N/A	N/A	N/A	N/A
NBLTR†	N/A	N/A	A	A	A	B
SBLTR	A	B	A	A	A	B
Overall	**A**	**B**	**A**	**A**	**A**	**B**
6. 1st Street/V Street						
EBLTR	A	B	A	A	B	B
WBLTR†	N/A	N/A	A	A	A	A
NBLTR	A	A	A	A	A	A
SBLTR†	N/A	N/A	A	A	A	A
7. 1st Street/T Street						
EBL* EBLR†	Intersection Under Construction		A	A	A	A
NBLT			A	A	A	A
SBTR			A	A	A	A
8A. 1st Street/R Street/Potomac Avenue‡						
EBLT†	Intersection Under Construction		A	A	A	A
WBTR†			A	A	A	A
SBLR†			A	A	A	B
8B. 1st Street/R Street/Potomac Avenue‡						
EBTR†	Intersection Under Construction		A	A	A	A
WBLT†			A	A	A	A
NBR†			A	B	A	B

[x.x] = unsignalized intersection control delay in sec/veh
(x.x) = signalized intersection control delay in sec/veh
* Denotes existing lane configuration.
† Denotes lane configuration proposed with DC United Stadium project.
‡ Under existing conditions, the intersection is a five legged intersection. The lane configuration of the intersection will be revised with the DC United project wherein it will be split into two intersections.

Queue Analysis

A queuing analysis was conducted for existing conditions using the 95th percentile queue lengths reported by Synchro. The results are summarized in Table 7. Queue reports are provided in Appendix E.

As shown in Table 7, no queues exceed the available storage under existing conditions.

Table 7
Synchro 95th Percentile Queue Summary (in feet)

Approach	Available Storage§	Existing Conditions		Background Conditions		Total Future Conditions	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. 2nd Street/P Street							
EBLTR	130'/375'	25	188	28	255	30	343
WBLTR	355'	20	8	25	10	25	13
NBLTR	390'	5	18	5	20	10	33
SBLTR	150'/290'	35	25	38	30	43	55
2. 2nd Street/Q Street							
EBLTR	890'	3	33	3	40	5	50
WBLTR	355'	10	5	10	5	10	5
NBLTR†	420'	N/A	N/A	0	0	0	0
SBLTR	390'	0	13	0	13	0	13
3. 2nd Street/R Street							
WBL*	365'	0	0	N/A	N/A	N/A	N/A
WBLR†		N/A	N/A	0	0	3	83
NBTR†	430'	N/A	N/A	0	0	0	0
SBLT	410'	0	0	3	18	3	18
4. 2nd Street/T Street							
WBL*	375'	0	0	N/A	N/A	N/A	N/A
WBLR†		N/A	N/A	0	0	0	3
NBTR†	920'	N/A	N/A	0	0	0	0
SBLT	320'	0	0	0	3	0	3

§ All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.
* Denotes existing lane configuration.
† Denotes lane configuration proposed with DC United Stadium project.

Table 7 (Continued)
Synchro 95th Percentile Queue Summary (in feet)

Approach	Available Storage§	Existing Conditions		Background Conditions		Total Future Conditions	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
5. 2nd Street/V Street							
EBTR*	30'/440'	0	0	N/A	N/A	N/A	N/A
EBLTR†		N/A	N/A	0	0	0	0
WBLT*	350'	0	0	N/A	N/A	N/A	N/A
WBLTR†		N/A	N/A	0	0	5	25
NBLR*	320'	0	0	N/A	N/A	N/A	N/A
NBLTR†		N/A	N/A	0	0	15	38
SBLTR	920'	5	43	3	8	8	48
6. 1st Street/V Street							
EBLTR	350'	5	31	5	8	15	35
WBLTR†	300'	N/A	N/A	0	0	0	0
NBLTR	300'	0	0	0	0	0	0
SBLTR†	910'	N/A	N/A	0	0	0	0
7. 1st Street/T Street							
EBL*	360'	Intersection Under Construction		N/A	N/A	N/A	N/A
EBLR†				0	3	0	5
NBLT	910'			5	3	18	28
SBTR†	910'			0	5	5	25
8A. 1st Street/R Street/Potomac Avenue‡							
EBLT†	365'	Intersection Under Construction		0	0	0	0
WBTR†	110'			0	0	0	0
SBLR†	360'			3	3	3	3
8B. 1st Street/R Street/Potomac Avenue‡							
EBTR†	110'	Intersection Under Construction		0	0	0	0
WBLT†	400'			0	3	3	15
NBR†	920'			5	5	15	38

§ All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.
* Denotes existing lane configuration.
† Denotes lane configuration proposed with DC United Stadium project.
‡ Under existing conditions, the intersection is a five legged intersection. The lane configuration of the intersection will be revised with the DC United project wherein it will be split into two intersection.

Safety Analysis

Crash data at the study intersections were obtained from DDOT. The information provided by DDOT included the total number of crashes over the latest three years of available data (i.e. 2013, 2014, and 2015) at each intersection and was further categorized by type of crash. Based on the data, Table 8 shows the overall intersection crash rates at each of the study intersections.

Table 8
Crash Data Summary

Intersection	Type of Control	No. of Crashes (3 Years)	ADT (veh/day)	Crash Rate (MEV)
2nd Street/P Street	All-way Stop	2	7,420	0.25
2nd Street/Q Street†	Two-way Stop	3	5,560	0.49
2nd Street/R Street	Two-way Stop	2	2,510	0.73
2nd Street/T Street*†	Two-way Stop	N/A	2,560	N/A
2nd Street/V Street*	All-way Stop	N/A	2,320	N/A
1st Street/V Street*	Two-way Stop	N/A	2,330	N/A
1st Street/T Street†	Two-way Stop	1	N/A	N/A
1st Street/R Street/Potomac Avenue‡	Two-way Stop	2	N/A	N/A

*Crash Data unavailable for the intersection.
† ADT estimate based on counts available from adjacent intersections.
‡ Under existing conditions the intersection under construction.

As shown in Table 8, none of the study intersections have a crash rate greater than or equal to 1.0 MEV.

FUTURE BACKGROUND CONDITIONS

Traffic Volumes

Overview

In order to forecast year 2021 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

DDOT's historical average daily traffic (ADT) volume maps were examined to determine an appropriate growth rate for the study area. The historical ADTs indicate that traffic volumes in the study area generally have a growth rate less than ½ percent. In order to account for the trips generated by the DC United Stadium, however, a growth rate of one percent per year compounded annually over four years (2017 to 2021) was applied to the existing vehicular volumes shown on Figure 4. The resulting 2021 volumes with regional growth are shown on Figure 7A. To account for the roadway network changes proposed in conjunction with the South Capitol Street Corridor project, the DC United Stadium, and the other pipeline projects, the traffic volumes shown on Figure 7A were rerouted based on the future roadway network. The rerouted volumes are shown on Figure 7B.

Pipeline Developments

Two additional pipeline developments planned in the study area were identified during the scoping process. Traffic volumes for the pipeline developments are shown on Figure 8. A summary of both the pipeline developments is provided below.

1900 Half Street SW

The 1900 Half Street SW is a mixed-use development that will feature approximately 462 residential dwelling units and 24,000 SF of retail space. It is anticipated that construction will be completed in 2018. Site trip assignments for the development were taken from the Comprehensive Transportation Review for 1900 Half Street SW prepared by Gorove/Slade, dated May 19, 2016. According to the study, the 1900 Half Street SW development will generate an estimated 150 AM peak hour vehicle trips and 207 PM peak hour vehicle trips.

Peninsula 88 (88 V Street SW)

Peninsula 88 will feature approximately 110 residential dwelling units and 1,700 SF of retail space. It is anticipated that construction will be completed in 2020. Site trip assignments for the development were taken from the Peninsula 88 Comprehensive Transportation

Review prepared by Wells + Associates, dated January 2017. According to the study, the Peninsula 88 development will generate an estimated 44 AM peak hour vehicle trips and 62 PM peak hour vehicle trips.

Background Forecasts

Background 2021 traffic forecasts (without the proposed redevelopment) were developed by combining the rerouted traffic volumes (taking into account the planned roadway network changes) grown to the year 2021 (shown on Figure 7B) with the pipeline traffic volumes shown on Figure 8. The resulting 2021 background traffic forecasts are shown on Figure 9.

Capacity Analysis

Capacity/level of service (LOS) analyses were conducted at the study intersections based on the future lane use and traffic control shown on Figure 10 and future background traffic forecasts shown on Figure 9.

The level of service results for the 2021 background conditions are presented in Appendix F and summarized in Table 6. As shown in Table 6, background conditions are generally consistent with existing conditions. All of the study intersections operate at an overall LOS D or better under background conditions. No lane group operates at a LOS E or LOS F under background conditions.

Queue Analysis

A queuing analysis was conducted for 2021 background conditions using the 95th percentile queue reported by Synchro. The results are summarized in Table 7. Queue reports are provided in Appendix F.

As shown in Table 7, the 95th percentile queues at the study intersections under background conditions are generally consistent with existing conditions. No queues exceed the available storage under background conditions.

SITE ANALYSIS

Overview

The subject site is located on Square 0613 (Lot 0010) in Ward 6 and is located in the southwest quadrant of the District. The site is bordered by V Street on the north, the Anacostia River on the south, 1st Street, SW on the east, and 2nd Street, SW on the west. The property is located in the CG-5 zone and currently is unoccupied. In the past, the building was the US Coast Guard Headquarters.

The Applicant proposes to renovate and convert the existing building to include approximately 485 residential dwelling units, approximately 33,368 SF of retail, and approximately 38,087 SF of restaurant.[3]

Site Access and Circulation

Vehicular Access

Parking access to the site currently is provided via one curb cut on 2nd Street and one curb cut on 1st Street. Loading access is provided via two curb cuts on 2nd Street, which provide back-in/front-out loading accommodations.

Under the proposed redevelopment, access to the parking is proposed via a new curb cut on 2nd Street. The curb cut will also provide access to the proposed restaurant loading area. The two driveways served by the single curb cut will be separated by a six-foot pedestrian refuge. An additional curb cut on 2nd Street will provide access to loading operations for the retail fronting V Street. A curb cut on 1st Street will provide access to loading functions for the residential component.

Due to the configuration of the existing building, including necessary structural elements, each of the proposed loading areas must provide back-in/front-out loading.

The proposed vehicular access to the site is shown on Figure 11A.

Pedestrian Access

Pedestrian access to the residential component of the project will be provided via two lobby locations on 2nd Street, and one lobby location on 1st Street. Retail access will be provided along V Street, 2nd Street, and 1st Street. Restaurant access will be provided along south side of the site, 1st Street, and 2nd Street. Figure 11A illustrates the proposed pedestrian access for the project.

[3] Note that the square footage does not include space devoted to parking or loading functions.

Bicycle Access

Bicycle storage rooms will be provided on the P1 level of the garage. The long-term bicycle parking can be accessed via the proposed curb cut on 2nd Street, as shown on Figure 11A. Alternatively, residents can walk their bicycles through the lobby (accessed either via 1st Street or 2nd Street) and then use the residential elevators to access the P1 level of the garage. Likewise, retail employees could walk their bicycles to the retail elevator (accessed via 2nd Street) and down to the P1 level. The Alternate Bicycle access is depicted on Figure 11B.

Sight Distance Analysis

A sight distance evaluation was conducted at the proposed curb cuts on 2nd Street and 1st Street based on criteria outlined in DDOT's Design and Engineering Manual. Based on this evaluation and as shown in Appendix G, no obstructions are present within the sight triangles for each of the driveways.

Trip Generation Analysis

Overview

The total number of trips generated by the proposed development would be comprised of vehicular trips, pedestrian trips, bicycle trips, and transit trips.

Total Trips

The total number of trips anticipated to be generated by the proposed development was estimated based on the Institute of Transportation Engineers' (ITE's) Trip Generation Manual. Land Use Code (LUC) 220 (Apartment), LUC 931 (Quality Restaurant), and LUC 820 (Retail) were used to estimate the total number of trips to/from the proposed project. The square footage of the retail and restaurant use and the number of dwelling units for the residential use were used as the independent variables.

The trip generation for the proposed development is summarized in Table 9. As shown, the proposed redevelopment would generate 352 ***total*** AM peak hour trips and 856 ***total*** PM peak hour trips based on standard ITE rates/equations.

Table 9
Site Trip Generation Summary

Land Use		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Proposed Development							
485 DU Apartment (LUC 230)	Total Trips	48	193	241	185	99	284
	Non-auto Trips	*24*	*97*	*121*	*93*	*50*	*143*
	Transit	*18*	*72*	*90*	*69*	*37*	*106*
	Bicycle	*2*	*8*	*10*	*7*	*4*	*11*
	Pedestrian	*4*	*17*	*21*	*17*	*9*	*26*
	Vehicle Trips	24	96	120	92	49	141
38,087 SF Quality Restaurant* (LUC 931)	Total Trips	25	6	31	191	94	285
	Non-auto Trips	*5*	*1*	*6*	*38*	*19*	*57*
	Transit	*2*	*-*	*4*	*15*	*8*	*23*
	Bicycle	*-*	*-*	*-*	*4*	*2*	*6*
	Pedestrian	*3*	*1*	*2*	*19*	*9*	*28*
	Vehicle Trips	20	5	25	153	75	228
33,368 SF Retail* (LUC 820)	Total Trips	49	31	80	138	149	287
	Non-auto Trips	*29*	*18*	*47*	*83*	*90*	*173*
	Transit	*7*	*4*	*11*	*21*	*23*	*43*
	Bicycle	*5*	*3*	*8*	*14*	*15*	*29*
	Pedestrian	*17*	*11*	*28*	*48*	*52*	*101*
	Vehicle Trips	20	13	33	55	59	114
Total Proposed Development	Total Trips	122	230	352	514	342	856
	Non-auto Trips	*58*	*116*	*174*	*214*	*159*	*373*
	Transit	*27*	*76*	*105*	*105*	*68*	*172*
	Bicycle	*7*	*11*	*18*	*25*	*21*	*46*
	Pedestrian	*24*	*29*	*51*	*84*	*70*	*155*
	Vehicle Trips	64	114	178	300	183	483

* The square footage for the retail and restaurant uses do not include areas devoted to parking or loading.

Non-auto Mode Split

A portion of the trips generated by the proposed development 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, and the degree to which the use of public transit is encouraged, such as by implementation of a transportation demand management (TDM) program.

According to US Census data, approximately 40 percent of residents in the vicinity of the site take public transportation, 11 percent walk, and two percent bike. Another four percent carpool and another seven percent stay home, for a total non-auto mode split of 64 percent. However, a non-auto mode split of 50 percent was used for the residential component based on the proposed parking supply and the fact that the subject site is situated further from the Metro station than other locations within the same Census Tract. As agreed by DDOT, the non-auto mode split for the retail component was estimated to be 60 percent for the retail use based on the neighborhood serving nature of the proposed retail. A non-auto mode split of 20 percent was used for restaurant uses. Note that journey-to-work Census data is included in Appendix B as part of the final scoping document.

Based on these mode split estimates, the project is expected to generate 174 AM peak hour trips and 373 PM peak hour trips by non-auto modes of transportation.

The non-auto trips will be comprised of transit, pedestrian, and bicycle trips. The estimates for the specific modes were based on data contained in the 2005 WMATA Ridership Survey.

Pass-by Trips

A portion of the trips generated by retail (including restaurants) and service uses are made by vehicles already using the adjacent streets to reach a different destination but stop at the site in passing. This type of trip is called a pass-by trip, and is defined by Trip Generation Manual as a trip in which the retail or service destination is the secondary part of a primary trip, such as a work-to-shopping-to-home trip. An example of a pass-by trip would be one in which a driver stops at the retail or service uses on his/her way home from work. As requested by DDOT, no pass-by trips were taken for the proposed retail and restaurant components. As such, the analysis presented herein should be considered conservative.

Vehicle Trips

Taking into account the non-auto mode share, the proposed redevelopment would generate an estimated 178 AM peak hour vehicle trips and 483 PM peak hour vehicle trips, as shown on Table 9.

Site Trip Distribution and Assignment

The distribution of peak hour site trips generated by the proposed redevelopment was based on existing traffic patterns in the study area and general knowledge of commuter routes to/from the site.

The trip distributions shown in Table 10 were applied to the vehicle trip generation for the proposed redevelopment. The resulting traffic assignments for the proposed residential, and retail/restaurant uses are shown on Figures 12A and 12B, respectively. The combined site trips for the redevelopment are shown on Figure 12C.

Table 10
Site Trip Distributions

Roadway	Direction	Residential	Retail
2nd Street	North	20%	20%
Potomac Avenue	South	80%	80%

Proposed Parking

Vehicular Parking

Based on parking requirements prescribed in the 2016 Zoning Regulations (ZR16), a minimum of 260 parking spaces are required for the proposed redevelopment. A summary of the parking required and provided for each land use is provided in Table 11.

Table 11
Parking Summary

Land Use	Required Parking	Proposed Parking
Residential	1 per 3 units (in excess of four units) = (485-4)/3 160 spaces	**281 spaces**
Retail*	1.33 per 1,000 SF in excess of 3,000 SF = 1.33*(71,455-3,000)/1,000 91 spaces	**91 spaces**
Total	**251 spaces**	**372 spaces**

* Note for practical purposes the potential floating restaurant space has been included in the calculations, as parking and loading facilities for this use would be housed within the building.

In addition to providing minimum parking requirements, the Zoning Regulations also stipulate mitigation measures that are required if the proposed parking is "significantly in excess of the minimum parking requirement." Specific mitigation measures are required for any site that has a minimum parking requirement of at least 20 spaces, the Zoning Regulations prescribe required mitigation measures when the proposed parking is more than two times the minimum parking requirement prior to any applicable reductions (e.g. metro reduction). Additionally, if more than 100 vehicle parking spaces are provided in excess of the minimum requirement, one Capital Bikeshare station with a minimum of 12 bicycles must be provided on-site or in the Ward in which the project is located. If more than 200 excess vehicle parking spaces are provided two Capital Bikeshare stations each with a minimum of 12 bicycles or one Capital Bikeshare station with a minimum of 24 bicycles must be provided.

Since the proposed parking supply will exceed the minimum requirement by more than 100 spaces, the Applicant will provide a Capital Bikeshare Station with 12 docks in Ward 6. The exact location of the bikeshare station will be determined in consultation with DDOT.

Bicycle Parking

The redevelopment also would be required to provide long-term and short-term bicycle parking. Long-term bicycle parking is intended for use by employees and residents and must be located on the first level below grade or on the ground floor of each building. Short-term bicycle parking is intended for use by visitors to the site and should be located in public space with input from DDOT during the public space process. The required bicycle parking for the development is summarized in Table 12 below.

Table 12
Bicycle Parking Summary

Land Use	Required Parking		Proposed Parking
	Long-term†	Short-term	
Residential	1 per 3 units 485/3 = 161 long-term	1 per 20 units 485/20 = 24 short-term	**161 long term spaces** **24 short term spaces**
Retail*	1 per 10,000 SF 71,455/10,000= 7 long-term	1 per 3,500 SF 71,455/3,500= 20 short-term	**7 long term spaces** **20 short term spaces**
Total	**168 long-term**	**44 short-term**	**168 long-term spaces** **44 short-term spaces‡**

* Note for practical purposes the potential floating restaurant space has been included in the calculations, as parking and loading facilities for this use would be housed within the building.
† Note that per §802.2, after the first 50 bicycle parking spaces are provided for a use additional spaces are required at one half the specified ratio. However, DC law requires one bicycle space per three residential units, so no reduction was taken for the residential component.
‡ The exact location of short-term spaces will be determined during the public space process.

Proposed Loading

The loading requirements for the proposed redevelopment are prescribed by the ZR16 and are summarized in Table 13.

Table 13
Loading Summary

Land Use	Required Loading	Proposed Loading
Residential	> 50 DU 1 loading berth + platform 1 service/delivery space	1 30-foot berth with 1 platform 1 service/delivery space
Retail*	> 20,000 SF and < 100,000 SF of GFA 2 loading berths + platforms 1 service/delivery space	4 loading berths: (2 30-foot berths with 2 platforms; 2 55-foot berths with 2 platforms) 1 service/delivery spaces
Total†	**2 loading berths + platforms 1 service/delivery space**	**5 loading berths: (3 30-foot berths with 3 platforms; 2 55-foot berths with 2 platforms) 2 service/delivery spaces**

* Note for practical purposes the potential floating restaurant space has been included in the calculations, as parking and loading facilities for this use would be housed within the building.
† Per §901.8 of ZR16, where two or more uses share a building or structure, the uses may share loading as long as internal access is provided from all shared uses requiring loading.

The loading facilities are planned internal to the site on the ground level and will be accessed via 2nd Street and 1st Street. Due to the existing building, including the structural support system, the loading facilities have been designed to accommodate back-in/front-out maneuvers. Diagrams showing the truck maneuvers in and out of the loading areas are included in Appendix H. The Applicant expects the majority of trucks utilizing the 55-foot loading berths will be no larger than a WB-40. These truck maneuvering diagrams are included in Appendix H, along with revised diagrams for WB-50s on the rare occasion trucks of that size are required. As WB-50s would need to encroach on the adjacent loading space, the loading dock manager will schedule these rare deliveries to ensure no other deliveries are being made in the adjacent space. Note none of the maneuvers encroach on the 2nd Street cycle track.

In order to ensure that the provision of back-in loading does not adversely impact the surrounding roadway network, a loading management plan will be implemented for the building. The goals of the plan are to maintain a safe environment for all users of the site, loading dock, street, and nearby intersections; minimize undesirable impacts to pedestrians and to building tenants; reduce conflicts between truck traffic using the loading facilities and other street users; and ensure smooth operation of the loading facilities through appropriate levels of management and scheduled operations. The following are the components of the loading management plan:

1) A loading dock manager will be designated by the building management (duties may be part of other duties assigned to the individual). He or she will coordinate with vendors and tenants to schedule deliveries and will be on duty from approximately 9:00 AM to 5:00 PM and will coordinate with the community and neighbors to resolve any conflicts should they arise.

2) All tenants will be required to schedule deliveries that utilize the loading dock (any loading operation conducted using a truck 20' in length or larger) and all loading activities are required to occur at the loading docks.

3) The dock manager will schedule deliveries such that the dock's capacity is not exceeded. In the event that an unscheduled delivery vehicle arrives while the dock is full, that driver will be directed to return at a later time when a berth will be available so as not to compromise safety or impede street or intersection function.

4) The dock manager will monitor inbound and outbound truck maneuvers and will ensure that trucks accessing the loading dock do not block vehicular, bike, or pedestrian traffic along 2nd Street and 1st Street except during those times when a truck is actively entering or exiting a loading berth.

5) Trucks using the loading dock will not be allowed to idle and must follow all District guidelines for heavy vehicle operation including but not limited to DCMR 20 – Chapter 9, Section 900 (Engine Idling), the regulations set forth in DDOT's Freight Management and Commercial Vehicle Operations document, and the primary access routes listed in the DDOT Truck and Bus Route Map (godcgo.com/truckandbusmap).

6) The dock manager will be responsible for disseminating suggested truck routing maps to the building's tenants and to drivers from delivery services that frequently utilize the development's loading dock as well as notifying all drivers of any access or egress restrictions. The dock manager will also distribute materials as DDOT's Freight Management and Commercial Vehicle Operations document to drivers as needed to encourage compliance with idling laws. The dock manager will also post these documents and notices in a prominent location within the service area.

The overhead clearance for each loading is proposed to be 14.6 feet. Given the current phase of the project, it is too early for the Applicant to determine the type of trash trucks to be used for the service; however, given the overhead height limitations, front-load trash trucks that lift receptacles overhead will not be used.

TOTAL FUTURE CONDITIONS

Roadway Network

Several roadway improvements are proposed in conjunction with the proposed redevelopment. V Street and 1st Street will be reconstructed to provide a 10-foot travel lane in each direction and 8-foot parking lanes on each side of the roadways. On V Street, an 8-foot sidewalk and an 8-foot tenant zone will be provided along the site frontage. On 1st Street, a 10-foot sidewalk and a 10-foot tenant zone will be provided along the site frontage.

2nd Street will be reconstructed to provide a 10-foot travel lane in each direction, an 8-foot parking lane on the east side of the roadway and an 11-foot cycle track (two-way) on the west side of the roadway. A 10-foot sidewalk will be provided on the east side of the roadway

while a six-foot sidewalk will be provided on the west side of the roadway. The cycle track, which will be part of the Anacostia Riverwalk Trail, will tie into the cycle track north of V Street (which will be constructed by others). South of the site, the cycle track will transition to a 12-foot, off-road, shared-use path that will run along the southern side of the property, ultimately connecting to the Trail segment to the east (constructed by others).

Traffic Forecasts

Total future traffic forecasts with the proposed redevelopment were determined by combining the 2021 background traffic forecasts shown in Figure 9 with the site traffic volumes shown on Figure 12C to yield the 2021 total future traffic forecasts shown on Figure 13.

Capacity Analysis

Capacity analyses were performed at the study intersections using the future lane use and traffic controls shown on Figure 10 and the total future peak hour traffic forecasts shown on Figure 13.

The level of service results for the 2021 total future conditions with the proposed redevelopment are included in Appendix I and summarized in Table 6.

By comparing total future levels of service to background levels of service, the impact of the proposed development can be identified. In accordance with the methodology outlined during the scoping process, an impact is defined as follows:

- Degradation in approach or overall level of service to LOS E or LOS F, or
- Increase in overall intersection delay by more than five seconds when compared to background conditions for intersections operating at an overall LOS E or LOS F.

As shown in Table 6, where overall intersection levels of service under background conditions are projected to be a LOS D or better, overall intersection levels of service under total future conditions with the proposed redevelopment also are projected to be at a LOS D or better. None of the study intersection is expected to operate at an overall LOS E or LOS F under the total future conditions.

Individual intersection approaches are projected to maintain acceptable levels of service (LOS D or better) with one exception:

- 2nd Street/P Street eastbound approach is projected to drop from a LOS D to a LOS E during the PM peak hour.

Queue Analysis

A queuing analysis was conducted for 2021 total future conditions. Synchro was used to conduct the analyses, using the 95th percentile queue lengths. The results are summarized in Table 7 and queue reports are provided in Appendix H.

By comparing total future queues to background queues, the impact of the proposed redevelopment can be identified. In accordance with the methodology outlined during the scoping process, an impact is defined as an increase in the 95th percentile queue greater than 150 feet when compared to background conditions. As shown in Table 7, none of the queue lengths would increase by more than 150 feet under total future conditions with the proposed redevelopment.

Improvement Analysis

Total Future conditions for the year 2021 with the proposed development were compared to background conditions for the year 2021 to determine locations where mitigation measures need to be evaluated. In accordance with DDOT guidelines, the intersection approaches that experience a degradation to LOS E or F for the future condition were identified for mitigation. The eastbound approach at the 2nd Street/P Street intersection was identified as meeting the criteria requiring mitigation.

2nd Street/P Street

Peak hour traffic signal warrants were examined to determine whether signalization of this intersection would be appropriate in the future. Based on the peak hour warrants identified by the Manual on Uniform Traffic Control Devices, peak hour traffic forecasts would not meet the threshold required for signalization.

In lieu of signalization, a separate eastbound right turn lane with a storage length of 150 feet was evaluated at the intersection. As shown in Table 14, during the PM peak hour level of service for the eastbound approach is project to improve from a LOS E to LOS C. It should be noted that the parking on the south side of P Street already is restricted for a length of approximately 150 feet back from the stop bar. As such, no parking would be required to be removed to accommodate an eastbound right turn lane.

As shown in Table 15, the queue does not exceed the proposed storage length.

Table 14
Level of Service Summary (With Improvements)

Approach	Background Conditions		Total Future Conditions		Total Future with Improvements	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. 2nd Street/P Street						
EBLTR	B	D	B	E [44.9]	B	B
EBR					A	C
WBLTR	A	A	B	B	B	B
NBLTR	A	B	A	B	A	B
SBLTR	B	B	B	B	B	B
Overall	**B**	**C**	**B**	**D**	**B**	**B**
2. 2nd Street/Q Street						
EBLTR	B	D	B	D	B	D
WBLTR	B	B	B	C	B	C
NBLTR†	A	A	A	A	A	A
SBLTR	A	A	A	A	A	A
3. 2nd Street/R Street						
WBLR†	A	A	A	D	A	D
NBTR†	A	A	A	A	A	A
SBLT	A	A	A	A	A	A
4. 2nd Street/T Street						
WBLR†	A	A	A	B	A	B
NBTR†	A	A	A	A	A	A
SBLT	A	A	A	A	A	A
5. 2nd Street/V Street						
EBLTR†	A	A	A	A	A	A
WBLTR†	A	A	A	B	A	B
NBLTR†	A	A	A	B	A	B
SBLTR	A	A	A	B	A	B
Overall	**A**	**A**	**A**	**B**	**A**	**B**
6. 1st Street/V Street						
EBLTR	A	A	B	B	B	B
WBLTR†	A	A	A	A	A	A
NBLTR	A	A	A	A	A	A
SBLTR†	A	A	A	A	A	A

[x.x] = unsignalized intersection control delay in sec/veh
(x.x) = signalized intersection control delay in sec/veh
† Denotes lane configuration proposed with DC United Stadium project.

Table 14 (continued)
Level of Service Summary (With Improvements)

Approach	Background Conditions		Total Future Conditions		Total Future with Improvements	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
7. 1st Street/T Street						
EBLR†	A	A	A	A	A	A
NBLT	A	A	A	A	A	A
SBTR	A	A	A	A	A	A
8A. 1st Street/R Street/Potomac Avenue‡						
EBLT†	A	A	A	A	A	A
WBTR†	A	A	A	A	A	A
SBLR†	A	A	A	B	A	B
8B. 1st Street/R Street/Potomac Avenue‡						
EBTR†	A	A	A	A	A	A
WBLT†	A	A	A	A	A	A
NBR†	A	B	A	B	A	B

[x.x] = unsignalized intersection control delay in sec/veh
(x.x) = signalized intersection control delay in sec/veh
† Denotes lane configuration proposed with DC United Stadium project.
‡ Under existing conditions, the intersection is a five-legged intersection. The lane configuration of the intersection will be revised with the DC United project wherein it will be split into two intersections.

Table 15
Synchro 95th Percentile Queue Summary (in feet)

Approach	Available Storage§	Background Conditions		Total Future Conditions		Total Future with Improvements	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. 2nd Street/P Street							
EBLTR	130'/375'	28	255	30	343	20	45
EBR	150'					10	125
WBLTR	355'	25	10	25	13	28	13
NBLTR	390'	5	20	10	33	10	30
SBLTR	150'/290'	38	30	43	55	43	50
2. 2nd Street/Q Street							
EBLTR	890'	3	40	5	50	5	50
WBLTR	355'	10	5	10	5	10	5
NBLTR†	420'	0	0	0	0	0	0
SBLTR	390'	0	13	0	13	0	13
3. 2nd Street/R Street							
WBLR†	365'	0	0	3	83	3	83
NBTR†	430'	0	0	0	0	0	0
SBLT	410'	3	18	3	18	3	18
4. 2nd Street/T Street							
WBLR†	375'	0	0	0	3	0	3
NBTR†	920'	0	0	0	0	0	0
SBLT	320'	0	3	0	3	0	3
5. 2nd Street/V Street							
EBLTR†	30'/440'	0	0	0	0	0	0
WBLTR†	350'	0	0	5	25	5	25
NBLTR†	320'	0	0	15	38	15	38
SBLTR	920'	3	8	8	48	8	48

§ All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.
† Denotes lane configuration proposed with DC United Stadium project.

Table 15 (continued)
Synchro 95th Percentile Queue Summary (in feet)

Approach	Available Storage§	Background Conditions		Total Future Conditions		Total Future with Improvements	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
6. 1st Street/V Street							
EBLTR	350'	5	8	15	35	15	35
WBLTR†	300'	0	0	0	0	0	0
NBLTR	300'	0	0	0	0	0	0
SBLTR†	910'	0	0	0	0	0	0
7. 1st Street/T Street							
EBLR†	360'	0	3	0	5	0	5
NBLT	910'	5	3	18	28	18	28
SBTR†	910'	0	5	5	25	5	25
8A. 1st Street/R Street/Potomac Avenue‡							
EBLT†	365'	0	0	0	0	0	0
WBTR†	110'	0	0	0	0	0	0
SBLR†	360'	3	3	3	3	3	3
8B. 1st Street/R Street/Potomac Avenue‡							
EBTR†	110'	0	0	0	0	0	0
WBLT†	400'	0	3	3	15	3	15
NBR†	920'	5	5	15	38	15	38

§ All distances measured to nearest intersection or end of turn lane, as appropriate. Where two storage lengths are given, the first is the distance to the driveway, the second is the distance to the nearest intersection.
† Denotes lane configuration proposed with DC United Stadium project.
‡ Under existing conditions, the intersection is a five legged intersection. The lane configuration of the intersection will be revised with the DC United project wherein it will be split into two intersection.

TRANSPORTATION DEMAND MANAGEMENT

Traffic and parking congestion can be solved in one of two ways: 1) increase supply or 2) decrease demand. Increasing supply requires constructing 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 implemented by those in the private sector. 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.

To encourage the use of non-auto modes of transportation, the Applicant also has developed a TDM plan with strategies. Specific TDM measures for the project would include:

1. A member of the property management team will be designated as the Transportation Management Coordinator (TMC). The TMC will be responsible for ensuring that transportation information is disseminated to residential and retail tenants of the building. The position may be part of other duties assigned to the individual.
2. Property management staff will provide personalized outreach to new residents of the building informing them of available transportation options. Such outreach will include a one-on-one meeting to review options and answer questions.
3. The property management website will include information on and/or links to current transportation programs and services, such as:
    - Capital Bikeshare,
    - Car-sharing services,
    - Ride-hailing services (e.g. Lyft or Uber),
    - Transportation Apps (e.g. Metro, Citymapper, Spotcycle, Transit),
    - Commuter Connections Rideshare Program, which provides complimentary information on a variety of commuter programs to assist in determining which commuting options work best for commuters,
    - Commuter Connections Guaranteed Ride Home, which provides commuters who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work with a free and reliable ride home in an emergency, and
    - Commuter Connections Pools Program, which incentivizes commuters who currently drive alone to carpool. Participants can earn money for carpooling to work and must complete surveys and log information about their experience.

4. An electronic display will be provided in a common, shared space in the building and will provide public transit information such as nearby Metrorail stations and schedules, Metrobus stops and schedules, car-sharing locations, and nearby Capital BikeShare locations indicating the number of bicycles available at each location.
5. Convenient and covered secure bike parking facilities will be provided with storage for at least the minimum required by the 2016 Zoning Regulations. Long-term bicycle spaces will be located in the P1 level of the garage and will be accessible by residents and employees of the project.
6. Bicycle repair stations will be provided on the P1 level of the garage.
7. The developer will fund a Capital Bikeshare station (with a minimum of 12-docks) to be located in the vicinity of the site.
8. Two electric car charging stations will be provided in the garage.
9. At least one parking space will be dedicated to a car sharing provider, subject to agreement by such provider.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this study are as follows:

1. The proposed project will convert the vacant, former US Coast Guard Headquarters into a vibrant, mixed-use project that utilizes the site's location along the Anacostia Waterfront to create a unique experience including restaurants with outdoor seating along the southern edge of the property overlooking the river. Ground floor retail along V Street, 1st Street, and 2nd Street, combined with generous sidewalks and tenant zones, will encourage pedestrian traffic in the area.
2. Given the lack of development in the Buzzard Point neighborhood, multi-modal transportation options are somewhat limited. However, the Applicant, along with other property owners in the area and the BID, have been meeting with WMATA to extend bus service to the area as early as 2018.
3. The Applicant also will fund a Capital Bikeshare station in the Buzzard Point neighborhood and will construct a cycle track on the west side of 2nd Street adjacent to the project and a shared-use path along the southern side of the property. Both elements will tie into the proposed Anacostia Riverwalk Trail to the north (on 2nd Street) and to the east on National Park Service property.
4. The Applicant will implement a TDM Plan to encourage the use of non-auto modes of transportation.
5. The proposed redevelopment is anticipated to generate a 178 AM peak hour vehicle trips and 483 PM peak hour vehicle trips. The Buzzard Point roadway network, including the planned roadway improvements associated with the DC United Soccer Stadium and the South Capitol Street Improvement Project, will accommodate the anticipated volume of vehicular traffic generated by the proposed redevelopment, with one exception: at the 2nd Street/P Street intersection, the eastbound approach should be restriped to provide a separate eastbound right turn lane with a storage length of 150 feet to better accommodate the anticipated traffic forecasts. Signage also should be added to the approach to indicate that the right turn lane must turn right.
6. The Applicant will reconstruct V Street, 1st Street, and 2nd Street along the property frontage to current DDOT standards for Buzzard Point.
7. Parking access will be provided via a curb cut on 2nd Street and loading access will be provided via two curb cuts on 2nd Street and one curb cut on 1st Street.
8. The Applicant will implement a Loading Management Plan to promote safe and efficient access for all users.

FIGURES

2100 2nd Street, SW

Figure 1
Site Location Map

River Point
Washington, DC

NORTH

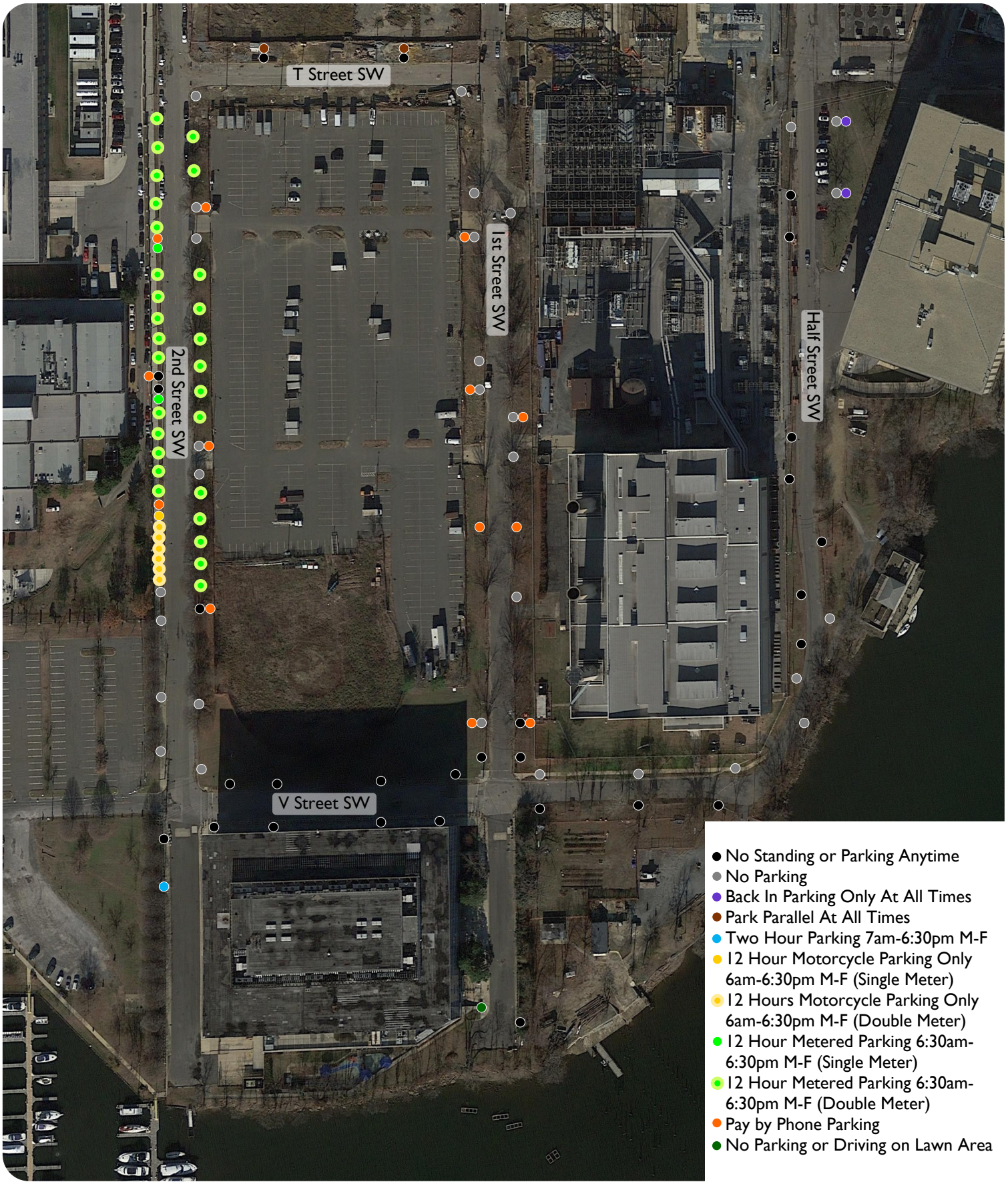


Figure 2A
Curbside Signage and Parking Meter Inventory

River Point
Washington, DC

The number of cars at any given location change frequently. These numbers are accurate as of 12/21/16.
* In addition to the car sharing services shown, Car2Go has 500 cars in the District. Since Car2Go vehicles can be returned to any legal on-street parking space in the District or certain parking garages that are Car2Go approved, their locations could not be shown on this map.

Figure 2B
Multi-Modal Transportation Network

River Point
Washington, DC

Enterprise Car Share (Number of Cars)
Capital Bikeshare Locations (Number of Docks)
M Metrorail Station (Green Line)
XX Metrobus Route
XX MetroExtra Route
Bus Stop (Shelter)
Bus Stop (No Shelter)

NORTH

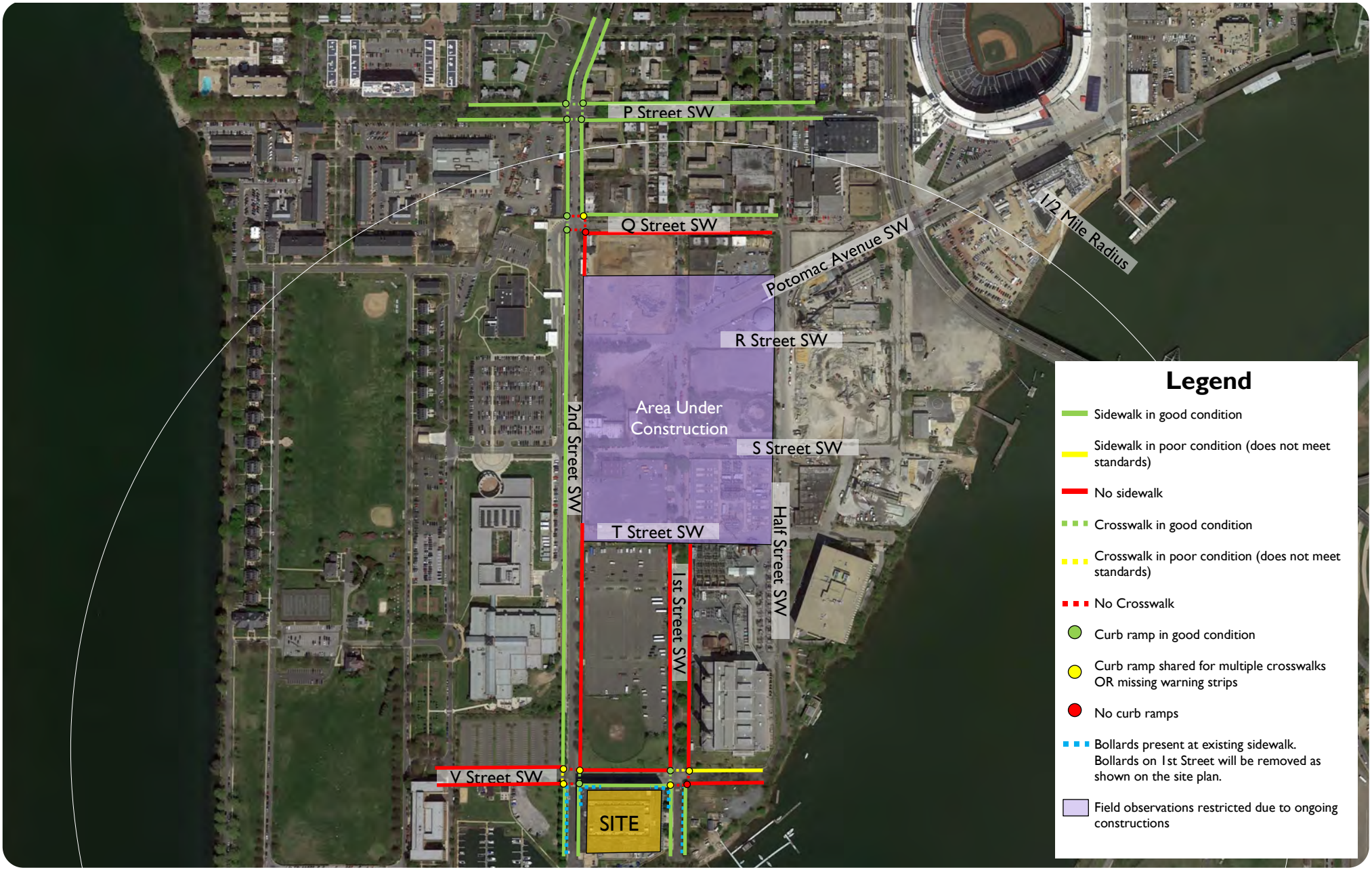
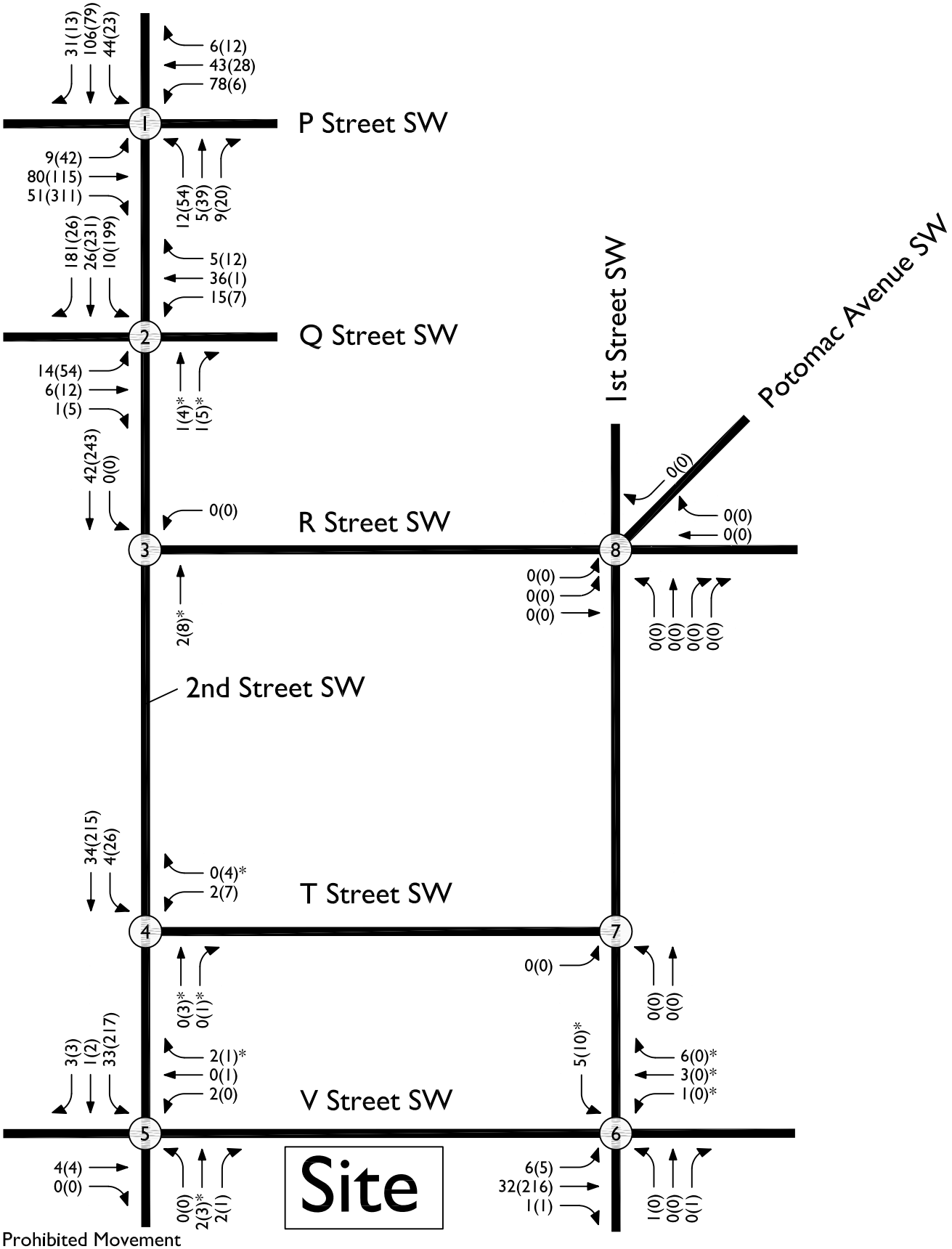


Figure 3
Qualitative Pedestrian Analysis

River Point
Washington, DC



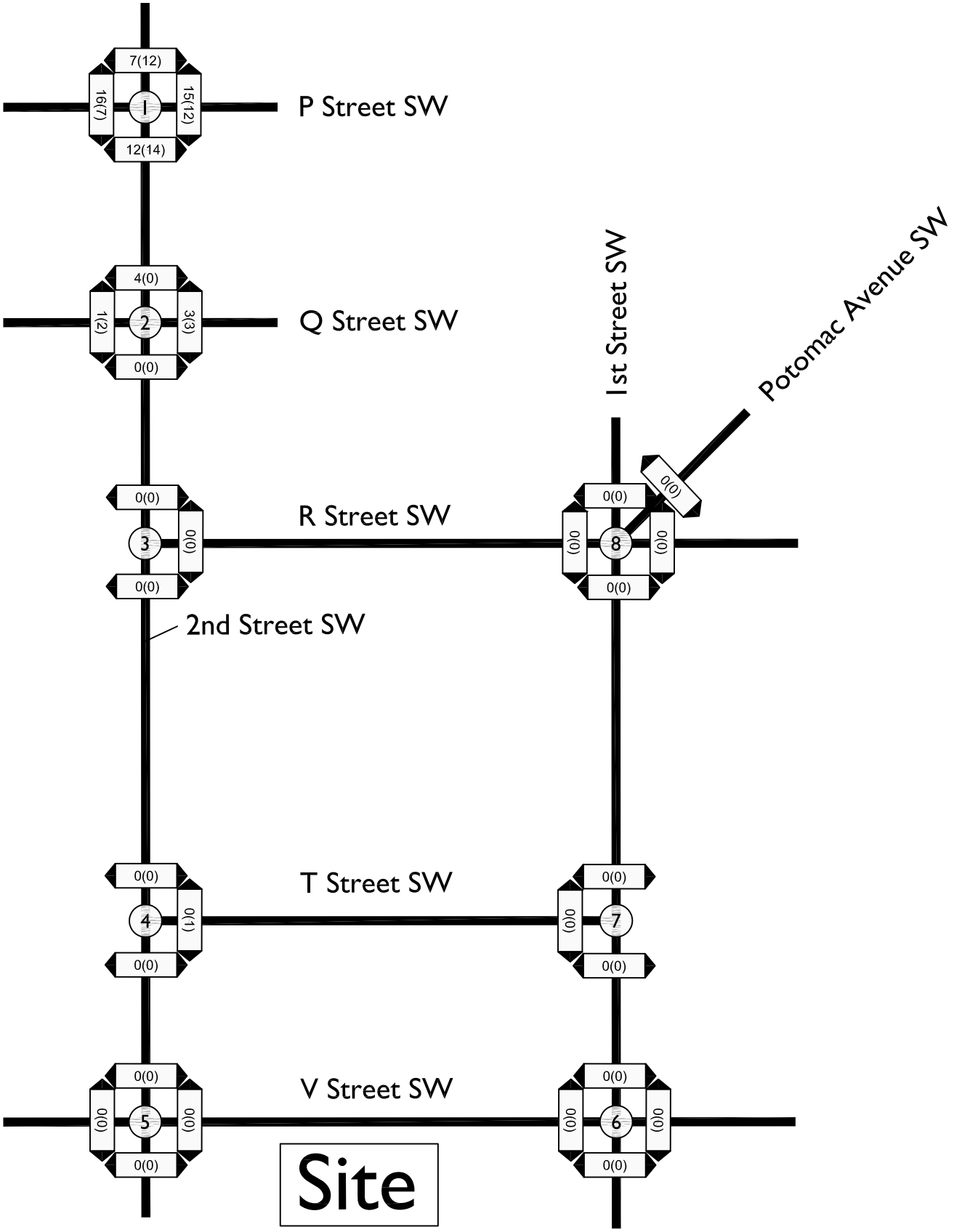
*Denotes a Prohibited Movement
Note: Intersections 7 and 8 were closed due to construction at the time counts were conducted.

Figure 4
Existing Peak Hour Traffic Volumes

River Point
Washington, DC

AM Peak Hour
PM Peak Hour
000 (000)

NORTH



Note: Intersections 7 and 8 are currently under construction and not include with the Existing Volumes.

Figure 5
Peak Hour Pedestrian Volume

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

Peninsula 88
Washington, DC

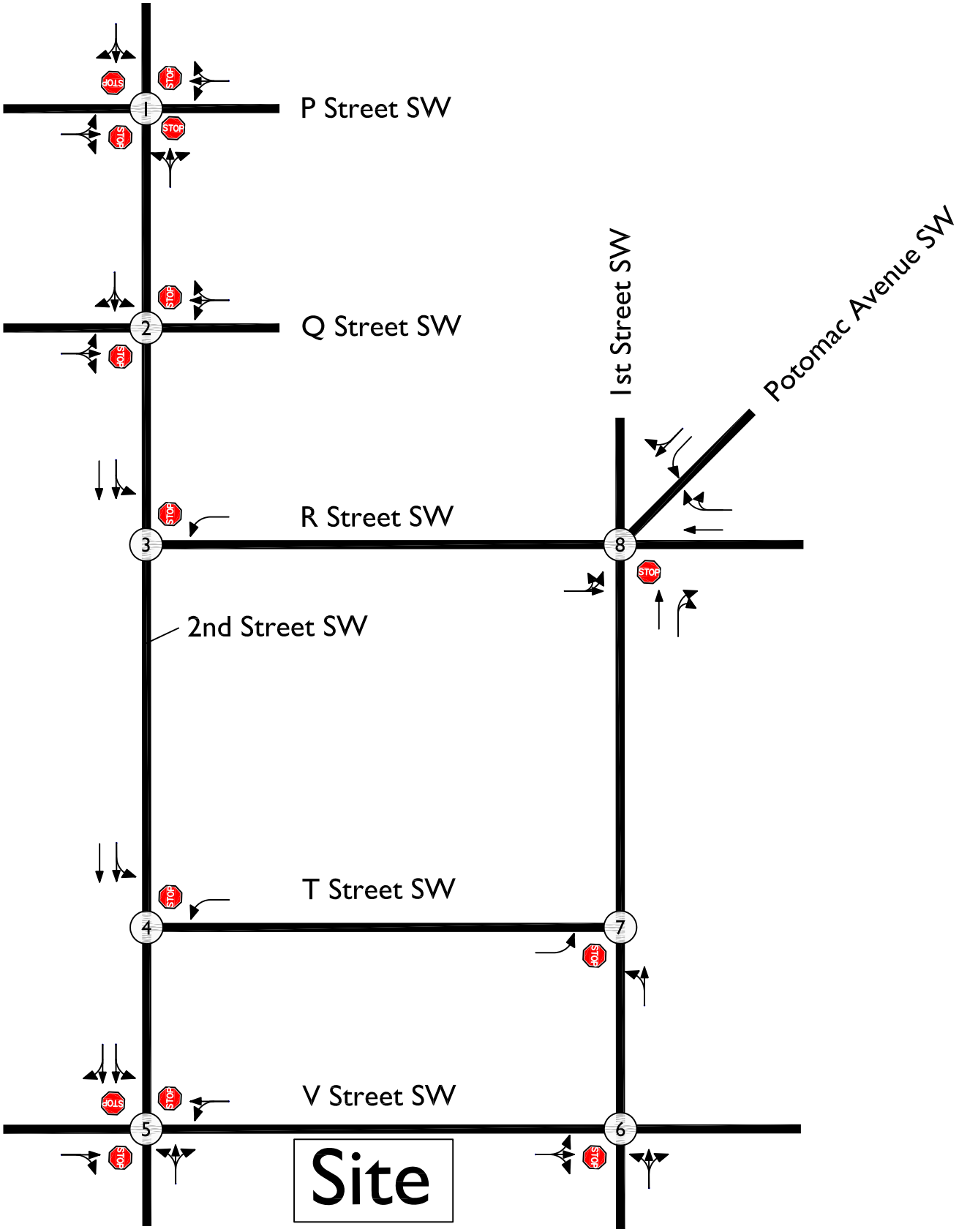


Figure 6
Existing Lane Use and Traffic Control

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

River Point
Washington, DC

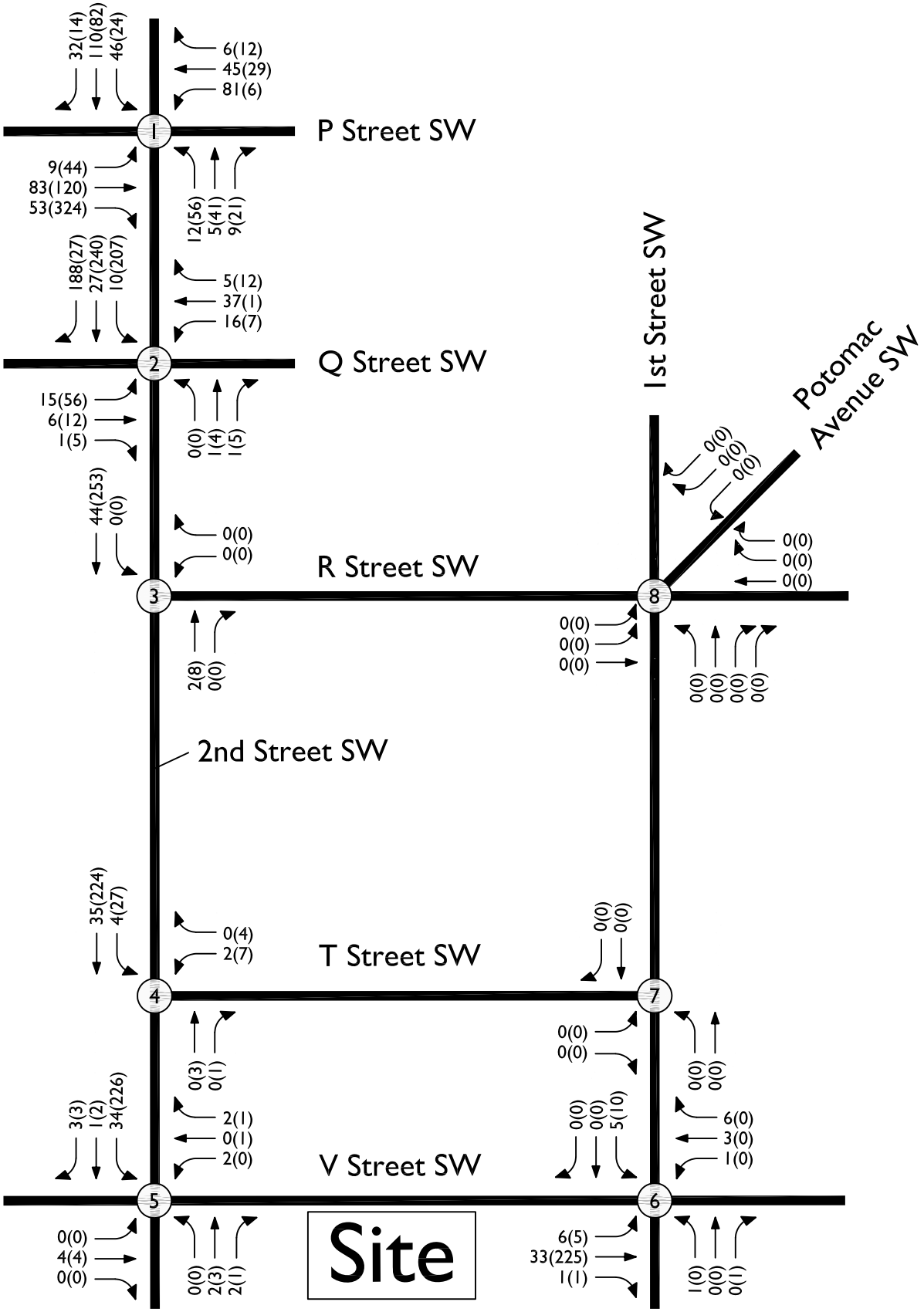


Figure 7A
Existing Volumes with Regional Growth

River Point
Washington, DC

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

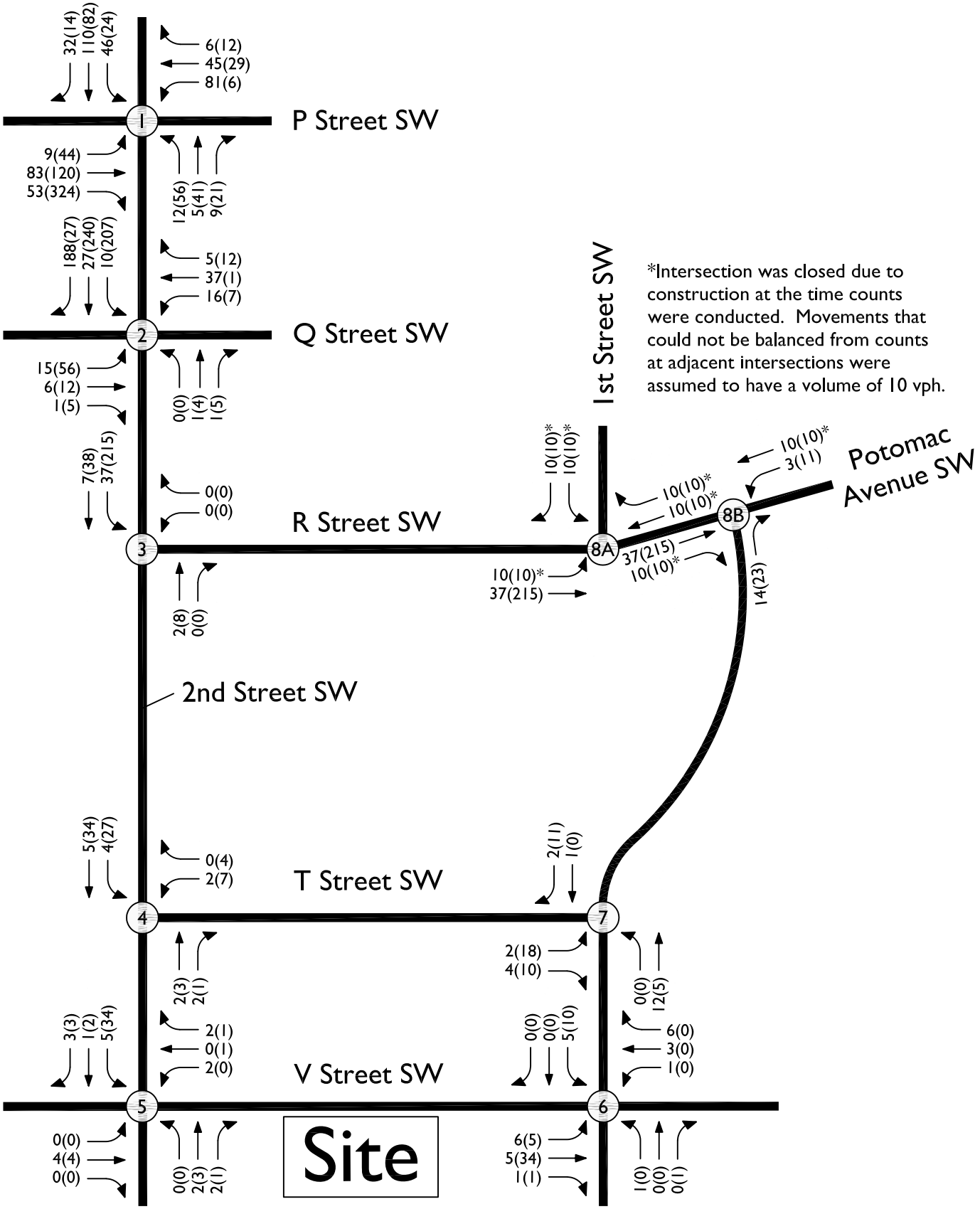


Figure 7B
Existing Volumes with Regional Growth (Rerouted)

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

River Point
Washington, DC

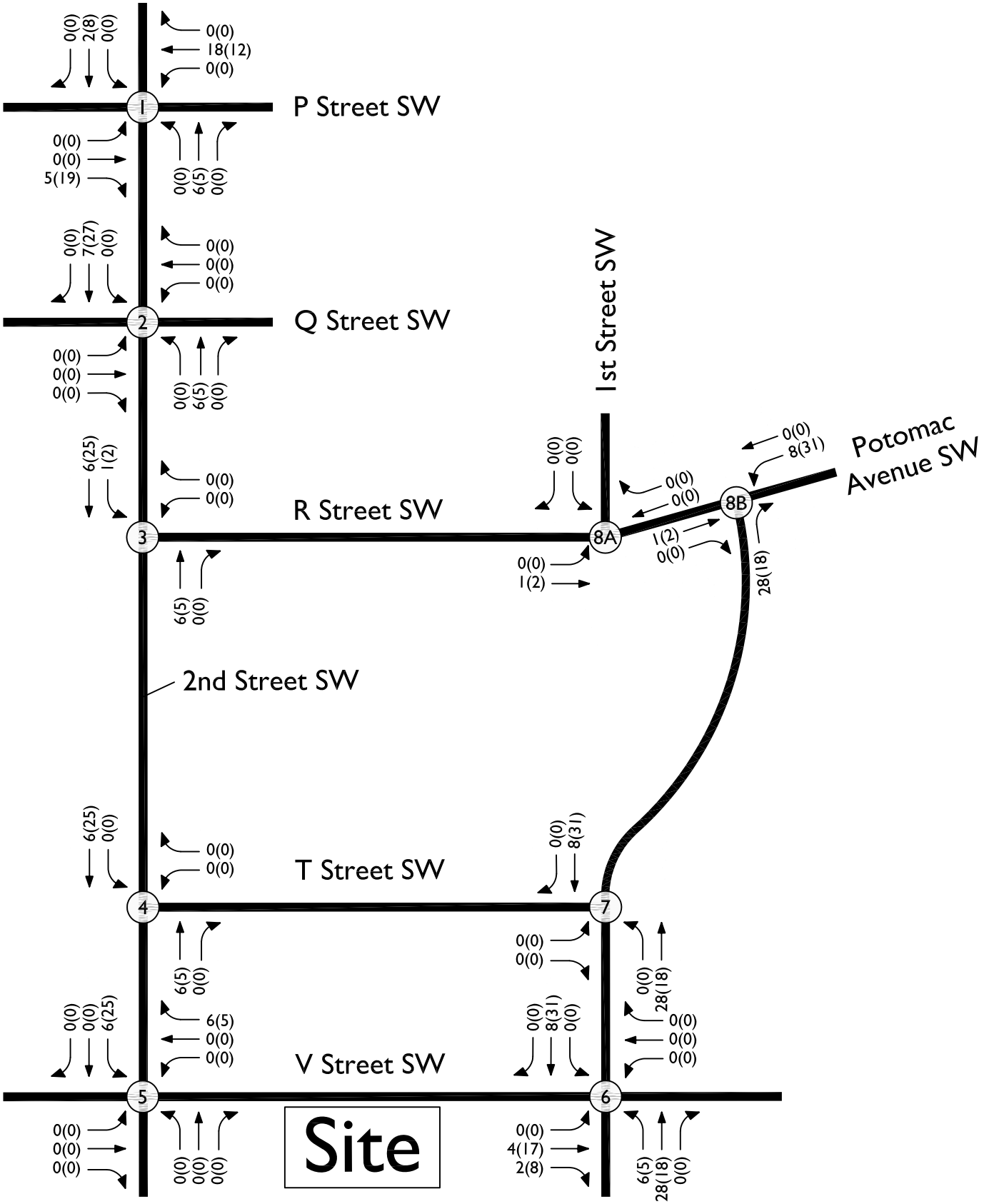


Figure 8
Pipeline Volumes

River Point
Washington, DC

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

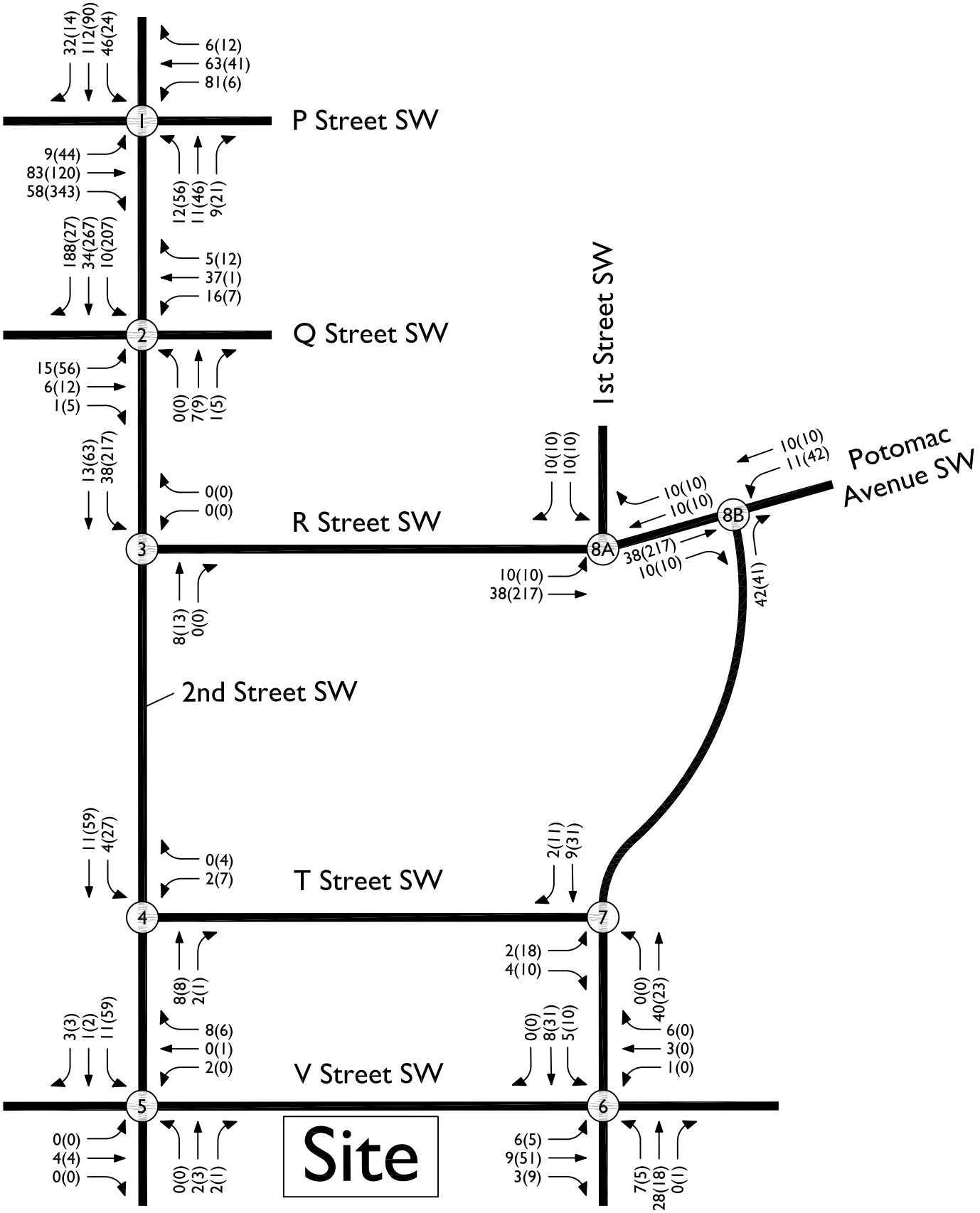


Figure 9
2021 Background Traffic Forecasts

River Point
Washington, DC

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

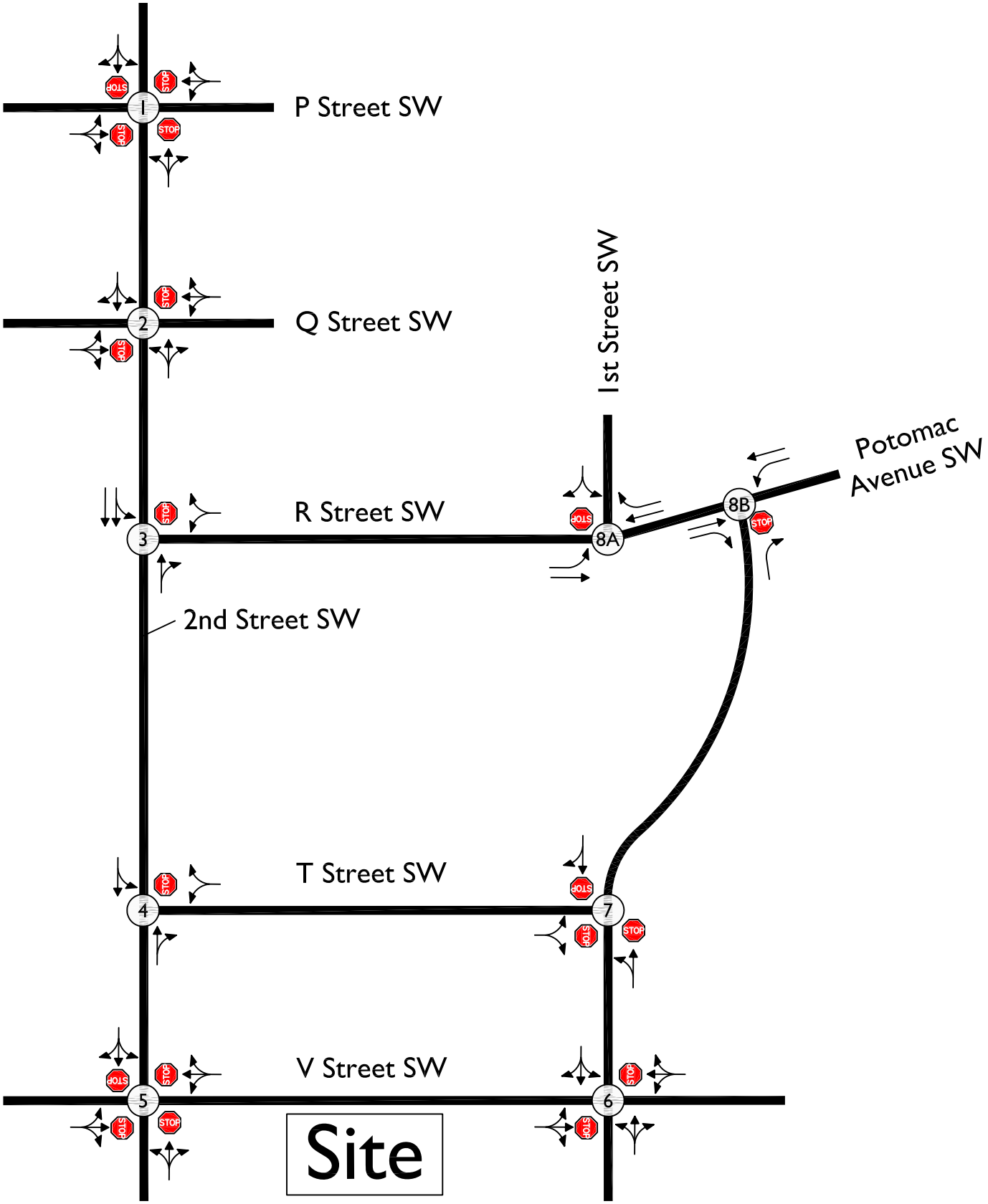


Figure 10
Future Lane Use and Traffic Control

River Point
Washington, DC

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

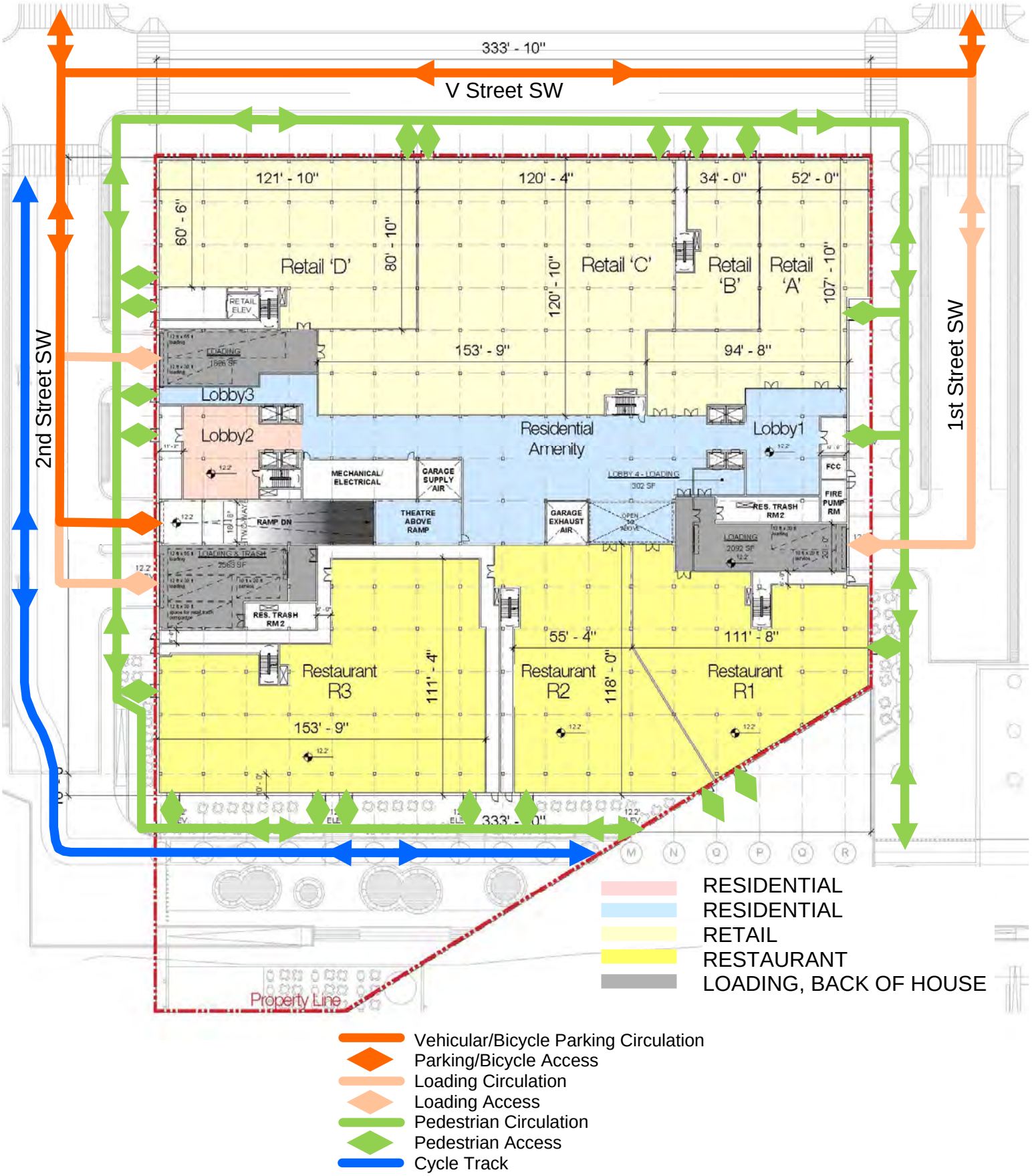


Figure 11A
Site Access/Circulation

River Point
Washington, DC

Scale 1:60

NORTH

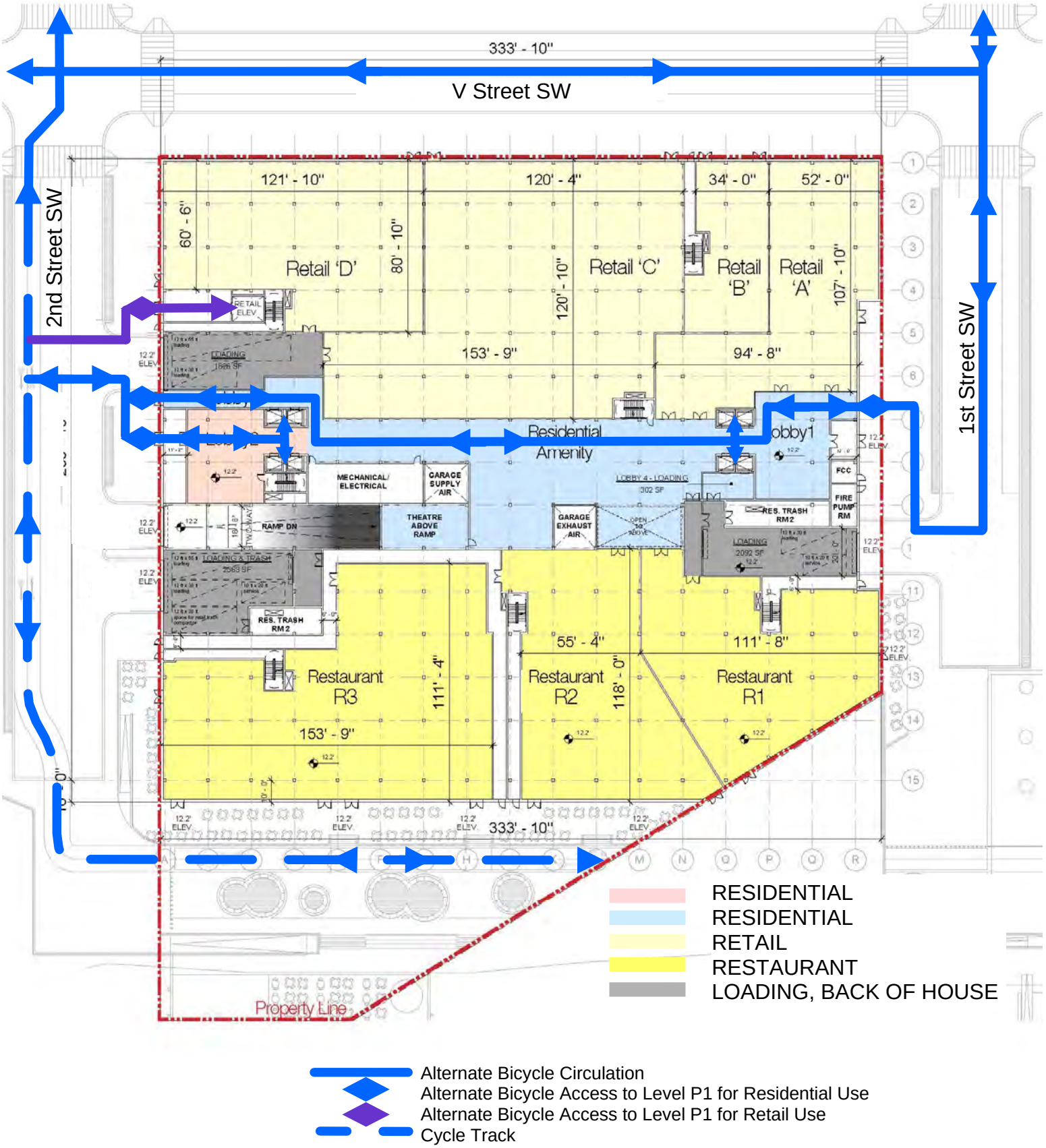


Figure 11B
Alternate Bicycle Access/Circulation

River Point
Washington, DC

Scale 1:60

NORTH

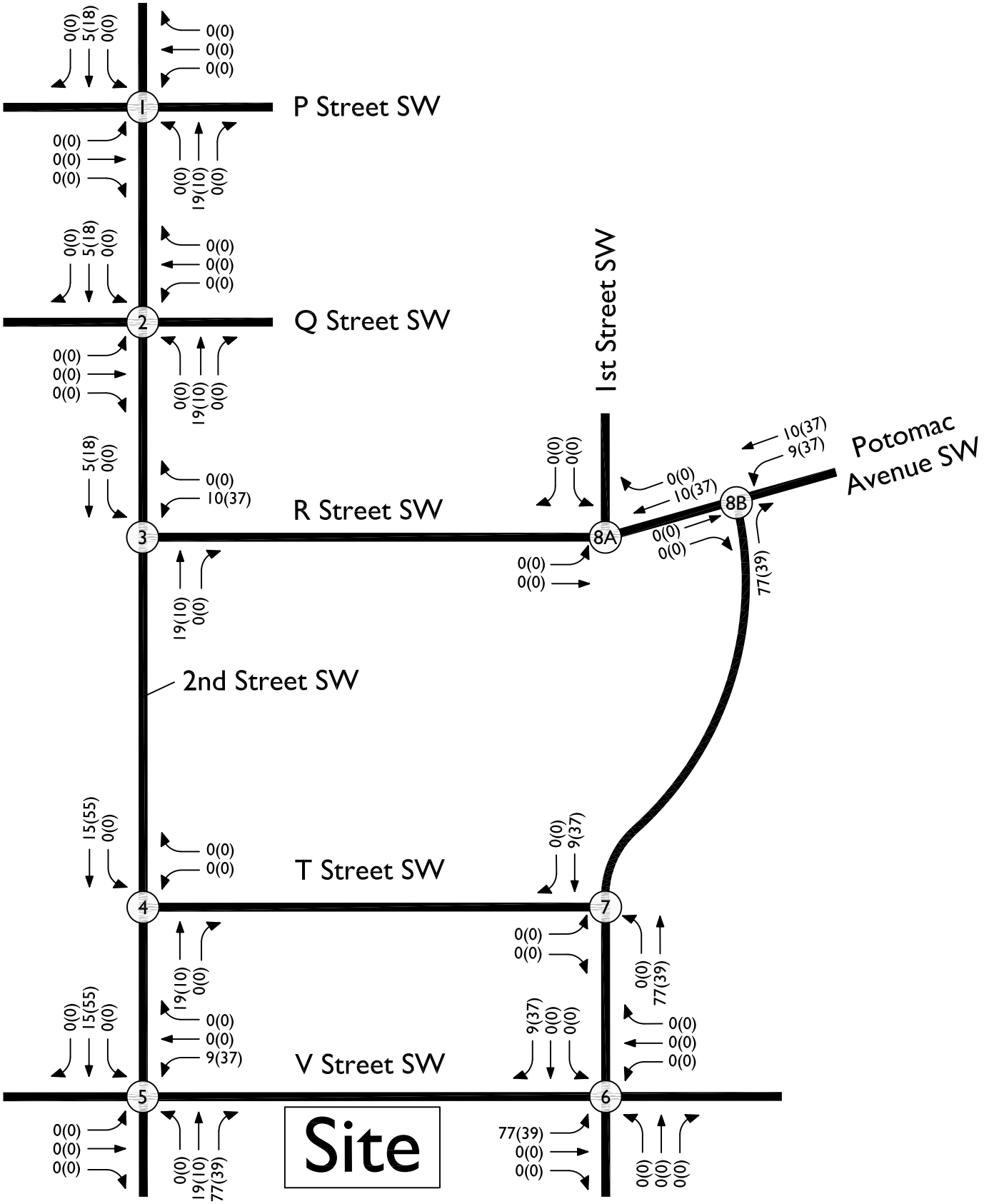


Figure 12A
Residential Site Trips

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

River Point
Washington, DC

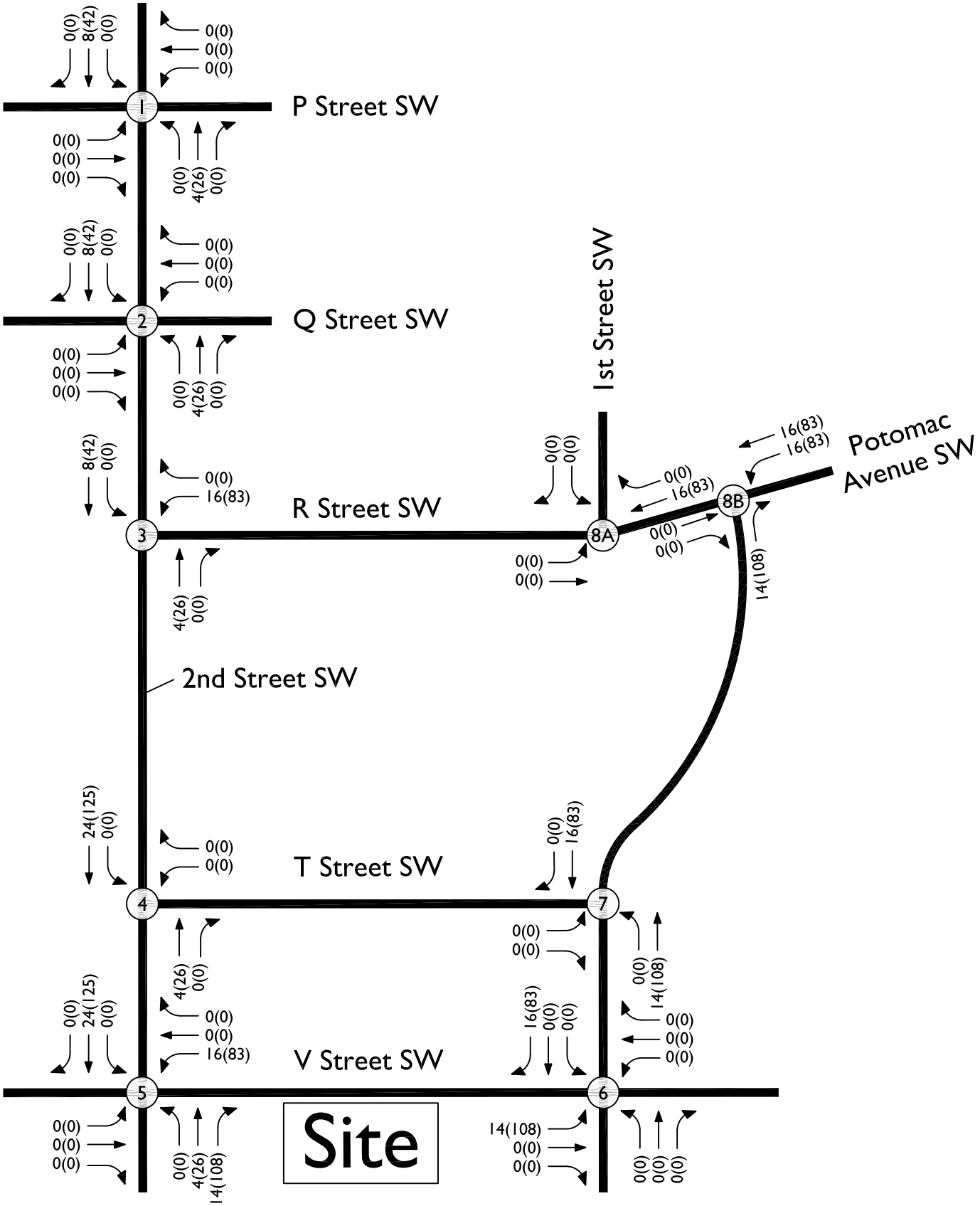


Figure 12B
Retail/Restaurant Site Trips

River Point
Washington, DC

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

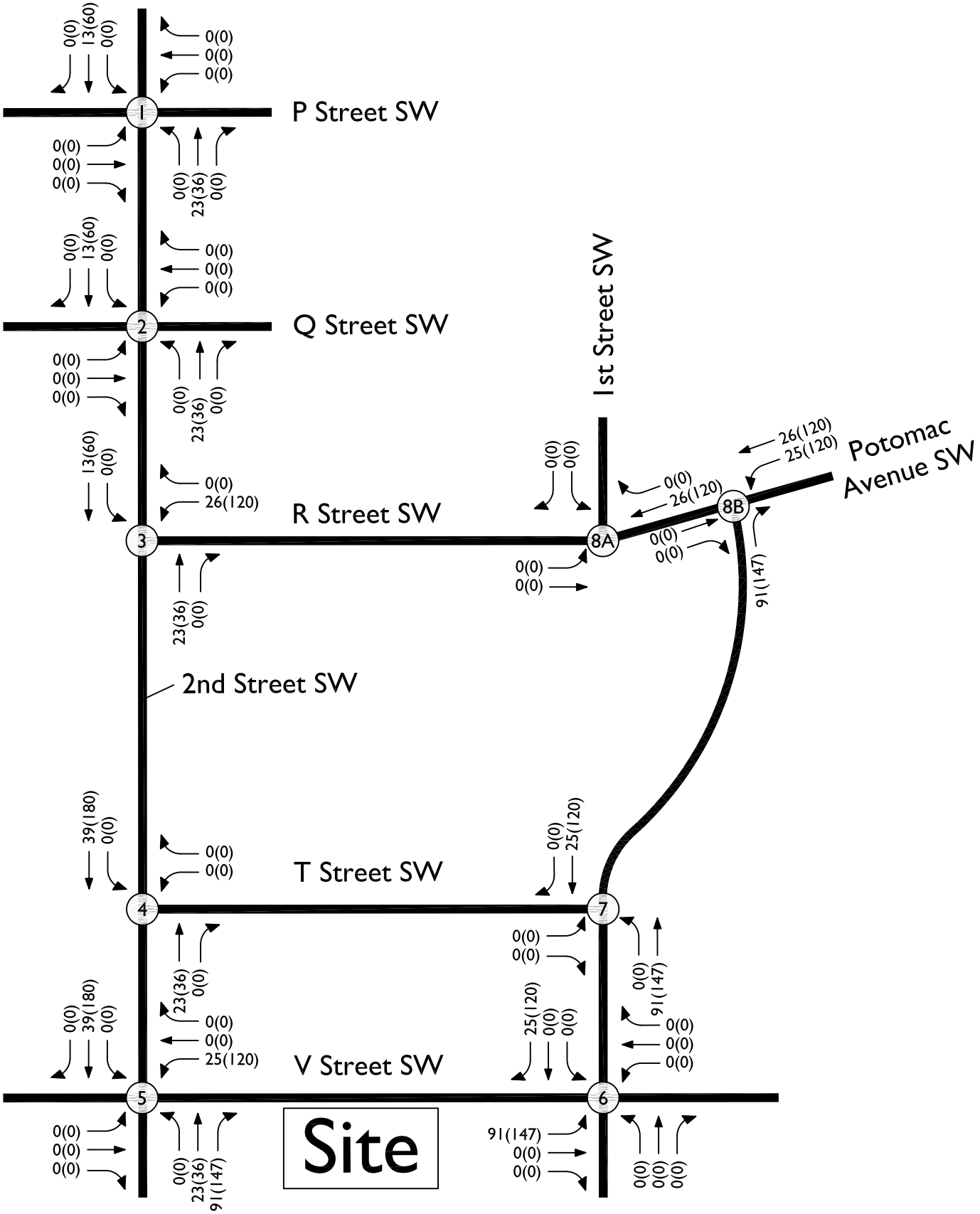


Figure 12C
Total Site Trips

AM Peak Hour
PM Peak Hour
000 (000)

NORTH

River Point
Washington, DC

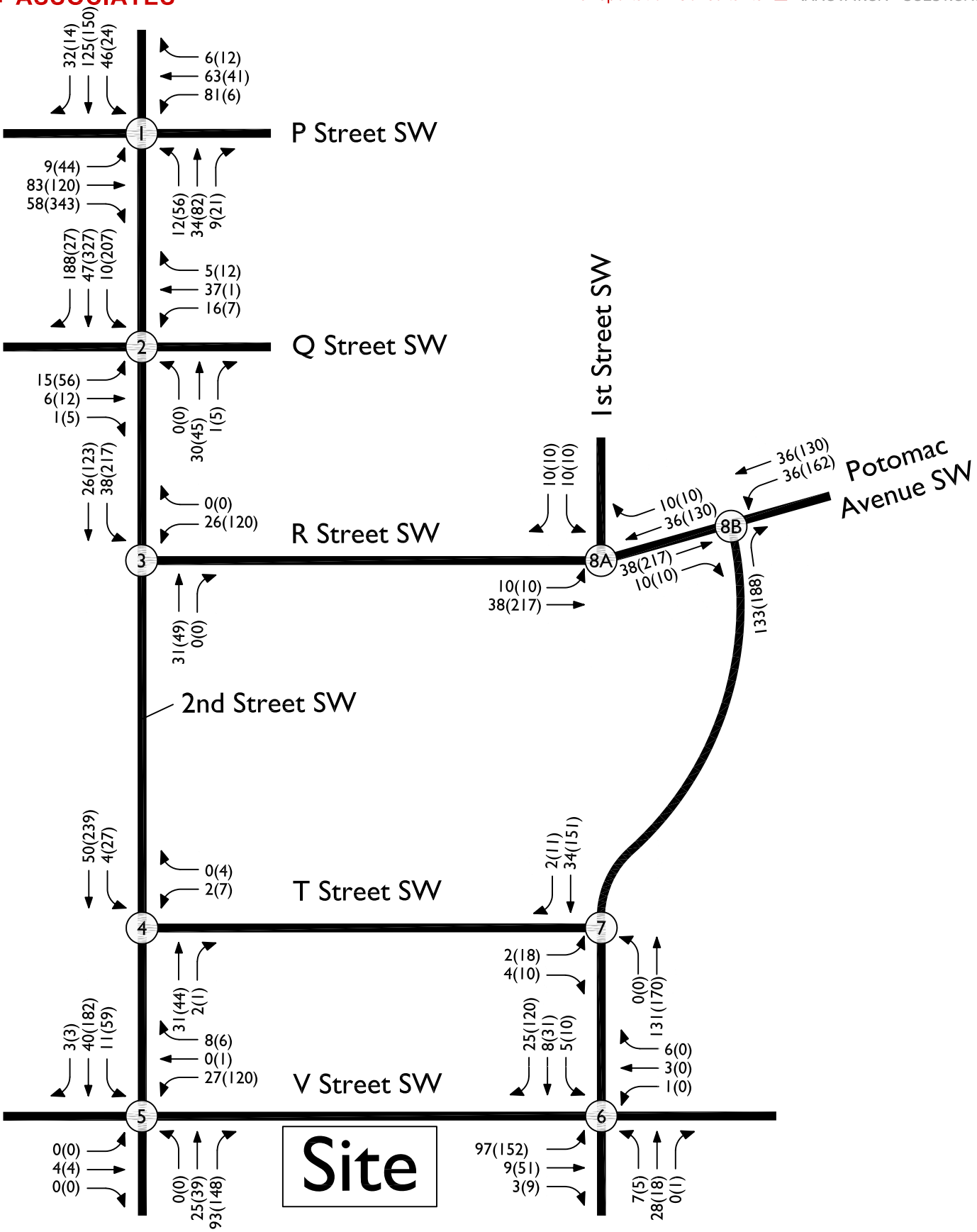


Figure 13
2021 Total Future Traffic Forecasts

River Point
Washington, DC

AM Peak Hour
PM Peak Hour
000 (000)

NORTH