Traffic Impact Study

Portner Place PUD

Washington, DC

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GOROVE / SLADE
Transportation Planners and Engineers

Prepared by:

1140 Connecticut Avenue NW
Suite 600
Washington, DC 20036
Tel: 202.296.8625
Fax: 202.785.1276

3914 Centreville Road
Suite 330
Chantilly, VA 20151
Tel: 703.787.9595
Fax: 703.787.9905

15125 Washington Street
Suite 316
Haymarket, VA 20169
Tel: 571.248.0992

www.goroveslade.com

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1: INTRODUCTION

This report presents the findings of a Traffic Impact Study (TIS) conducted for the Portner Place development located in the northwest quadrant of Washington, DC in support of a Planned Unit Development (PUD) application and zoning map amendment from R-5-B District to R-5-D and CR District. Figure 1 identifies the site location within the District. The site fronts both U Street and V Street between 14th Street and 15th Street in Northwest Washington, DC. This site will be redeveloped as a mixed-use development with two wings: Wing A (developed as Phase 1 and facing V Street) will have approximately 96 residential units and Wing B (developed as Phase 2 and facing U Street) will have approximately 270 residential units and approximately 14,780 square feet of neighborhood serving retail. Additionally, there will be two levels of below-grade parking providing 137 spaces in a single parking garage below both wings, accessed from V Street.

Exclusive vehicular access will be from a single driveway to be constructed on the east side of the building which will intersect with V Street to the north. The existing driveway's curb cut on U Street on the south side of the site will be closed. The loading area will also be accessible from this driveway. Pedestrian access to the residential component will be provided via entrances from V Street and U Street. Pedestrian access to the retail component is proposed from U Street. The purpose of this report is to:

1. Review the transportation elements of the development site plan, supplementing the material provided in the site plans that accompany the development application, and demonstrate that the site promotes non-automobile modes of travel and sustainability.
2. Provide information to the District Department of Transportation (DDOT) and other agencies on how the development of the site will influence the local transportation network. This report accomplishes this by identifying the potential trips generated by the site and where these trips will be distributed on the network.
3. Determine if development of the site will lead to adverse impacts on the local transportation network. This report accomplishes this by projecting future conditions with and without development of the site and performing analyses of vehicular delays. These delays are compared to the acceptable levels of delay set by DDOT standards to determine if the site will negatively impact the study area. Transit, pedestrian, and bicycle modes are also analyzed to determine how they are impacted by the site.

This report contains three sections as follows:

- *Site Review (Section 2)*
  This section provides a summary of major transportation features near the site, to help establish a reference for the following sections. This includes reviewing roadways, transit and bicycle facilities, and future developments.
- *Design Review (Section 3)*
  This section provides a summary of the internal transportation features of the proposed development. This section is meant to supplement the details provided in the site plan package contained in the development application and reviews such items as the general parking strategy of the site, bicycle accommodations, and transportation demand management (TDM).
- *Impacts Review (Section 4)*
  This section provides a review of the impacts of development of the proposed building could have to each mode within the transportation network. For each mode, and where necessary, a list of recommendations and mitigation measures are compiled.

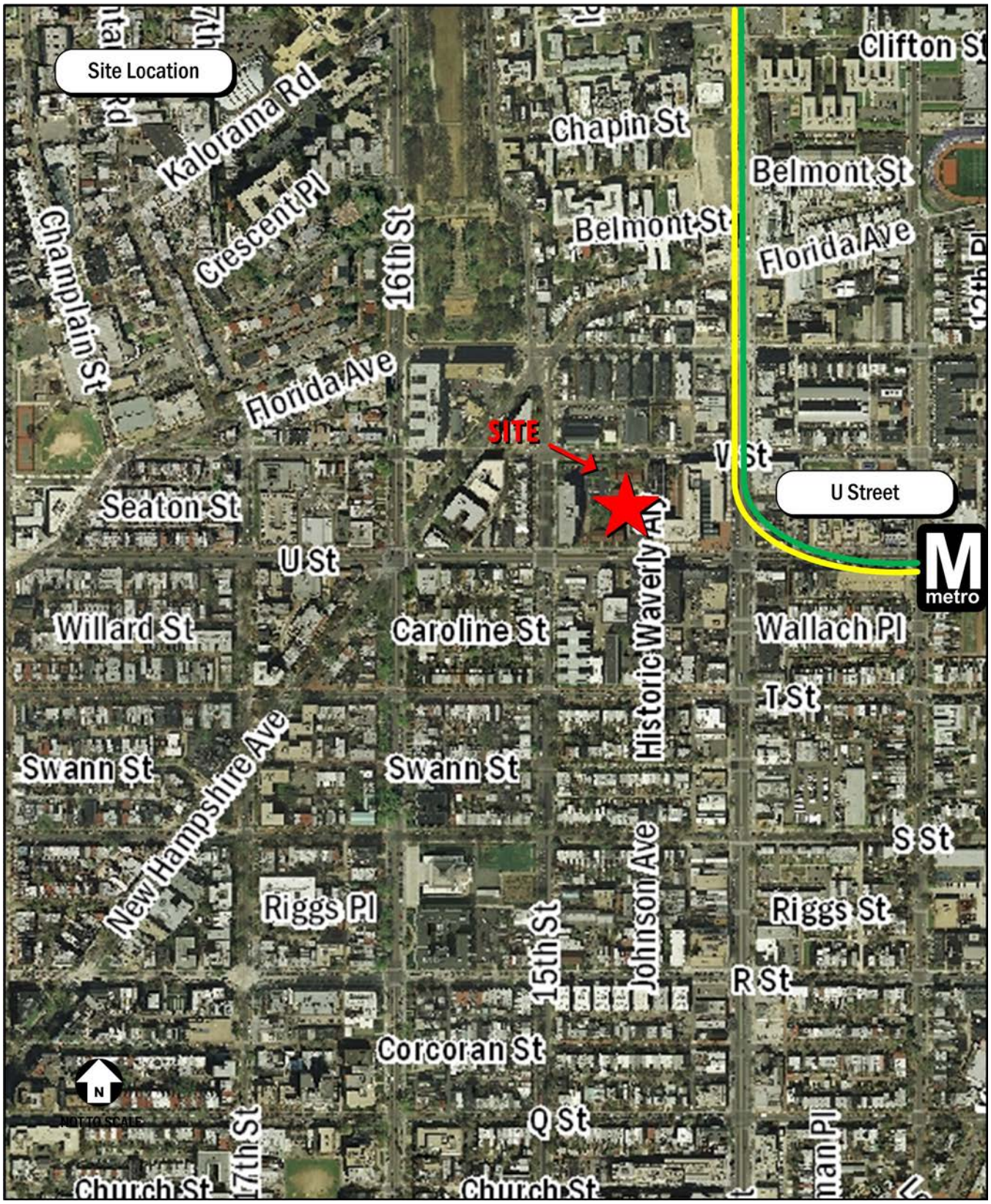

Figure 1: Site Location

2: SITE REVIEW

2.1 Site Location & Major Transportation Features

The proposed development is located in square 204, lot 208 in the northwest quadrant of Washington, DC. The site is bounded by U Street to the south, V Street to the north, existing buildings to the west, and the Reeves Center to the east.

The site is served by many regional and arterial roadways including U Street and 14th Street. The site is accessible via these roadways along with a network of collector and local streets. Figure 2 shows the roadway network hierarchy and the average daily traffic volumes for the roadways in the vicinity of the proposed development.

The site is served by several public transportation services, including Metrorail and Metrobus. The site is also served by a pedestrian network consisting of sidewalks and crosswalks around local streets surrounding the project site. In addition to pedestrian accommodations, the site has access to many on- and off-street bicycle facilities.

2.2 Car-Sharing

Three car-sharing companies provide service in the District: Zipcar, Enterprise Carshare, and Car2Go. All three services are private companies that provide registered users access to a variety of automobiles. Of the three, Zipcar and Enterprise Carshare have permanent locations near the project site. Table 1 lists the car-sharing locations nearby and the number of vehicles available (with stations closest to the site listed first).

Table 1: Carshare Location and Vehicles

Carshare Location	Number of Vehicles
Zipcar	
14th Street and U Street on-street	2 vehicles
13th Street and U Street at the Ellington	2 vehicles
U Street Metro at 13th Street and T Street	4 vehicles
Enterprise Carshare	
Meridian Towers – W Street	3 vehicles
Total Number of Carshare Vehicles (within 1,200 feet of site)	**11 vehicles**

Car-sharing is also provided by Car2Go, which provides point-to-point car sharing. Unlike Zipcar or Enterprise, which require two-way trips, Car2Go can be used for one-way rentals. Car2Go currently has a fleet of vehicles located throughout the District. Car2Go vehicles may park in any non-restricted metered curbside parking space or Residential Parking Permit (RPP) location in any zone throughout the defined "Home Area". Members do not have to pay the meters or pay stations. Car2Go does not have permanent designated spaces for their vehicles; however availability is tracked through their website, which provides an additional option for car-sharing patrons. Car2Go vehicles are readily accessible throughout the neighborhoods near the site.

2.3 Transit

The study area is well served by Metrorail and Metrobus. Combined, these transit services provide local, city wide, and regional transit connections and link the site with major cultural, residential, employment, and commercial destinations throughout the region. Figure 3 identifies the major transit routes, stations, and stops in the study area.

The U Street Metrorail station is located within a quarter mile of the development site and serves the Green and Yellow Lines. The Green Line connects the study area with Fort Totten and Greenbelt, Maryland to the north, major downtown connections such as Chinatown/Gallery Place, and Branch Avenue station in Maryland to the south. The Yellow Line connects the study area with Fort Totten and Huntington with additional service to Greenbelt and Franconia-Springfield during rush hour. Trains run frequently during the morning and afternoon peak hours. Trains run approximately every 5 to 6 minutes during weekday non-peak hours, every 10 to 15 minutes on weekday evenings after 7:00 pm, and every 6 to 15 minutes on the weekends.

The site is also serviced by Metrobus along U Street, 16th Street, and 14th Street, which are all within walking distance of the site. The corner of 14th and U Streets is approximately 300 feet from the site and offers access to several bus routes. The routes serving this area connect the site to the Metrorail system and with various locations throughout the downtown business core. Table 2 shows a summary of the bus route information for the routes that serve the site, including service hours, headway, and distance to the nearest bus stop.

Table 2: Bus Route Information

Route Number	Route Name	Service Hours[1]	Headway[1]	Distance to Nearest Stop
52,53,54	14th Street Line	Weekdays: 4:10 AM – 3:35 AM Saturdays: 4:16 AM – 2:47 AM Sundays: 4:07 AM – 2:24 AM	Peak: 4 to 25 min Off-Peak: 8 to 62 min	450 feet (1.5 minutes)
90, 92, 93	U Street-Garfield Line	Weekdays: 4:05 AM – 3:20 AM Saturdays: 4:05 AM – 3:28 AM Sunday: 4:13 AM – 3:05 AM	Peak: 4 to 20 min Off-Peak: 7 to 60 min	300 feet (1 minute)
96, 97	East Capitol Street-Cardozo Line	Weekdays: 4:46 AM – 3:47 AM Saturdays: 4:51 AM – 3:54 AM Sundays: 5:00 AM – 1:27 AM	Peak: 2 to 24 min Off-Peak: 1 to 40 min	300 feet (1 minute)
S1	16th Street-Potomac Park Line	Weekdays: Southbound 5:47 AM – 9:58 AM Northbound 3:58 PM – 7:38 PM Saturdays: Southbound 5:51 AM – 9:18 AM Northbound 3:58 PM – 7:38 PM	5 to 22 min	900 feet (3 minutes)
S2, S4	16th Street Line	Weekdays: 4:09 AM – 2:54 AM Saturday: 4:17 AM – 3:36 AM Sunday: 4:33 AM – 2:16 AM	Peak: 0 to 23 min Off-Peak: 4 to 30 min	900 feet (3 minutes)
S9	16th Street MetroExtra Line	Weekdays: 6:30 AM – 10:35 AM, 3:00 PM – 10:09 PM Saturday: 6:30 AM – 10:35 AM 3:00 PM – 7:37 PM	7 to 15 min	900 feet (3 minutes)
X3	Benning Road Line	Weekdays: Westbound 6:00 AM – 9:27 AM Eastbound: 3:31 PM – 6:39 PM	20 to 36 min	300 feet (1 minute)
Circulator	Woodley Park – Adams Morgan- McPherson Square	Sunday – Thursday: 7:AM -12:00 AM Friday & Saturday: 7:AM – 3:30 AM	Every 10 min	450 feet (1.5 minutes)

In addition to the bus routes listed above, the DC Circulator system has plans for expansion. Many new routes are planned including an extension of the Dupont-Georgetown-Rosslyn line to U Street, which would travel near the vicinity of the site, likely along U Street itself. This route is planned to be completed as part of phase II, which is scheduled to be implemented between 2016 and 2018.

[1] WMATA route schedules, http://wmata.com/bus/timetables/

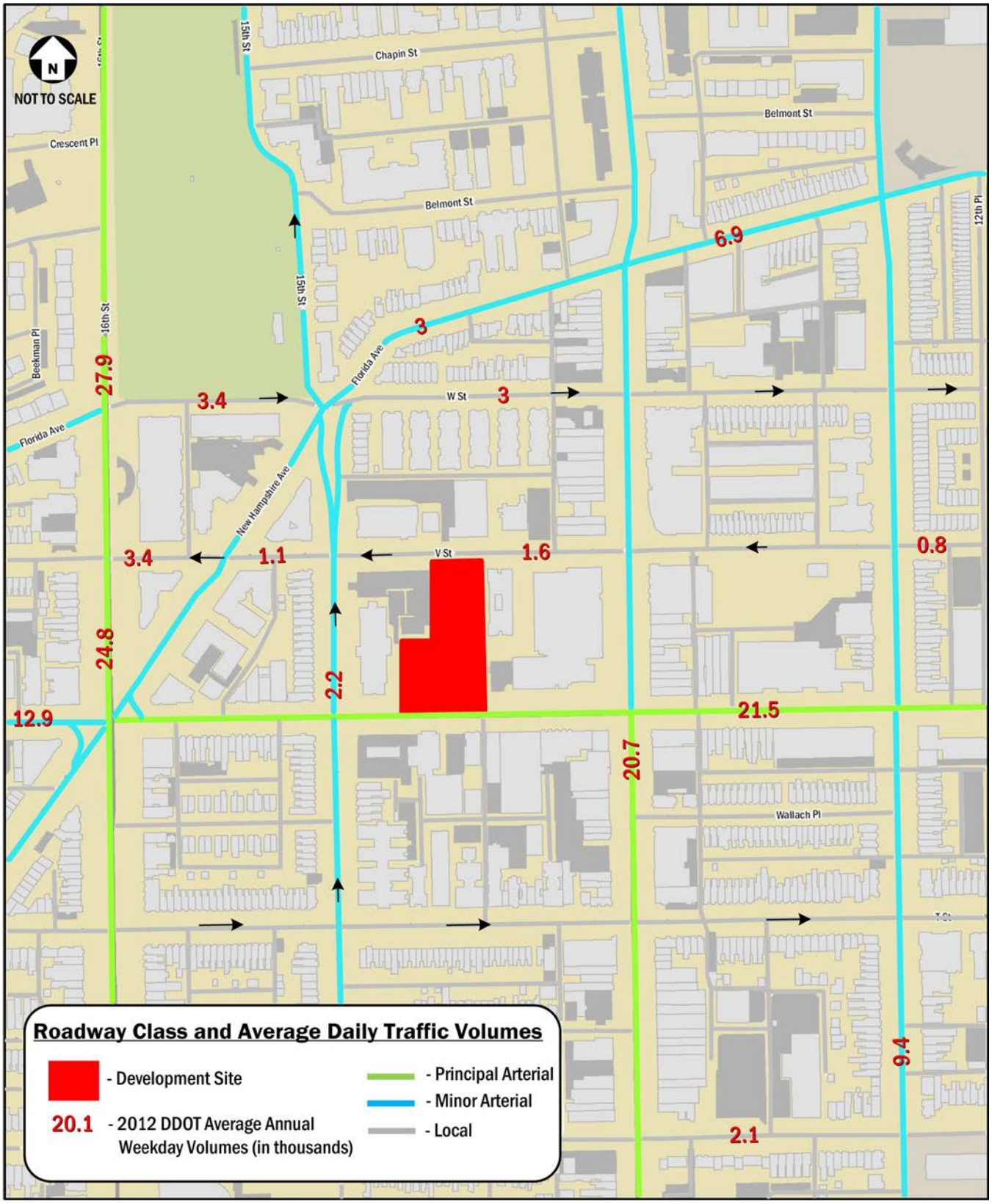

Figure 2: Roadway Class and Average Daily Traffic Volumes

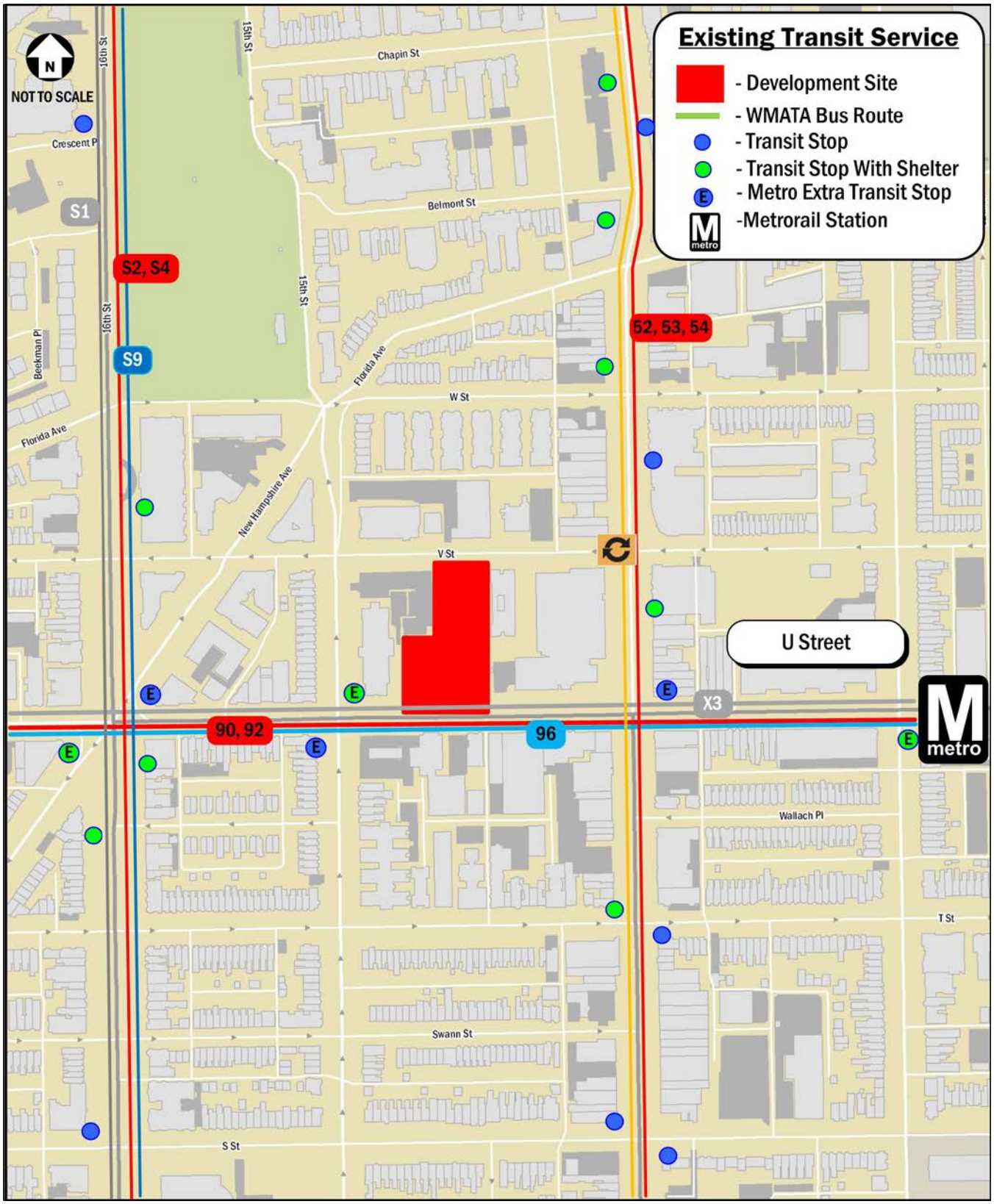

Figure 3: Existing Transit Service

2.4 Bicycle Facilities

Within the study area, bicyclists have access on-street bicycle lanes, signed bicycle routes, and local and residential streets that facilitate cycling. The bicycle network provides good conditions for local trips, and there are several routes for trips that require more regional access.

Near the site, 14th Street and 15th Street provide dedicated bicycle lanes. These streets, along with the on-street signed bicycle route on 13th Street, provide the safest north-south connectivity, providing on-street bicycle lanes which connect to additional bicycle lanes or bicycle routes in most directions. The primary east-west bicycle lane in the direct vicinity of the site is the short-distance one on V Street which connects Vermont Avenue to the east and Florida Avenue to the west of the site. T Street and R Street to the south also both provide east-west dedicated bicycle lanes. All three east-west bicycle lanes intersect with dedicated bicycle lanes on New Hampshire that connect to the Dupont Circle Metro station (red line). Figure 4 illustrates bicycle facilities in the study area and identifies street corridors with poor cycling conditions.

In addition, the Capital Bikeshare program has placed over 300 bicycle-share stations across Washington, DC, Arlington and Alexandria, VA, and most recently Montgomery County, MD with over 2,500 bicycles provided. Capital Bikeshare already provides one station near the site at the intersection of V Street and 14th Street and has plans to expand the system with potential new station locations throughout the study area. Figure 4 identifies existing and potential station locations in the study area.

Little to no existing bicycle parking was observed in the study area. Most cyclists use street signs, parking meters, or similar objects to secure their bicycles. This indicates that there is a demand for bicycle parking facilities in the study area.

2.5 Pedestrian Facilities

This section provides an inventory of the existing site access facilities and deficiencies. Overall, the pedestrian facilities within the study area provide a good walking environment. Pedestrian access to the site is provided along U Street and V Street.

The site has good pedestrian access to nearby transit service. The bus stops located along U Street, 16th Street, and 14th Street are all within walking distance and provide local and commuter service between the study area and destinations in all directions. In addition, pedestrians can safely and conveniently access the U Street Metrorail Station, which is located less than a quarter mile east of the site.

A review of pedestrian facilities near the site shows that most facilities meet DDOT standards, and provide a quality walking environment. Figure 5 shows a detailed inventory of the existing pedestrian infrastructure in the vicinity of the development site and along primary walking routes. Sidewalks, crosswalks, and curb ramps are evaluated based on the guidelines set forth by DDOT's *Public Realm Design Manual* in addition to ADA standards. Sidewalk width and buffer requirements for the District are shown below in Table 3. Within the area shown, U Street, 16th Street, and 14th Street are considered commercial streets with the remaining roadways considered residential with a moderate to high density. U Street complies with the commercial requirements as do most of the residential side streets. ADA standards require that all curb ramps be provided wherever an accessible route crosses a curb and must have a detectable warning. Additionally, curb ramps shared between two crosswalks is not desired. As shown in the figure, under existing conditions most intersections are adequate.

Table 3: Sidewalk Requirements

Street Type	Minimum Sidewalk Width	Minimum Buffer Width
Residential (Low to Moderate Density)	6 ft	4 ft (6 ft preferred for tree space)
Residential (High Density)	8 ft	4 ft (6 ft preferred for tree space)
Commercial (Non-downtown)	10 ft	4 ft
Downtown	16 ft	6 ft

2.6 Future Projects & Developments

2.6.1 Developments

There are five other projects approved or under construction located in the vicinity of the proposed development. These projects meet the criteria of having an origin/destination within the study area and being completed prior to 2017, the anticipated completion year for the Portner Place development.

1921 14th Street

1921 14th Street is a mixed-use development located at the corner of 14th Street and Wallach Place. The development plan consists of 56 residential units and 12,320 square feet of ground-floor retail.

2200 14th Street

2200 14th Street is a small mixed-use development located at the corner of 14th Street and W Street. The development plan consists of 18 residential units and 2,200 square feet of ground-floor retail.

2221 14th Street

2221 14th Street is another small mixed-use development located on 14th Street between W Street and Florida Avenue. The development plan consists of 30 residential units and 2,200 square feet of ground-floor retail.

V Street Residences

V Street Residences is a residential development located at the northwest corner of V Street and 15th Street. The development plan consists of 95 residential units.

The Louis at 14th/U Street

The Louis at 14th/U Street is a larger mixed-use development located at the southwest corner of 14th Street and U Street. The development plan consists of 268 residential units and 44,000 square feet of retail space.

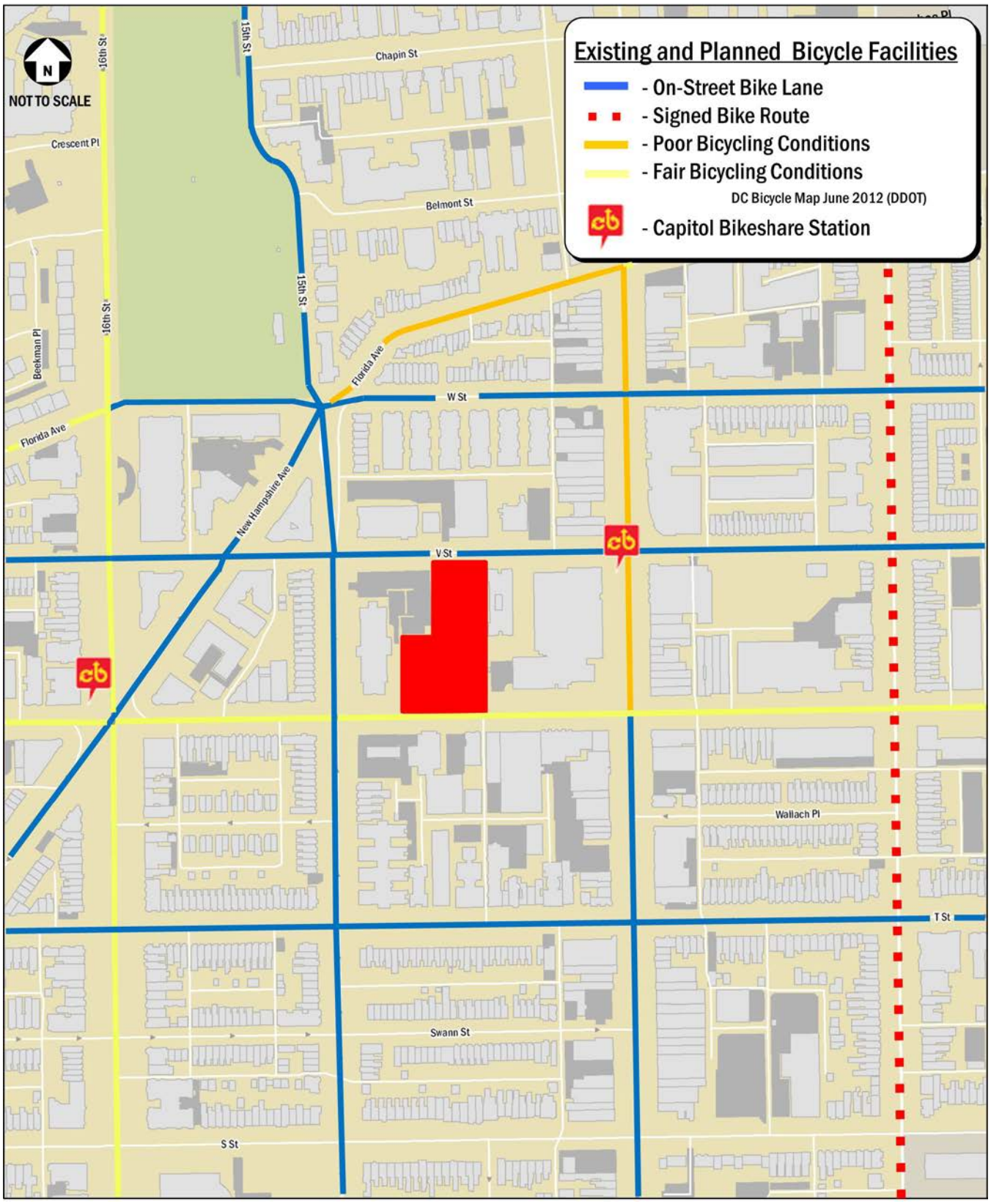

Figure 4: Existing Bicycle Facilities

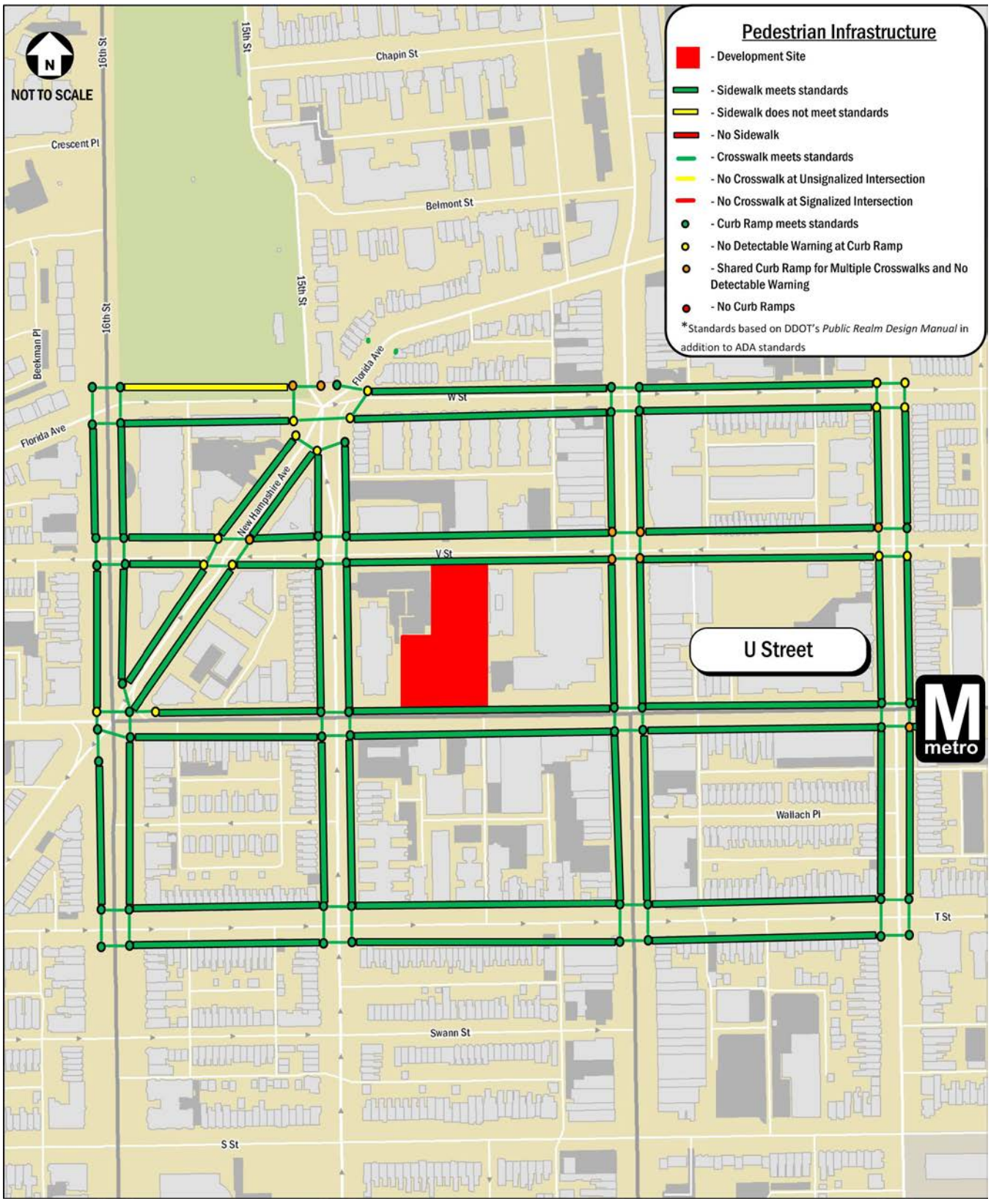

Figure 5: Pedestrian Infrastructure

3. DESIGN REVIEW

This section provides an overview of the transportation features of the proposed Portner Place development. The development program consists of approximately 366 residential units and approximately 14,380 square feet of neighborhood serving retail, as shown in Figure 6. Additionally, two levels of underground parking are proposed that will include a total of 137 on-site parking spaces.

3.1 Site Access and Internal Circulation

3.1.1 Vehicular Access

Exclusive vehicular access to the site's parking garage will be via a new curb cut on V Street at the eastern edge of the site as shown on Figure 6. The existing Portner Place curb cut on U Street will be closed and replaced with street level retail in order to help activate the U Street corridor while eliminating vehicular and pedestrian conflicts on this busy street. Thus, accessing the site from V Street, which experiences significantly lower vehicle and pedestrian volumes than U Street, is the best option given the lack of an existing alley.

While it is noted that the location of the V Street entrance is directly across the street from the Saint Augustine Catholic School drop off/pick up area, we conclude that the V street entrance will have minimal to no impact on school-related pedestrian activity for a number of reasons stated below. First, the peak hour for site vehicle trips will generally not coincide with the peak hour for school students, particularly in the afternoon/evening. Second, there is no need for school crossings where the entrance is to be located since V is a one-way street with student drop-offs and pick-ups occurring exclusively on the opposite side of V Street from the development. Thus, students being dropped off in front of the school or walking to it will not have any conflicts with vehicles exiting and entering the site. Finally, the narrow width of V Street and the available street parking lining both sides act as a traffic calming mechanism to reduce vehicle speeds. Also, vehicles entering the site will slow down even further to turn in to the driveway while vehicles exiting the site similarly will not begin to accelerate until past the school. As a result, traffic entering and exiting the site is anticipated to have minimal impact on the existing school operations across V Street from the site.

3.1.2 Loading and Trash Access

The loading docks will be located on the lower level of the underground parking garage and accessible from the V Street entrance. Projected truck access routes are shown in Figure 7. There is adequate regional access for trucks along New Hampshire Avenue and 16th Street, with additional truck routes near the site along 14th Street and U Street. From these roadways, trucks will have direct and efficient routes to the site without significant disturbance through residential neighborhoods.

Based on the proposed development plan, zoning regulations require one 55' loading dock and one 30' loading dock. However, the development is proposing to include two 30' loading docks and one 20' service space. Although flexibility from the loading requirements is being requested, it is expected that the vast majority of trucks will be 30' or shorter due to the unit sizes within the development. A 55' long truck would create negative impacts to the public space and pedestrian facilities and cannot be accommodated by the site due to the size of the curb cut, curb radii, the existing on-street parking and roadway width, and room reserved for vehicular activity in order to accommodate the turning maneuvers. In addition, the size and mix of residential units planned for this development will not warrant the use of larger, 55' trucks. Turning diagrams for 30' trucks accessing the site via V Street are shown in Figure 8, Figure 9, and Figure 10. These diagrams show

30' single-unit trucks accessing the docks without difficulties. All backing maneuvers will be accommodated on-site and outside of the public right of way.

A trash room is located in the P2 garage level and is accessible to a freight elevator. Trash receptacles will be taken up the elevator to the main level and wheeled through a service corridor and to the street for curbside pickup on U Street.

The amount of loading facilities provided is adequate to handle the expected truck deliveries. Assuming a turnover of 18 months per each residential unit and one truck for each move-in and move-out, there will be approximately 2 to 3 moving trucks accessing the site per week. Retail deliveries are anticipated to occur once daily (or 5 to 7 times per week). Additionally there will likely be three trash pick-ups per week. A total of 10 to 13 loading activities per week (or 1 to 2 per day) is expected, an amount of activity easily accommodated by the proposed loading dock.

3.1.3 Parking

Parking for residents will be provided in a two-level below grade parking garage accessible from V Street. The parking garage is proposed to have a total of 137 below grade parking spaces with the completion of the development. Based on the zoning amendment to R-5-D and CR, a development of this size would require parking at the following rates:

- Residential – 1 parking space for each 3 dwelling units.
- Retail – In excess of 3,000 square feet, 1 parking space for each additional 750 square feet of gross floor.

Based on these rates and the development plan of 366 apartment units and 14,780 square feet of retail in the CR district, the development would require 122 residential parking spaces and 15 retail parking spaces, for a total of 137 parking spaces. Therefore the development meets the parking supply requirements set forth by the District and is sufficient to meet demand for the project.

3.1.4 Bicycle Facilities

The development is planning to supply short- and long-term bicycle parking. The development plan contains three bicycle rooms which can hold approximately 137 bicycles. Two are located in the P1 level of the underground parking garage while the third is located in the first floor of the building, adjacent to the elevators and a service corridor connecting to U Street. Pursuant to Section 2119 of the Zoning Regulations, no bicycle parking is required for this development. The provision of more than 130 long-term bicycle parking spaces is a significant amenity.

3.2 Transportation Demand Management

Transportation Demand Management (TDM) is the application of policies and strategies to reduce travel demand or to redistribute demand to other times or spaces. TDM typically focuses on reducing the demand of single-occupancy private vehicles during peak period travel times or on shifting single-occupancy vehicular demand to off-peak periods.

TDM's importance within the District is highlighted within section T-3.1 of the DC Comprehensive Plan, where it has its own dedicated section including TDM policies and actions. As stated in the Plan, the Washington DC, metropolitan region is a leader in developing and implementing TDM strategies. Typical TDM programs include:

- Carpooling/vanpooling, employee shuttles, and improvements that encourage bicycling and walking
- Financial incentives, such as preferential parking for ride-sharers and transit subsidies
- Congestion avoidance strategies, such as compressed work weeks, flexible work schedules, and telecommuting

In order to meet the District's goals of reducing automobile trips and accommodation of travel through a complete transportation network, DDOT is developing a systematic approach and process for integrating TDM in to the development and redevelopment permit process.

Based on the DDOT expectations for TDM programs, the following is the proposed TDM requirements for Portner Place:

- The Applicant will identify a TDM Leader (for planning, construction, and operations) and provide DDOT/Zoning Enforcement with annual TDM Leader contact updates.
- The Applicant will provide an adequate amount of short-and long-term bicycle parking spaces, including a secure bicycle room within the building that can house up to 137 bicycles.
- The Applicant will unbundle parking costs from the cost of lease or purchase.
- The Applicant will post all TDM commitments online, publicize availability, and allow the public to see what commitments have been promised.
- The Applicant will provide website links to CommuterConnections.com and goDCgo.com on developer and property management websites.
- A TransitScreen will be installed in the residential lobbies to keep residents and patrons informed on all available transportation choices and provide real-time transportation updates. In addition, the TDM Leader will make printed materials related to local transportation alternatives available to residents and employees upon request and at move-in for new tenants.
- The Applicant will provide a one-time membership fee at initial lease and/or sale of unit in a car sharing and/or Capital Bikeshare program for each residential unit.

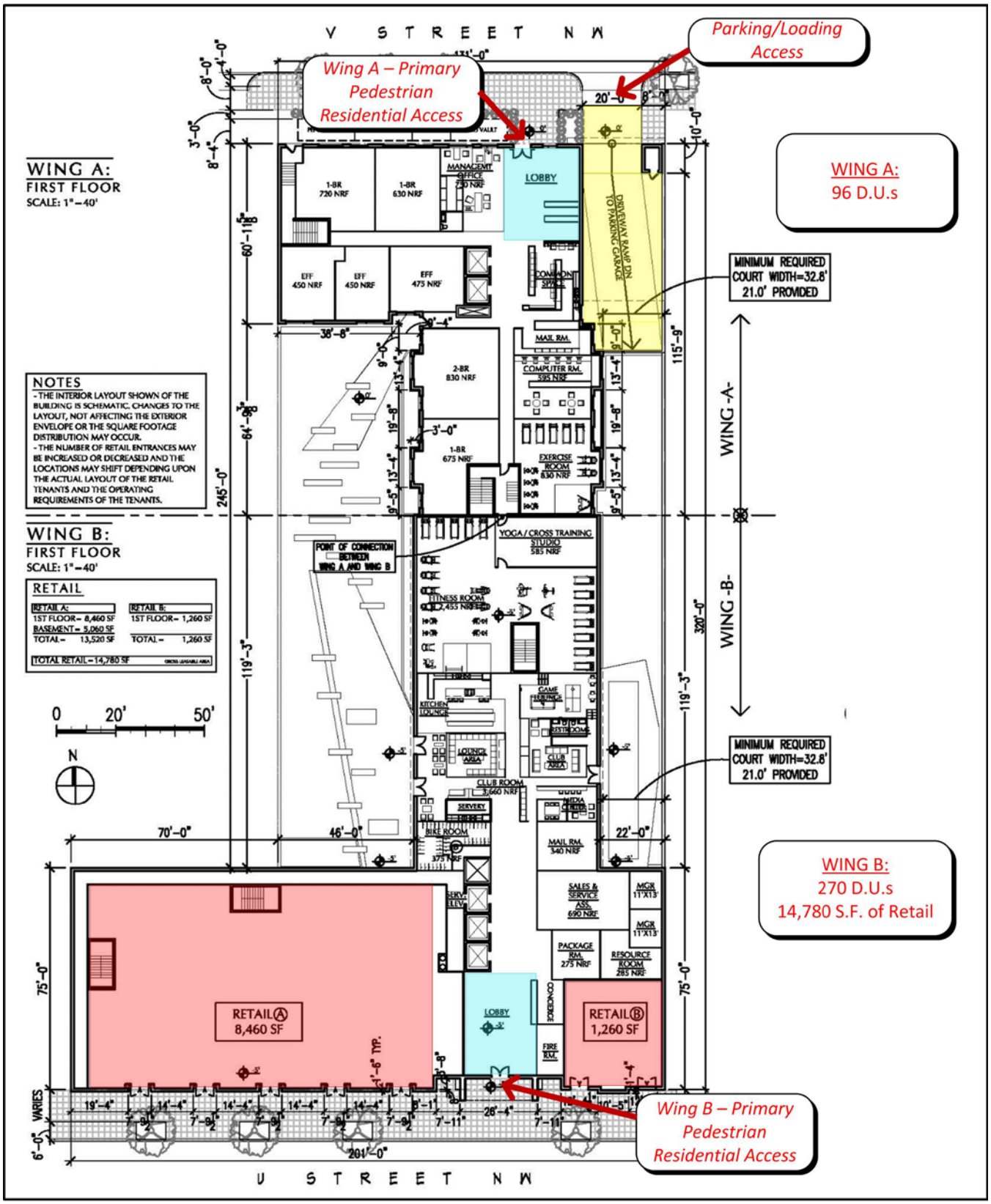

Figure 6: Site Plan

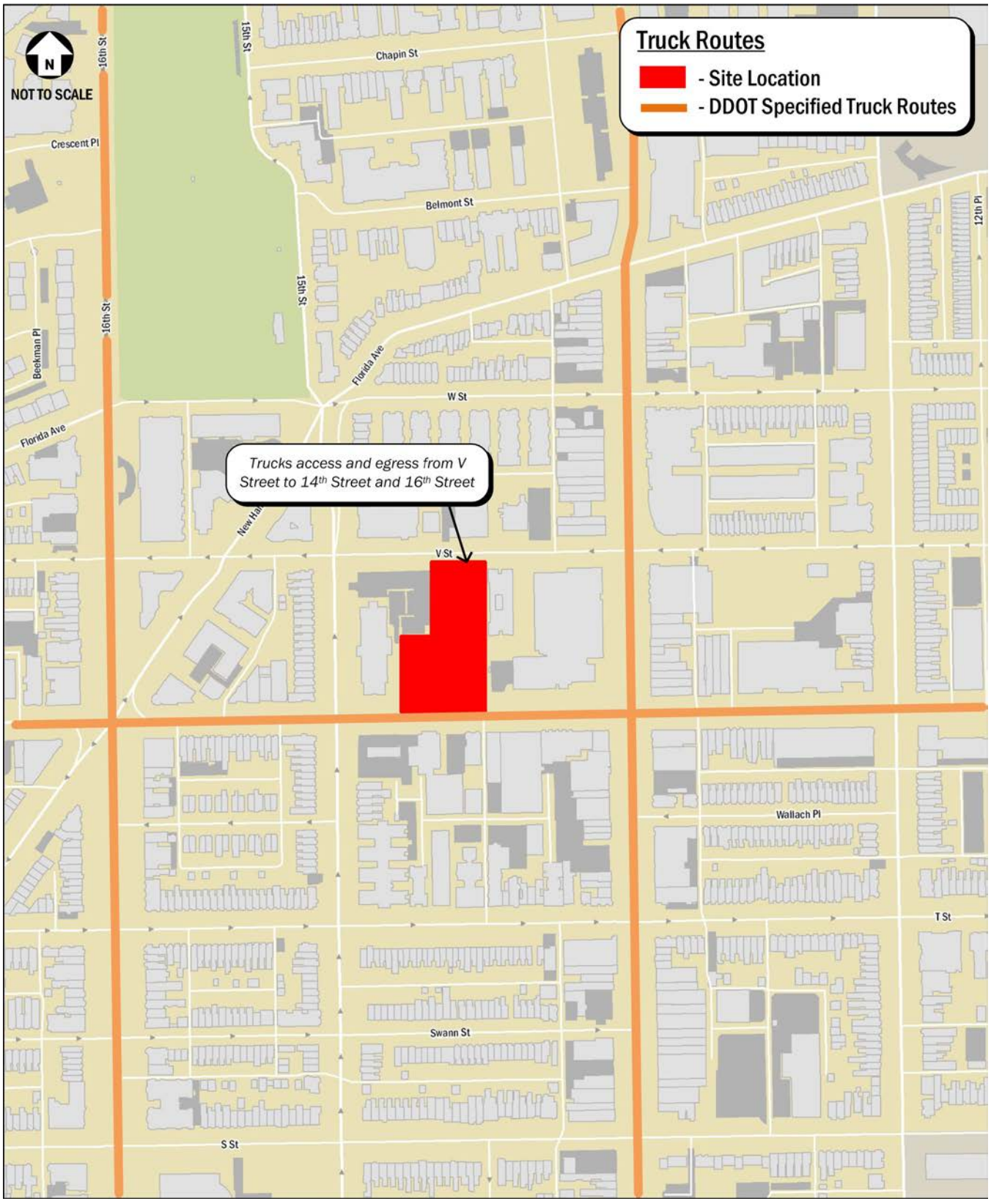

Figure 7: Truck Routes

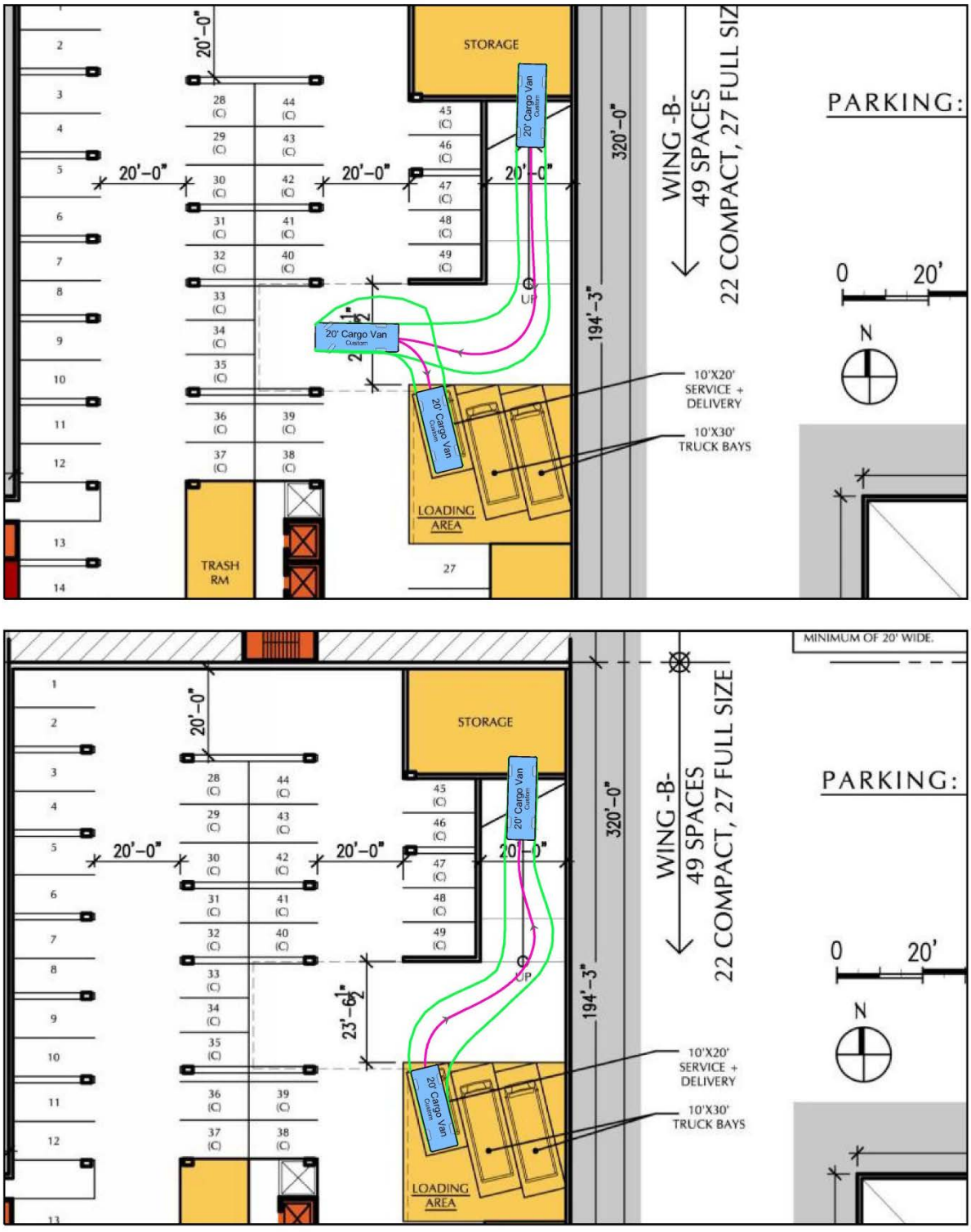

Figure 8: Service Truck Turning Movement Diagrams

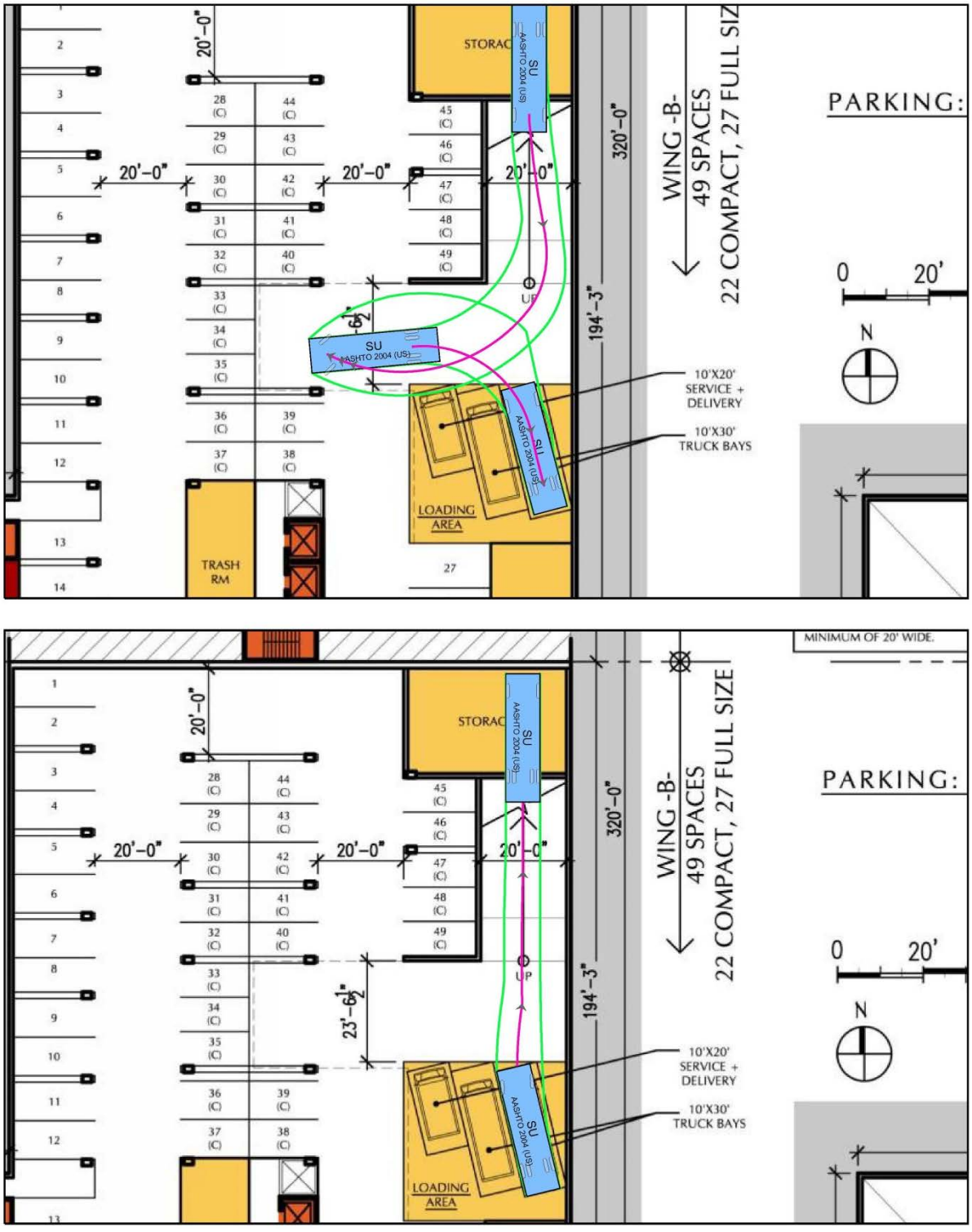

Figure 9: Outer SU-30 Turning Movement Diagrams

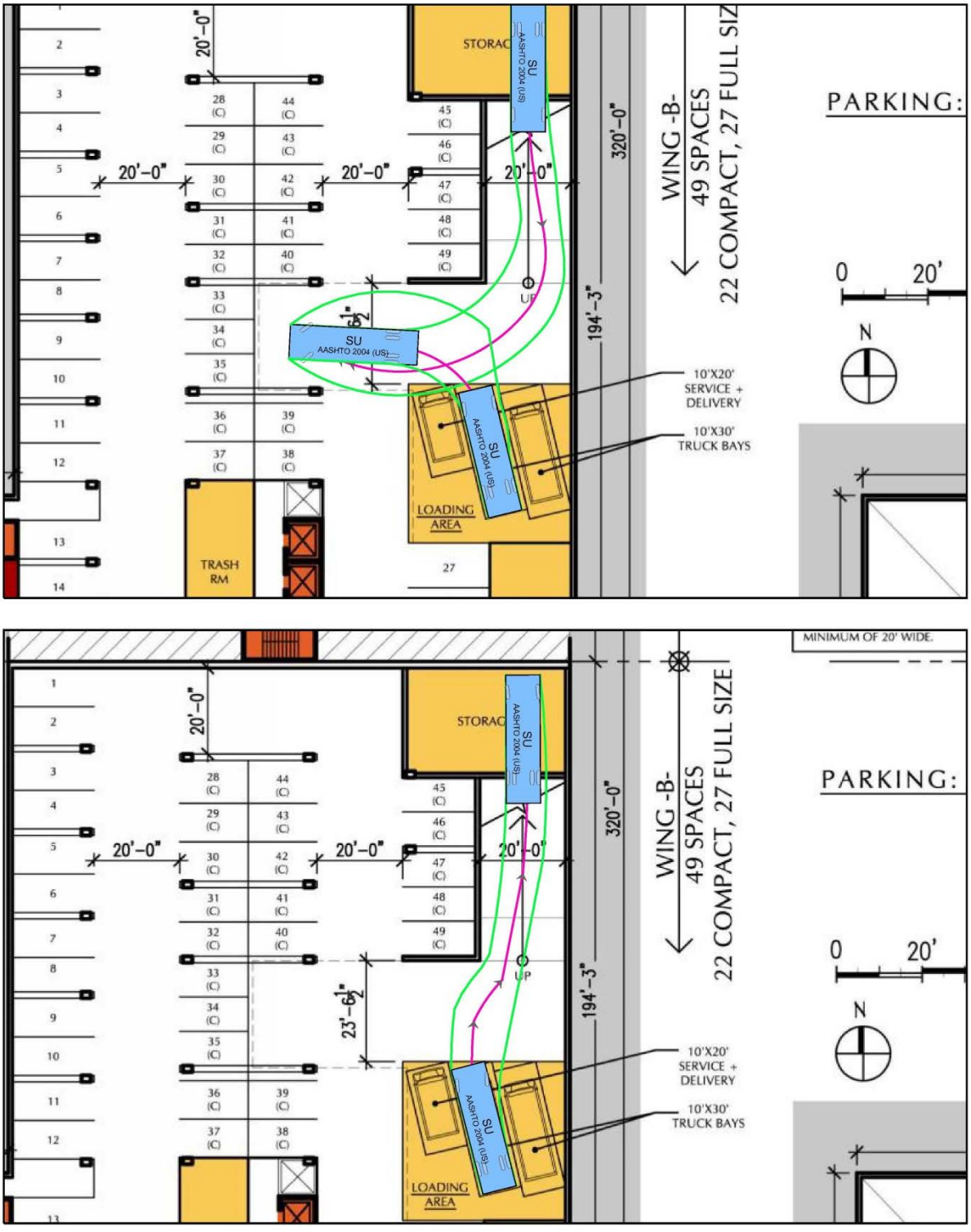

Figure 10: Inner SU-30 Turning Movement Diagrams

4. IMPACTS REVIEW

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

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

4.1 Site Transportation Demand

4.1.1 Base Trip Generation

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

First, ITE Trip Generation was used to develop base vehicular-trip rates, not accounting for reductions due to mode split. Following the base vehicular-trip rate calculations, the vehicle-trips were converted to person-trips by assuming average vehicle occupancies of 1.1 persons per vehicle for residential use and 1.8 persons per vehicle for the retail use, based on the Census Data Transportation Planning Package (CTPP) 2000. Table 4 shows the base number of trips generated by the proposed development.

Table 4: Base Vehicle- and Person-Trip Generation

Proposed Development	Quantity		AM Peak Hour			PM Peak Hour			Weekday Trips
			In	Out	Total	In	Out	Total	
Residential Component	366	DU	3	146	1863	142	77	219	2,342
Converted Person Trips at 1.1 persons/vehicle			**41**	**161**	**201**	**156**	**85**	**241**	**2,576**
Retail/Commercial Component	14,780	sf	9	5	14	26	29	55	631
Converted Person Trips at 1.8 persons/vehicle			**16**	**9**	**25**	**47**	**52**	**99**	**1,136**
Total Vehicle-Trips before Non-Auto Reduction			46	151	197	168	106	274	2,973
Total Person-Trips			**57**	**170**	**227**	**203**	**137**	**340**	**3,712**

4.1.2 Mode Split

Following base trip generation, the trips were split into each mode: transit, walking, bicycle, and vehicle. Each land use was analyzed separately in order to account for varying mode splits. The mode split assumptions are based on data from the WMATA *Ridership Survey* for residential and retail sites. For the residential uses, the site that most closely resembles the proposed PUD is the Summit Roosevelt, located approximately ½-mile from the U Street Metrorail Station. This comparable site had a mode split of approximately 22% auto, 51% transit, and 27% walk & other. The residential mode share for all sites averaged approximately 43% auto, 45% transit, and 13% walk & other. Additionally, the mode share for all residential sites rated as "Suburban-Inside the Beltway" had an average mode split of approximately 39% auto, 49% transit, and 14% walk &

other. Based on this data and concurrence from DDOT, the PUD will assume a conservative residential mode split of 35% auto, 45% transit, 15% walk, and 5% bicycle.

For the retail uses, none of the sites surveyed in the *Ridership Survey* resemble the proposed PUD exactly, but retail uses on U Street Main Street, near the U Street Metrorail Station, were surveyed. The U Street site had a retail mode split of 19% auto, 57% transit, and 25% walk & other. The average of all retail sites surveyed had an average mode split of approximately 36% auto, 37% transit, and 27% walk & other. However, the average of the retail sites includes sites in Silver Spring and Ballston, outside of the urban core, where parking is readily available for retail patrons. Therefore, the retail mode split for the PUD is based on the data from the U Street site, increased to account for the increased distance from Metrorail. The proposed PUD will assume a retail mode split of 35% auto, 40% transit, 20% walk, and 5% bicycle.

It should be noted that the residential and retail mode splits used as the basis for analysis in this study should be considered conservative. The site will offer its residents and retail employees and patrons a high level of transportation connectivity. This includes access to Metrorail less than two blocks from the site, several Metrobus routes that stop approximately 300 feet from the site at the corner of U Street and 14th Street, and numerous other transportation options such as taxis, Uber/Lyft, Capital Bikeshare, and carshares. Thus, the actual mode split of users traveling to and from the site is likely to be less auto-oriented than conservatively reviewed in this study.

4.1.3 Multi-Modal Trip Generation

Based on the trip generation calculations and mode split assumptions shown previously, Table 5 shows the resulting calculations by mode. The proposed development will generate approximately 69 vehicular trips, 102 transit trips, 35 walking trips, and 11 bicycle trips during the morning peak hour; and 94 vehicular trips, 147 transit trips, 55 walking trips, and 17 bicycle trips during the afternoon peak hour.

Table 5: Multi-Modal Trip Generation

Trip Generation by Land Use & Mode		AM Peak Hour			PM Peak Hour			Weekday Trips
		In	Out	Total	In	Out	Total	
Residential								
Transit Person-Trips	45%	19	73	91	70	38	109	1,159
Walking Person-Trips	15%	6	24	30	23	13	36	386
Bicycling Person-Trips	5%	2	8	10	8	4	12	129
Vehicular Person-Trips	35%	14	56	70	55	30	84	902
Vehicle-Trips		***13***	***51***	***64***	***50***	***27***	***76***	***820***
Retail								
Transit Person-Trips	40%	6	4	10	20	21	41	454
Walking Person-Trips	20%	3	2	5	9	10	19	227
Bicycling Person-Trips	5%	1	0	1	2	3	5	57
Vehicular Person-Trips	35%	6	3	9	16	18	34	398
Vehicle-Trips		***3***	***2***	***5***	***9***	***10***	***19***	***221***
Overall Trip Generation								
Transit Person-Trips		25	77	102	90	59	148	1,613
Walking Person-Trips		9	26	35	32	23	56	613
Bicycling Person-Trips		3	8	11	10	7	17	186
Vehicular Person-Trips		20	59	79	71	48	119	1,300
Total Person-Trips		**57**	**170**	**227**	**203**	**137**	**340**	**3,712**
Total Vehicle-Trips		***16***	***53***	***69***	***59***	***37***	***95***	***1,041***

4.2 Vehicular Impacts

This section details the vehicular trips generated in the study area along the vehicular access routes, defines the analysis assumptions, analyzes the vehicular impacts of the impacts of the proposed development, and makes recommendations for improvements where needed.

4.2.1 Scope of Analysis

The purpose of the vehicular capacity analysis is to determine the existing conditions of the intersections located in the immediate vicinity of the proposed development. The following intersections were selected, as shown in Figure 11:

1. W Street and 14th Street NW
2. V Street and 15th Street NW
3. V Street and 14th Street NW
4. U Street and 15th Street NW
5. U Street and 14th Street NW
6. W Street and 15th Street/Florida Avenue/New Hampshire Avenue NW

Intersection capacity analyses were performed for the existing conditions at each intersection within the study area during the morning and afternoon peak hours, as well as for future conditions with and without the proposed development. The study scenarios are as follows:

- 2014 Existing Conditions
- 2017 Future Conditions without Development (2017 Background)
- 2017 Future Conditions with Development (2017 Future)

The *Synchro, Version 7.0* software package was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology. The *Synchro* model was compiled using signal timings provided by DDOT and with lane configurations and traffic volumes collected by Gorove/Slade. The following sections review the assumptions made for the technical analyses, as summarized in Table 6.

4.2.2 Traffic Volume Assumptions

The following section reviews the traffic volume assumptions and methodologies used in the roadway capacity analyses, as summarized in Table 6.

2014 Existing Conditions

The overall purpose of this study is to show what effect the proposed development will have on the transportation system in the study area. The existing conditions in and around the site are characterized in order to provide a foundation for assessing the transportation implications of the proposed development. This is determined by examining the peak traffic hours, which are directly associated with the peaking characteristics of the site and the adjacent transportation system. These peaking characteristics are found through analysis of existing count data.

DDOT and National standards require that traffic counts be conducted on a weekday, not including Monday or Friday, when traffic conditions can be described as “typical”. This includes the consideration for adjacent uses, such as retail, special

events, and recreation facilities and for major traffic generators, such as the area public school system or any large public or private institutions. Weekend and other off-peak periods are also often reviewed if the study area includes other uses that may be relatively inactive during the "typical" weekday.

The traffic counts conducted on a "typical" day are used to determine the morning and afternoon "peak hour" of traffic within the study area. According to the Highway Capacity Manual (HCM) methodologies, a one-hour analysis period is preferred. Analysis periods that exceed one hour are not usually used because traffic conditions are typically not steady for long time periods and because the adverse impact of short peaks in traffic demand may not be detected in a long time period. The "peak hour" represents the worst-case scenario, when the system traffic volumes are the highest. The use of a "typical" weekday morning and afternoon peak hours are used to ensure that conclusions regarding adverse impacts and their respective mitigation measures would apply to the vast majority of time roadways are used in the study area. Although there may be times when volume flows exceed these conditions, such as during special events, holiday weekends, or other times depending on the study area and site location, it is the industry standard to design transportation infrastructure for the peak times during "typical" weekdays.

In order to ensure that the data collected contains the peak hour, traffic counts are taken for a period of several hours during the morning and afternoon peak periods. From these peak periods, a peak hour is derived for both the morning and the afternoon time periods. According to the Transportation Impact Analyses for Site Development Manual published by the Institute of Transportation Engineers (ITE), data is generally collected during the weekday morning (7:00 to 9:00 AM) and afternoon (4:00 to 6:00 PM) peak hours. Although this is the standard, Gorove/Slade usually collects data for a three-hour (or longer) period to ensure that the peak hour is contained within the data collection timeframe.

The peak period counts are analyzed to determine the one hour during the morning and afternoon periods that contains the highest cumulative directional traffic demands. From each peak period count, the morning and afternoon "peak hours" are determined by summing up the four fifteen-minute consecutive time periods in the study area that experience the highest cumulative traffic volumes. These morning and afternoon "peak hours" are analyzed for the system of intersections investigated, choosing the "peak hour" of the entire system instead of each individual intersection.

Following the above guidelines, traffic counts, including vehicular and pedestrian volumes, were conducted by Gorove/Slade at the key study intersections between the hours of 6:30 and 9:30 AM and between 4:00 and 7:00 PM on Wednesday, May 7, 2014 and Wednesday, June 12, 2013. These count dates represents "typical" weekdays when the DC public school systems were in session, as well as the surrounding counties in Maryland and Virginia. These "typical" weekdays also represent time periods that include normal operation for other major traffic generators in the study area. It was agreed through conversations with DDOT staff that no adjustment was needed to be made to the 2013 counts. The results of the traffic counts are included in the Technical Attachments. The morning and afternoon peak hours for the system of intersections being studied occurred between 8:00 – 9:00 AM and 5:45 – 6:45 PM, respectively. Peak hour traffic volumes for the existing conditions are shown on Figure 12 for the morning and afternoon peak hours.

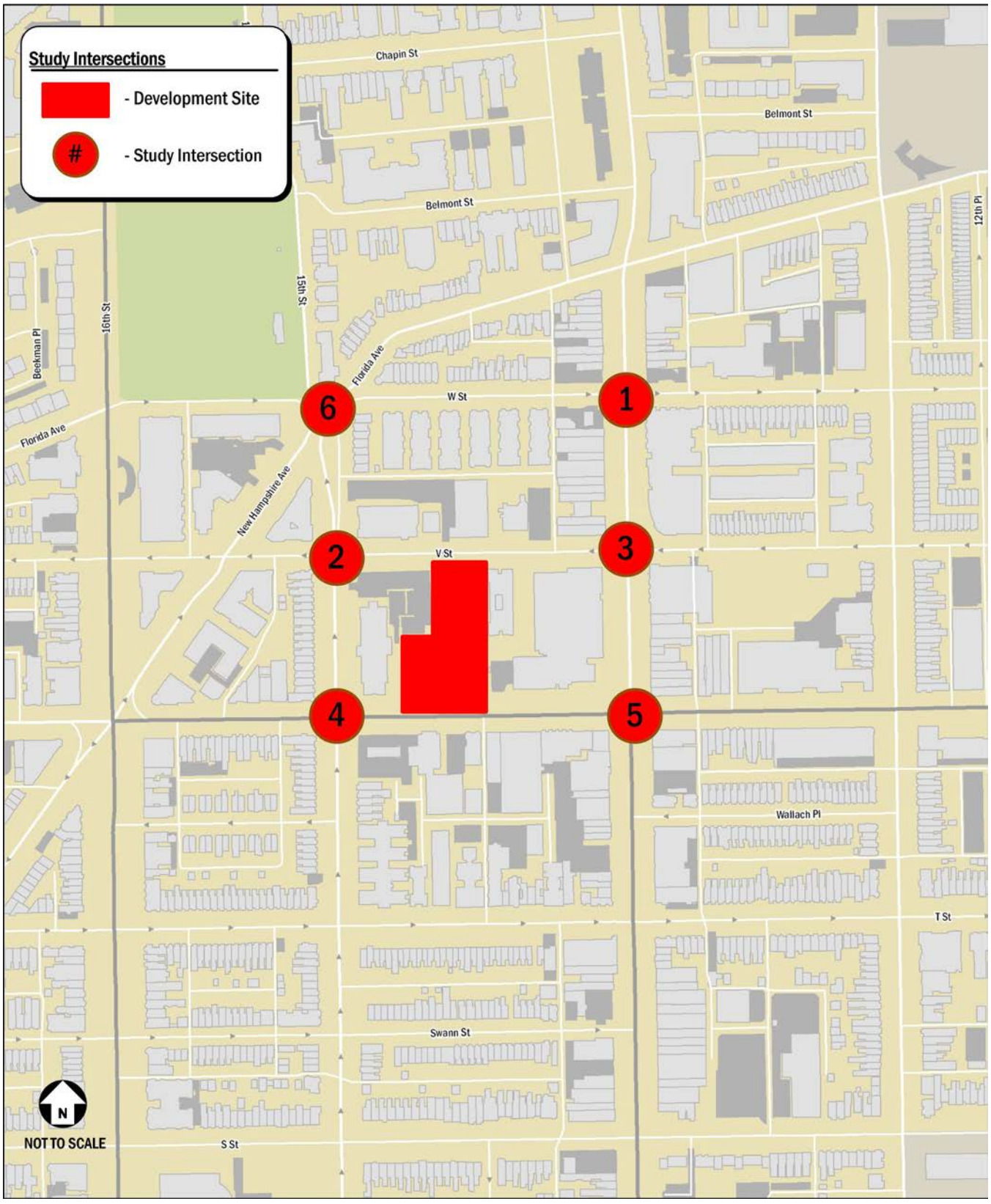

Figure 11: Study Intersections

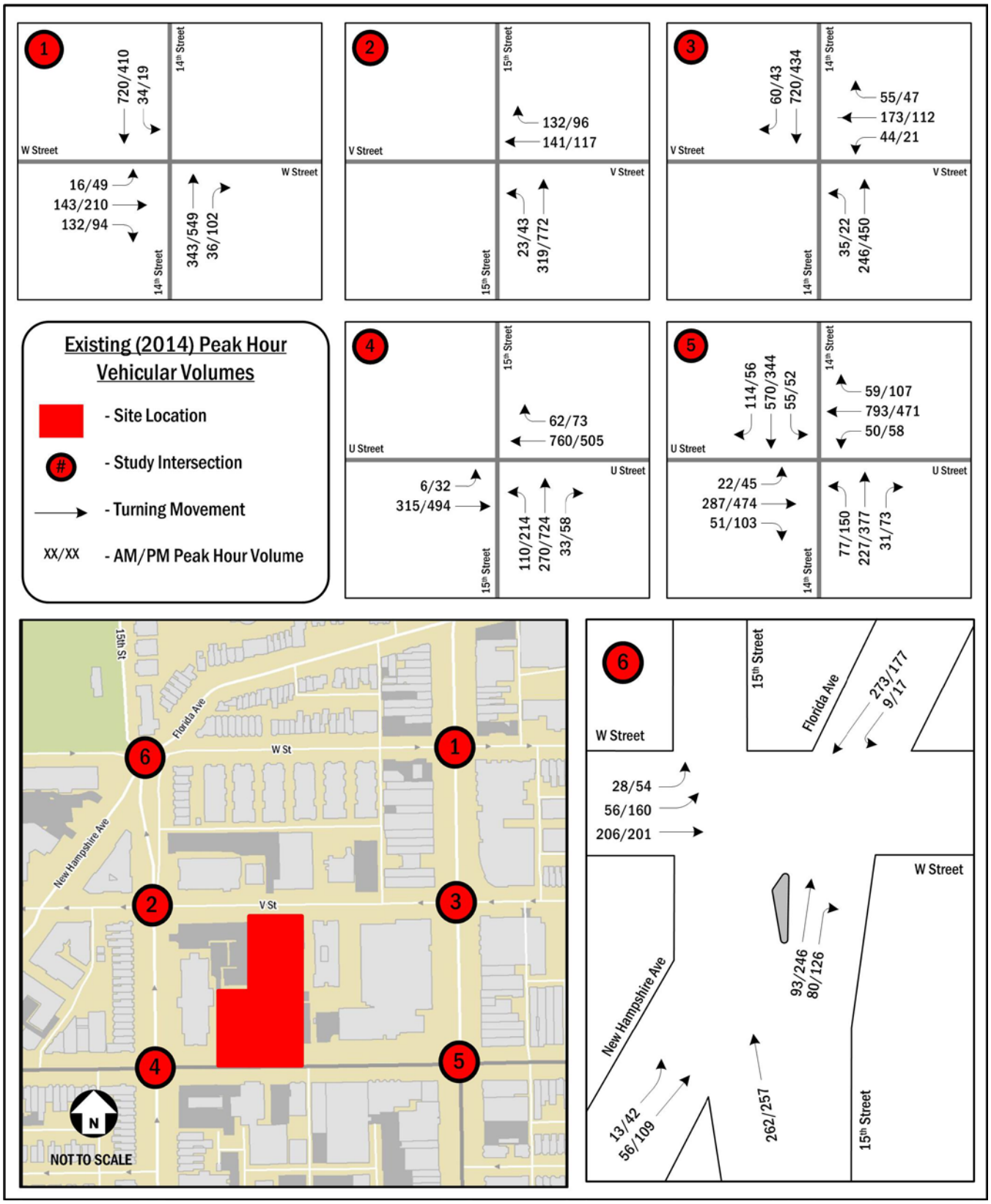

Figure 12: Existing Peak Hour Vehicular Volumes

2017 Future Conditions without Development (2017 Background)

The Portner Place development is anticipated to be complete in 2017. The traffic projections for the future condition without the development consist of the traffic generated by background developments with planned completion by 2017 added to the existing traffic volumes. Only developments that meet the criteria of being approved and having an origin/destination within the study area are including in the 2017 Background scenario. As discussed previously, the only developments that fit these criteria are 1921 14th Street, 2200 14th Street, 2221 14th Street, V Street Residences, and The Louis at 14th/U.

Available background development traffic studies were used to determine the number of trips added for the background developments. These documents were used to determine the number of trips generated, the mode split percentages, and the trip routing. According to these studies, the background developments are expected to collectively generate 79 vehicular trips and 189 non-auto trips during the morning peak hour, and 154 vehicular trips and 365 non-auto trips during the afternoon peak hour.

In addition to the background developments, inherent growth on the study area roadways due to ambient growth in the vicinity of the site was accounted for with a one and a half (1.5) percent per year growth rate compounded annually over the study period. This growth rate was applied along the study area roadways.

The traffic volumes generated by the background developments were added to the 2014 existing traffic volumes plus growth in order to establish the 2017 background traffic volumes. The traffic volumes for the 2017 background conditions are shown on Figure 13 for the morning and afternoon peak hours.

2017 Future Conditions with Development (2016 Total Future)

The future conditions scenario with site development adds trips generated by the proposed development to the 2017 future conditions without development scenario. Regional traffic patterns were analyzed in order to determine the trip distribution for vehicles accessing the site, as shown in Figure 14. The majority of site trips will be concentrated on 14th Street because it provides north-south mobility and connects the site with roadways to the north and south that provide east-west mobility within the District. Most of the outbound trips will be shifted from 14th Street to 15th Street and V Street since they are one-way northbound and westbound, respectively. A limited number of trips will be generated along local roads because most local trips are anticipated to be made by walking, cycling or transit. The site-generated traffic volumes are shown in Figure 15 for the morning and afternoon peak hours.

The traffic volumes for the 2017 Total Future conditions were calculated by adding the site-generated traffic volumes to the 2017 background traffic volumes. Thus the future conditions with the proposed development include traffic generated by the existing volumes, background development through the year 2017, ambient growth in the study area, and the proposed Portner Place development. The 2017 Total Future traffic volumes are shown on Figure 16 for the morning and afternoon peak hours.

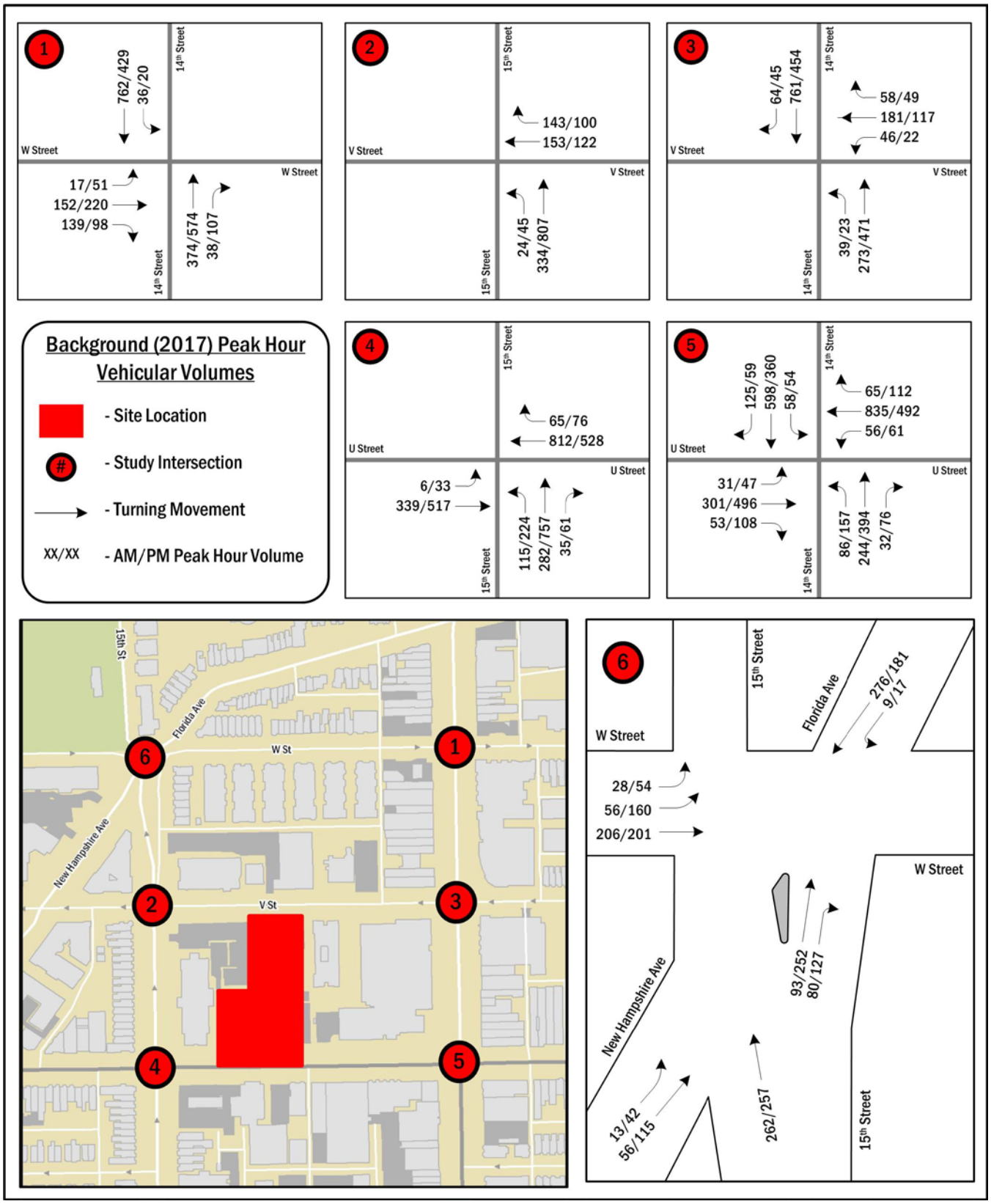

Figure 13: Background Peak Hour Vehicular Volumes

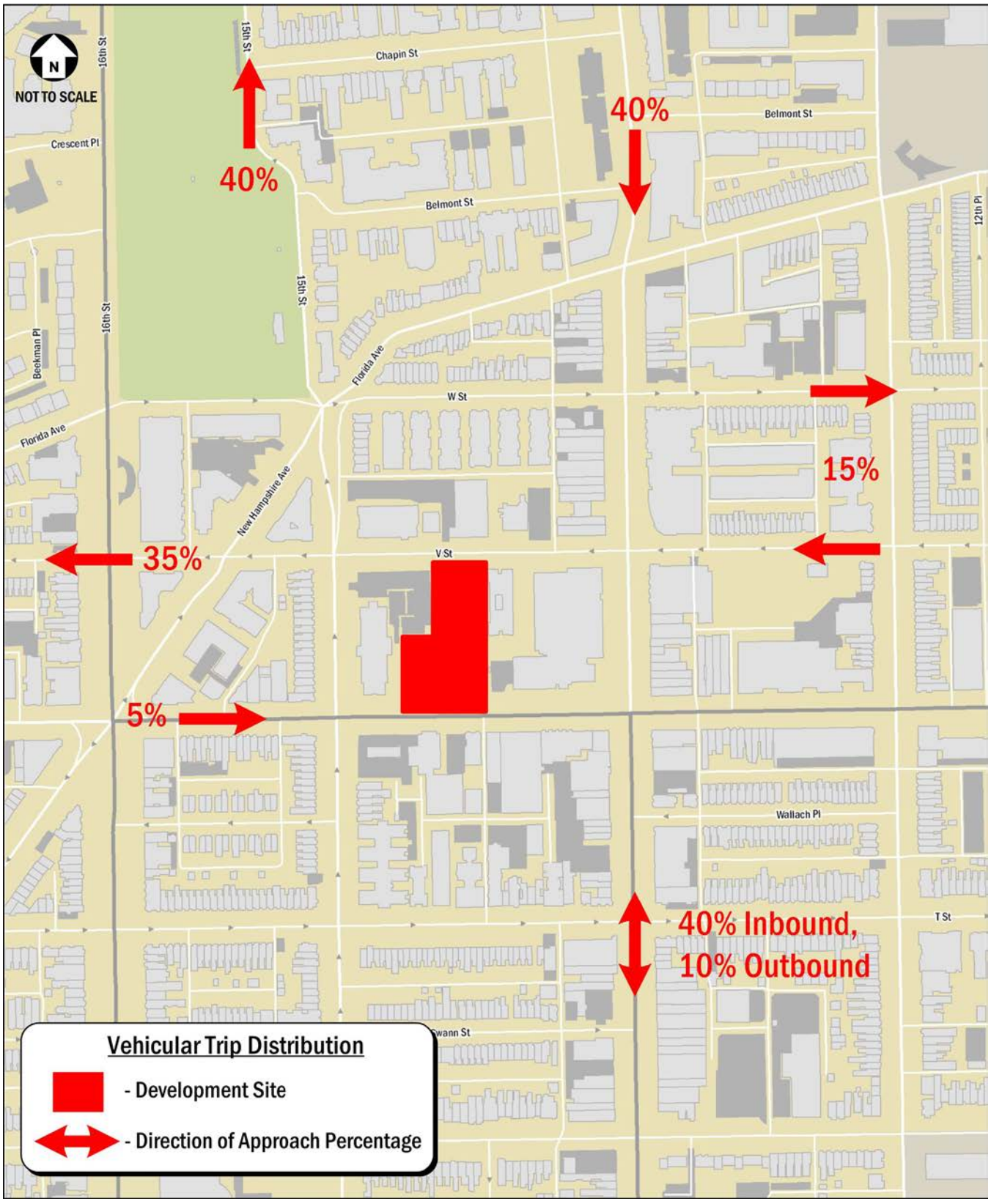

Figure 14: Vehicular Trip Distribution

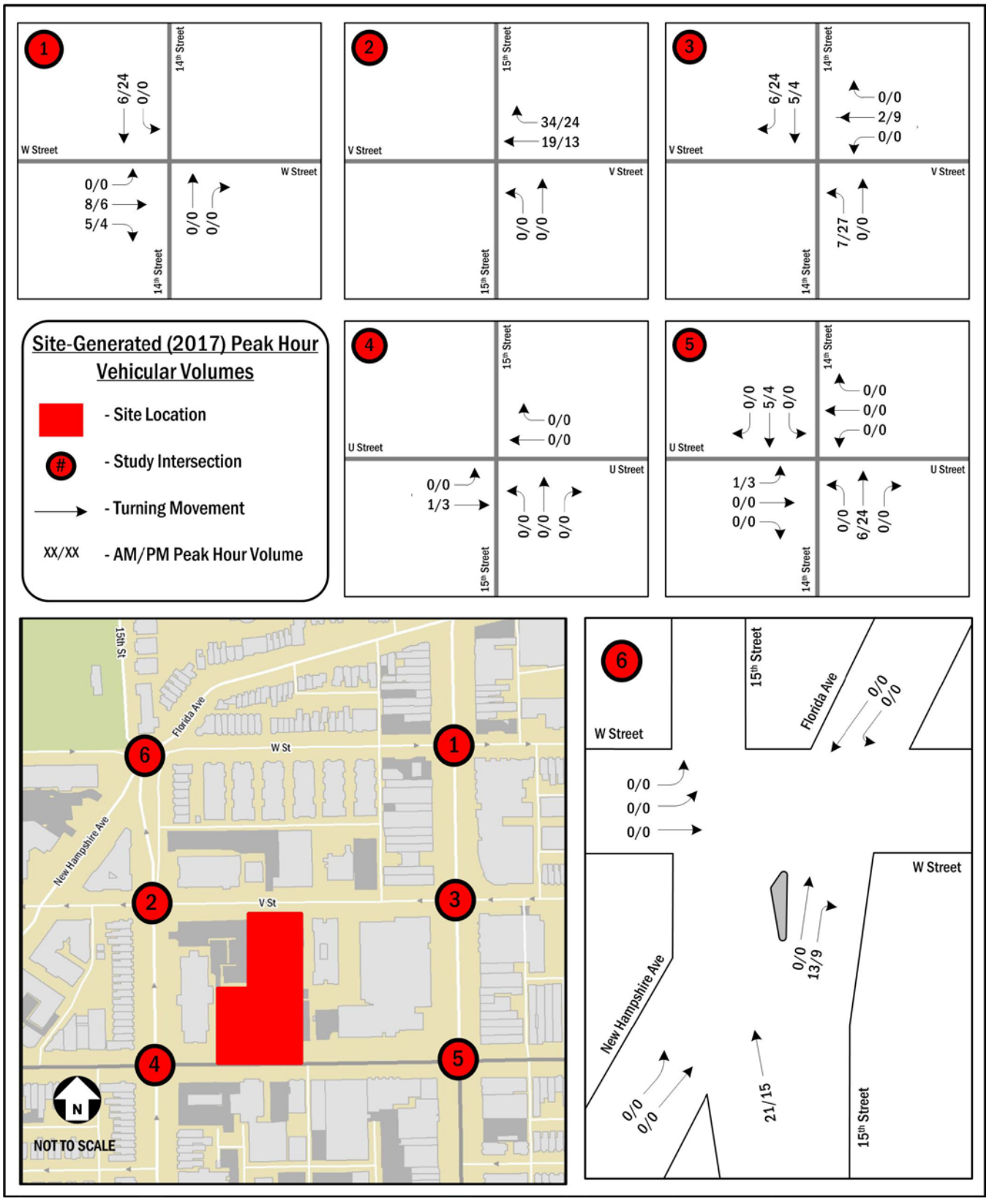

Figure 15: Site-Generated Peak Hour Vehicular Volumes

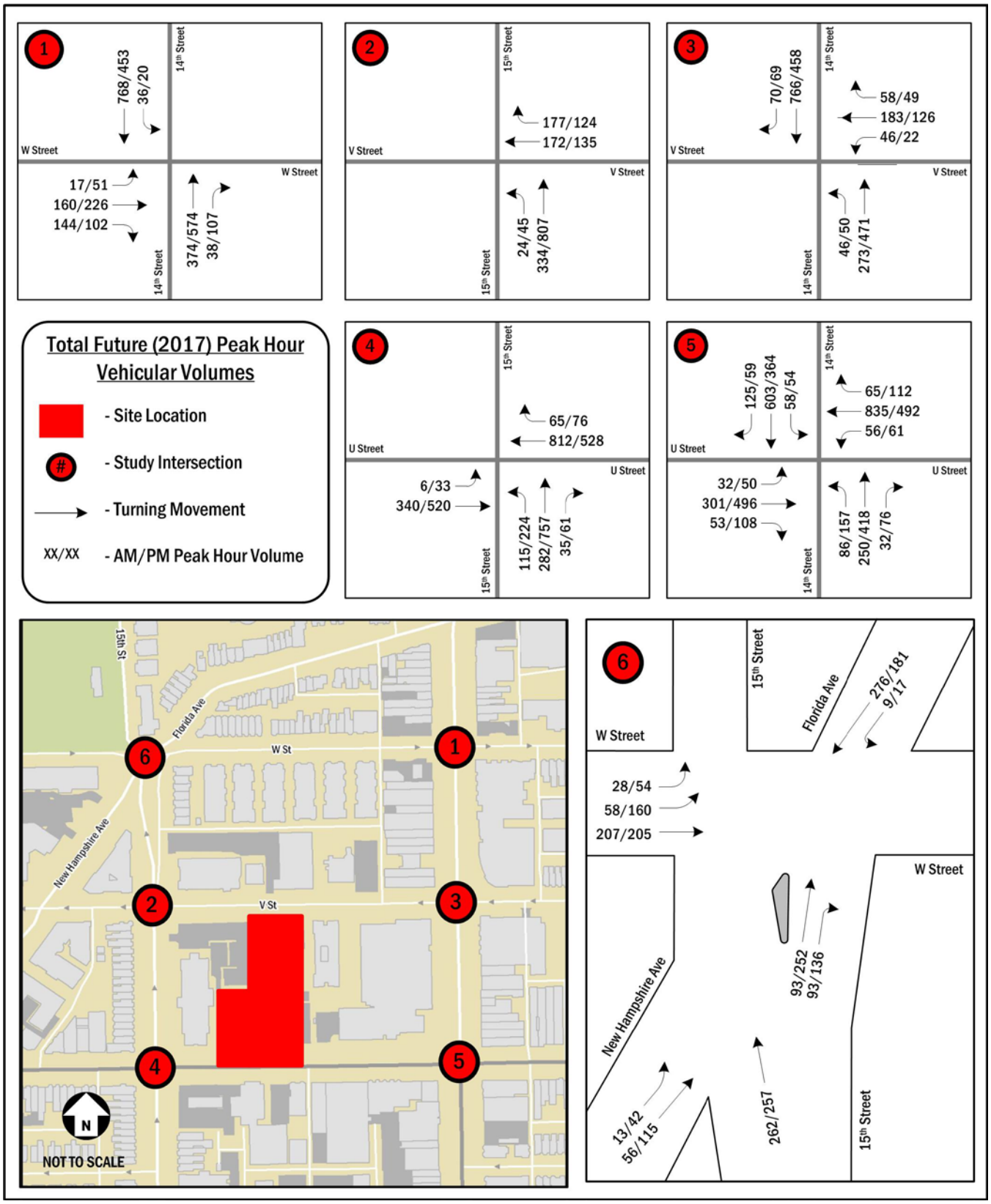

Figure 16: Total Future Peak Hour Vehicular Volumes

4.2.3 Geometry and Operations Assumptions

The following section reviews the roadway geometry and operations assumptions made and the methodologies used in the roadway capacity analyses, as summarized in Table 6.

2014 Existing Conditions

Gorove/Slade conducted field reconnaissance to confirm the existing lane configurations and traffic controls at the intersections within the study area, as shown on Figure 17. Existing signal timings and offsets were obtained from DDOT and confirmed during field reconnaissance.

2017 Future Conditions without Development (2017 Background)

The lane configurations and traffic controls for the 2017 future conditions without the proposed development are based on the 2014 existing conditions. No roadway infrastructure changes were assumed for the future conditions without development for 2017.

2017 Future Conditions with Development (2017 Total Future)

The lane configurations and traffic controls for the 2017 future conditions with the proposed development are largely based on the 2014 existing conditions. The only change in roadway infrastructure that affects the 2017 future conditions with development is the closing of the Portner Place curb cut and the introduction of the site driveway curb cut on V street.

4.2.4 Vehicular Analysis Results

Intersection capacity analyses were performed for the three scenarios at the intersections contained within the study area during the morning and afternoon peak hours. *Synchro, Version 7.0* was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology. The results of the capacity analyses are expressed in level of service (LOS) and delay (seconds per vehicle) for each approach. A LOS grade is a letter grade based on the average delay (in seconds) experienced by motorists traveling through an intersection. LOS results range from "A" being the best to "F" being the worst. LOS E is typically used as the acceptable LOS threshold in the District; however, LOS F is sometimes accepted in urbanized areas.

The LOS capacity analyses were based on: (1) the peak hour traffic volumes; (2) the lane use and traffic controls; and (3) the Highway Capacity Manual (HCM) methodologies (using *Synchro 7* software). The average delay of each approach and LOS is shown for the signalized intersections, in addition to the overall average delay and intersection LOS grade. The HCM does not give guidelines for calculating the average delay for a two-way stop-controlled intersection, as the approaches without stop signs would technically have no delay.

Table 7 shows the results of the capacity analyses, including LOS and average delay per vehicle (in seconds) for the 2014 Existing conditions and the 2017 Background and Total Future scenarios. The capacity analysis results for the morning and afternoon peak hours are shown on Figure 18 and Figure 19, respectively.

The majority of study intersections operate at acceptable conditions during the morning and afternoon peak hours for the 2014 Existing, 2017 Background, and 2017 Total Future scenarios. The exceptions to this are the northbound approach on 15th Street at W Street, the southbound approach on Florida Avenue where in intersects with W Street, and the eastbound approach on New Hampshire Avenue where it intersects with the western leg of 15th Street, all of which would operate at an LOS F during the evening peak hour under all scenarios. Delays at these approaches are likely attributable to the high volumes of vehicles exiting the city during the PM peak hour. The development would only add additional vehicles on one

of these approaches, the northbound approach on 15th Street at W Street. Typically, a proposed development is considered to have an impact at an intersection if the capacity analyses yield an LOS F in the future with the proposed development where it does not in the future without the proposed development. This is not the case in this instance since the unacceptable LOS is present under existing conditions. As a result, no significant vehicular impacts are expected with the completion of the project.

Table 6: Summary of Vehicular Capacity Analysis Assumptions

2014 Existing Conditions
▪ Dates of data collection: ▫ Wednesday, May 7, 2014 ▫ Wednesday, June 12, 2013 ▫ Counts taken from 6:30 – 9:30 AM and 4:00 – 7:00 PM ▫ Count sheets in Technical Appendix ▪ System Peak: 8:00 – 9:00 AM, 5:45 – 6:45 PM ▪ Geometries and lane configurations based on existing conditions ▪ Signal timings/phasings/offsets provided by DDOT
2017 Future Conditions without Development (2016 Background)
▪ Background developments: ▫ Developments assumed completed by 2017 and with origins/destinations within the study area ▪ Background growth percentage: ▫ 1.5 percent per year applied to study area roadways. ▪ No roadway infrastructure or signal timing improvements assumed.
2017 Future Conditions with Development (2016 Total Future)
▪ Site trip generation based on ITE *Trip Generation*, 9th Edition ▫ Total AM peak hour trips assigned: 69; Total PM peak hour trips assigned: 94 ▪ Mode split determined based on: ▫ US Census data for the residential component; ▫ The average of all retail sites from WMATA's *Ridership Survey* for the retail component; and ▪ Trip distribution for vehicles based on existing traffic volumes and travel patterns in the study area as shown in Figure 14. ▪ No roadway infrastructure or signal timing improvements assumed.

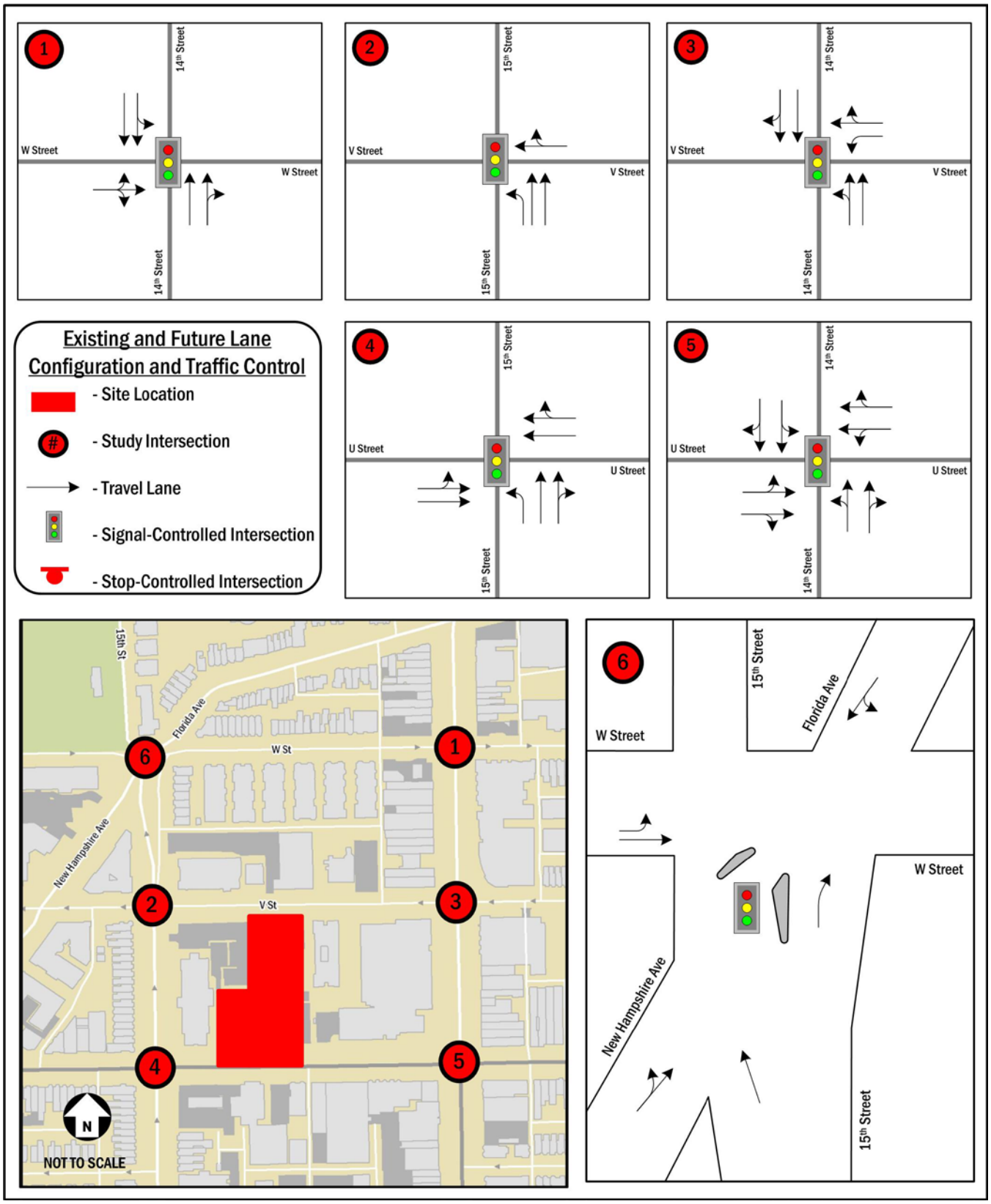

Figure 17: Existing and Future Lane Configuration and Traffic Control

Table 7: Peak Hour Capacity Analysis Results

		Existing				Background				Total Future			
Intersection	Movement	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
W Street and	EB	B	13.5	D	38.8	B	13.3	D	42.6	B	14.9	D	45.0
14th Street	NB	C	23.0	B	12.8	C	23.3	B	13.5	C	23.0	B	15.9
	SB	B	13.7	A	9.7	B	14.2	A	9.8	B	14.2	A	9.9
	Overall	**B**	**16.2**	**B**	**18.9**	**B**	**16.5**	**C**	**20.2**	**B**	**16.7**	**C**	**22.2**
V Street and 15th Street	WB	A	7.0	B	16.9	A	7.9	B	19.9	A	8.5	B	16.0
	NB	B	15.4	B	13.7	C	23.9	B	19.9	C	25.0	B	19.9
	Overall	**B**	**11.5**	**B**	**14.4**	**B**	**16.4**	**B**	**19.9**	**B**	**16.6**	**B**	**18.9**
V Street and 14th Street	WB	C	27.2	C	23.4	C	27.6	C	23.6	C	27.6	C	23.9
	NB	B	10.4	B	10.4	B	11.2	B	10.4	B	11.6	B	10.9
	SB	C	28.9	C	20.9	C	29.4	C	21.1	C	29.4	C	21.5
	Overall	**C**	**24.1**	**B**	**17.0**	**C**	**24.5**	**B**	**17.1**	**C**	**24.6**	**B**	**17.5**
U Street and 15th Street	EB	A	6.2	A	7.1	A	6.3	A	7.2	A	6.3	A	7.2
	WB	A	3.6	A	9.2	A	3.7	A	8.9	A	3.7	A	9.0
	NB	D	37.6	F	131.6	D	38.1	F	153.1	D	38.1	F	153.1
	Overall	**B**	**14.0**	**E**	**68.0**	**B**	**14.1**	**E**	**78.4**	**B**	**14.1**	**E**	**78.4**
U Street and 14th Street	EB	B	18.2	C	33.6	B	19.4	D	35.1	B	19.5	D	35.6
	WB	C	34.3	C	28.1	D	40.4	C	30.3	D	40.4	C	30.3
	NB	B	18.0	C	25.9	B	19.0	C	27.5	B	19.1	C	28.4
	SB	B	11.1	B	10.0	B	12.2	B	10.9	B	12.3	B	10.8
	Overall	**C**	**21.9**	**C**	**25.3**	**C**	**24.9**	**C**	**26.9**	**C**	**24.9**	**C**	**27.3**
W Street and	EB	D	41.0	E	57.6	D	41.0	E	58.6	D	41.0	E	58.6
15th Street	NB	A	0.5	A	1.0	A	0.5	A	1.0	A	0.5	A	1.0
	Overall	**C**	**22.9**	**C**	**26.0**	**C**	**22.8**	**C**	**26.5**	C	**22.1**	**C**	**26.2**
W Street and	EB	B	16.5	C	26.0	B	16.6	C	25.8	B	16.6	C	25.8
Florida Avenue	NB	A	2.6	A	3.4	A	3.0	A	3.9	A	3.4	A	4.0
	SB	E	68.0	F	80.5	E	69.4	F	84.2	E	69.4	F	85.1
	Overall	**C**	**30.6**	**C**	**30.3**	**C**	**31.3**	**C**	**31.3**	**C**	**30.8**	**C**	**31.2**
New Hampshire Avenue	EB	D	44.2	F	104.7	D	45.2	F	121.3	D	45.2	F	121.3
and 15th Street (West)	WB	C	24.2	B	15.2	B	18.5	B	15.5	B	18.5	B	15.5
	NB	B	13.3	C	21.1	B	12.4	C	26.8	B	14.1	C	27.5
	Overall	**C**	**22.2**	**D**	**35.1**	**B**	**19.4**	**D**	**42.1**	**B**	**19.9**	**D**	**42.3**
New Hampshire Avenue	EB	A	1.9	A	6.1	A	2.2	A	5.2	A	2.1	A	5.2
and 15th Street (East)	WB	B	14.5	B	12.1	C	24.1	B	12.4	C	24.1	B	12.2
	NB	B	18.3	B	16.7	B	18.7	B	16.9	B	18.9	B	17.0
	Overall	**B**	**13.9**	**B**	**12.9**	**B**	**19.5**	**B**	**13.1**	**B**	**19.5**	**B**	**13.1**
V Street and Site	WB									A	0.5	A	1.8
Driveway	NB									B	11.0	B	11.4

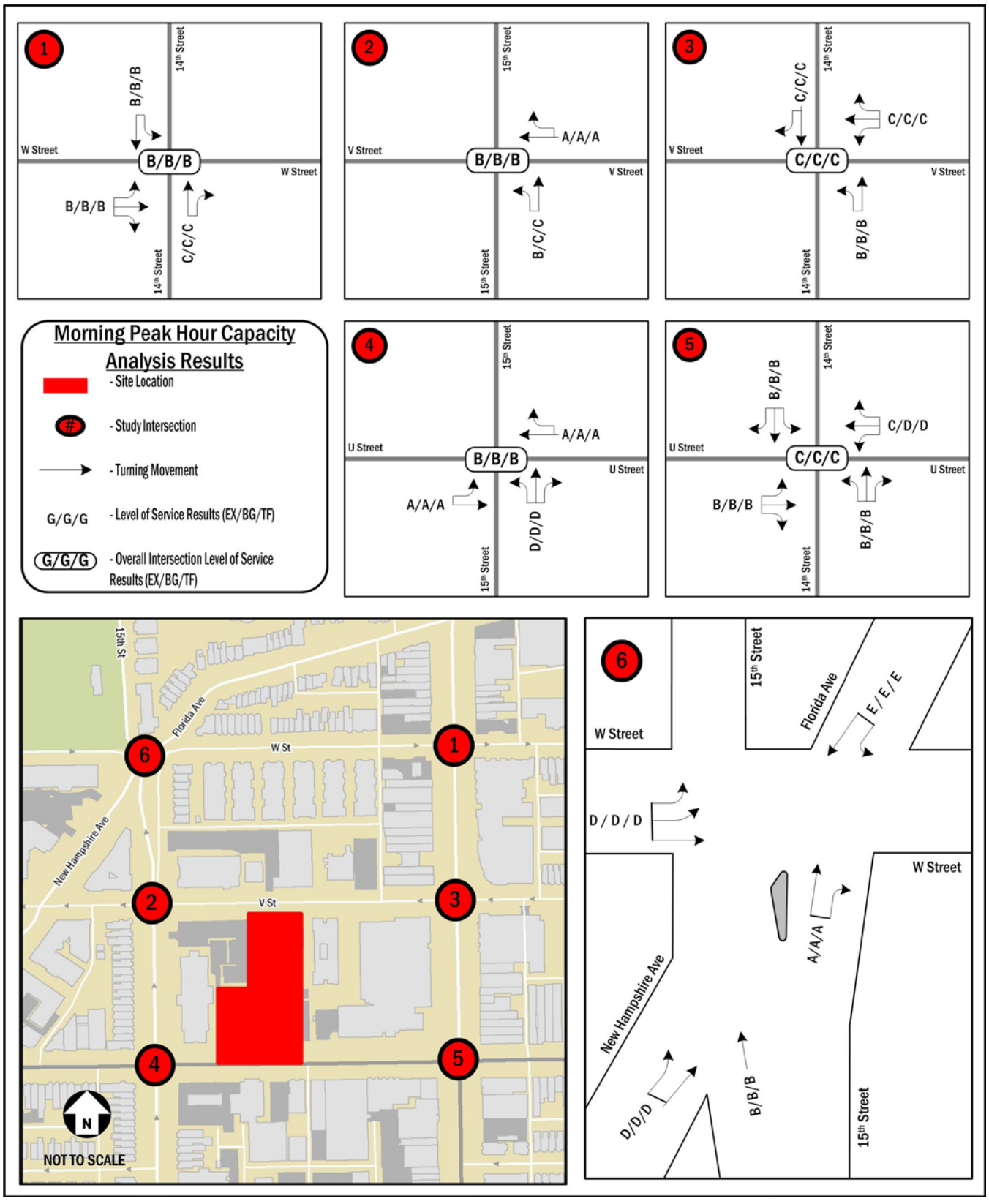

Figure 18: Morning Peak Hour Capacity Analysis Results

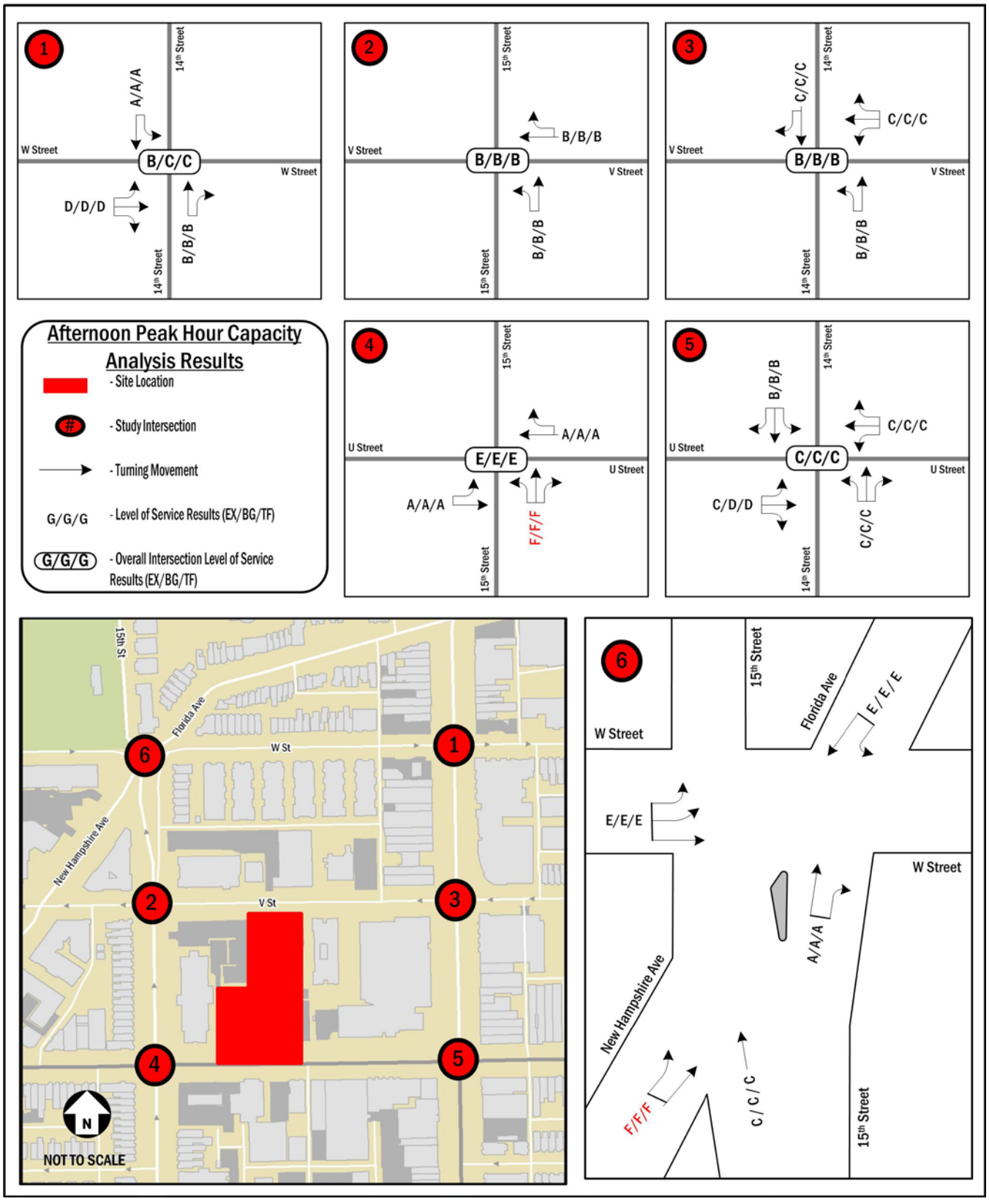

Figure 19: Afternoon Peak Hour Capacity Analysis Results

4.3 Crash Data

This section of the report reviews available crash data within the study area, reviews potential impacts of the proposed development on crash rates, and makes recommendations for mitigation measures where needed.

4.3.1 Summary of Available Crash Data

A safety analysis was performed to determine if there was an abnormally high accident rate at any study area intersection. The District Department of Transportation (DDOT) provided the last three years of intersection accident data, from 2011 to 2013. This data set included all intersections adjacent to the site. This data was reviewed and analyzed to determine the accident rate at each location. For intersections, the accident rate is measured in accidents per million-entering vehicles (MEV). The accident rates per intersections are shown in Table 8.

According to the Institute of Transportation Engineer's Transportation Impact Analysis for Site Development, an accident rate of 1.0 or higher is an indication that further study is required. Four intersections in this study area meet this criterion (as shown in red in Table 8 and detailed in Table 9). The proposed site needs to be developed in a manner to help alleviate, or at minimum not add to, the conflicts at these intersections.

Table 8: Intersection Crash Rates

Intersection	Total Crashes	Pedestrian Crashes	Bicycle Crashes	Rate per MEV*
14th Street & U Street	166	6	10	**6.53**
14th Street & V Street	48	2	11	**3.56**
14th Street & W Street	34	1	4	**2.17**
15th Street & U Street	50	2	4	**2.50**
15th Street & V Street	6	0	1	**0.66**
15th Street & W Street/Florida Avenue/New Hampshire Avenue	13	1	1	0.88

** - Million Entering Vehicles; volumes estimated based on turning movement count data*

The crash summary data in Table 8 shows four intersections with a crash rate over 1.0 crashes per million entering vehicles – the rate which is considered a threshold for further analysis. A rate over 1.0 does not necessarily mean there is a significant problem at an intersection, but rather it is a threshold used to identify which intersections may have higher crash rates due to operational, geometric, or other issues.

For these four intersections, the crash type information from the DDOT crash data was reviewed to see if there is a high percentage of certain crash types. Generally, the reasons for why an intersection has a high crash rate cannot be derived from crash data, as the exact details of each crash are not represented. However, some summaries of crash data can be used to develop general trends or eliminate some possible causes. Table 9 contains a breakdown of crash types reported for the four intersections with a crash rate over 1.0 per MEV.

Table 9: High Crash Rate Intersections by Crash Type

	Intersection	Rate per MEV	Right Angle	Left Turn	Right Turn	Rear End	Side Swiped	Head On	Parked	Fixed Object	Ran Off Road	Ped. Involved	Backing	Non-Collision	Under/ Over Ride	Unspecified	Total
1.	14th Street & U Street	**6.53**	11	12	12	30	58	1	8	3	1	7	11	0	2	10	**166**
			7%	*7%*	*7%*	*18%*	*35%*	*1%*	*5%*	*2%*	*1%*	*4%*	*7%*	*0%*	*1%*	*6%*	
2	14th Street & V Street	3.56	5	3	6	4	10	2	3	0	0	2	7	0	0	6	**48**
			10%	*6%*	*13%*	*8%*	*21%*	*4%*	*6%*	*0%*	*0%*	*4%*	*15%*	*0%*	*0%*	*13%*	
3.	14th Street & W Street	2.17	5	1	1	5	12	0	2	1	0	1	2	0	0	4	**34**
			15%	*3%*	*3%*	*15%*	*35%*	*0%*	*6%*	*3%*	*0%*	*3%*	*6%*	*0%*	*0%*	*12%*	
4	15th Street & U Street	2.50	6	0	5	9	19	0	1	1	0	1	5	0	0	3	**50**
			12%	*0%*	*10%*	*18%*	*38%*	*0%*	*2%*	*2%*	*0%*	*2%*	*10%*	*0%*	*0%*	*6%*	

4.3.2 Potential Impacts

This section reviews the four locations with existing crash rates over 1.0 MEV and reviews potential impacts of the proposed development.

- *14th Street & U Street NW*

  This intersection was found to have an unusually high crash rate, with 6.53 crashes per MEV over the course of the 3-year study period. The majority of the crashes at this intersection were side swiped vehicles. In this case, side swipe crashes are likely due to vehicles making a last-second lane change or as a result of significant on-street parking which may result in swipe crashes when vehicles pull out of parking spaces without looking. Rear end collisions were also high likely resulting from vehicles not slowing down enough or paying attention when the signal at their approach is red.

- *14th Street & V Street NW*

  This intersection was found to have a high crash rate, with 3.56 crashes per MEV over the course of the 3-year study period. The types of crashes varied widely, but the highest numbers of crashes at this intersection were side swiped vehicles. In this case, side swipe crashes are likely due to vehicles making a last-second lane change or as a result of significant on-street parking which may result in swipe crashes when vehicles pull out of parking spaces without looking.

- *14th Street & W Street NW*

  This intersection was found to have a high crash rate, with 2.17 crashes per MEV over the course of the 3-year study period. The majority of the crashes at this intersection were side swiped vehicles. As stated above, side swipe crashes at signalized intersections are often a result of vehicles making a last-second lane change or as a result of significant on-street parking which may result in swipe crashes when vehicles pull out of parking spaces without looking.

- *15th Street & U Street NW*

  This intersection was found to have a high crash rate, with 2.50 crashes per MEV over the course of the 3-year study period. The majority of the crashes at this intersection were side swiped vehicles. As mentioned previously, side swipe crashes at signalized intersections are often a result of vehicles making a last-second lane change or as a

result of significant on-street parking which may result in swipe crashes when vehicles pull out of parking spaces without looking.

Although there are four intersections within the study area that have a high crash rate, this report does not recommend mitigation measures as the collisions are an existing condition and the proposed development is not projected to make significant changes to the commuting patterns, operations, or geometry at these intersections.

4.4 Non-Auto Impacts

In addition to the local vehicular network, the Portner Place development is served by public transit, bicycle, and pedestrian networks, as described in Chapter 2. This section of the report discusses the non-auto impacts of the site by reviewing the ability of each non-auto transportation network to handle the expected trips.

4.4.1 Transit

The proposed development will generate transit trips due to the residential nature of the site. As stated in Section 2, there is a significant amount of transit service nearby, including the Metrorail Green and Yellow Lines and several bus routes. The U Street Metrorail station is just under a quarter mile from the site and there are several bus lines also within a quarter mile of the site. Based on US Census data for the census tract of the development, roughly half of transit users utilize the Metrobus system and half use Metrorail.

WMATA studied the capacity of Metrorail stations in its 2008 *Station Access & Capacity Study*[1]. The study analyzed capacity of Metrorail stations for their vertical transportation, for example the capacity of the station at elevators, stairs, and escalators to shuttle patrons between the street, mezzanine, and platforms. The study also analyzed stations capacity to process riders at farecard gates. For both analyses, vertical transportation and farecard gates, volume to capacity ratios were calculated for existing data (from 2005) and projections for the year 2030. Based on findings presented in the *Station Access & Capacity Study*, the U Street station can accommodate the additional riders generated by the proposed development. The study did not find any high volume to capacity ratios at the station.

WMATA also studied capacity for its bus routes in *DC's Transit Future System Plan*[2]. This study lists the bus routes with the highest load factor (a ratio of passenger volume to seated bus capacity). Four of the seven Metrobus routes that travel near the development site are cited for having unacceptable load factors. The load factor for these routes ranges from 1.06 (90, 92) to 1.41 (S2, S4). As discussed in Section 2, an extension of the Dupont-Georgetown-Rosslyn Circulator route to U Street is planned. This will help absorb some of the capacity issues seen along the 90, 92, and X3 routes.

4.4.2 Bicycle

The impacts of bicycling will be relatively less than impacts to other modes, due to the relatively lower amount of cycling trips generated.

Cyclists traveling to and from the site are expected to take advantage of existing and planned routes. Near the site, 13th Street, 14th Street, and 15th Street provide the safest north-south connectivity. 13th Street offers an on-street signed bicycle route. V Street and T Street provide bicycle lanes and sharrows for east-west connectivity, which connect to additional bicycle lanes or bicycle routes in all directions. Based on the quality of the routes near the project's location, the proposed development will not have a negative impact to bicycle facilities in the study area.

[1] *Station Access & Capacity Study Final Report*, April 2008, Washington Metropolitan Area Transit Authority
[2] *DC's Transit Future System Plan Final Report*, April 2010, District of Columbia Department of Transportation

4.4.3 Pedestrian

The Portner Place development is located in a walkable area, with connections to major existing and future retail locations, employment sites, residential neighborhoods, and transit connections.

The origins and destinations of these trips are likely to be:

- Employment opportunities where residents can walk to work
- Retail locations, primarily along U Street
- Transit connections such as the U Street Metrorail station or nearby Metrobus stops

Based on these origins/destinations, most pedestrians generated by the proposed development will travel along U Street. 14th Street and 16th Street may also be used to a lesser extent as some Metrobus stops are east and west of the site. About half of the transit riders are expected to take the bus, and therefore will likely be walking within a quarter mile radius of the site. The other half is expected to take the train which will consist of walking approximately a quarter mile along U Street to the U Street Metrorail station.

Most of the sidewalks surrounding the site are of high quality offering safe connections to transit, retail, and employment in all directions. A summary of the sidewalk availability and quality is shown previously on Figure 5. The capacity of the sidewalks to handle the projected number of pedestrians will not be negatively impacted by this project, as long as future redevelopments build sidewalks to DDOT standards. DDOT requires that all sidewalks are a minimum of 6 feet wide, with sidewalks on arterial streets 8 to 10 feet wide depending on the location. The proposed widths of the sidewalks adjacent to the site meet the District standard. The *Highway Capacity Manual* (HCM) outlines methodologies for calculating capacity of sidewalks based on the sidewalk widths. According to methodologies contained in the HCM, the LOS grade on a 6 foot wide sidewalk does not reach LOS D until the sidewalk volumes reach 2,000 pedestrians per hour. Similarly, LOS E is not reached until volumes reach 3,000 pedestrians per hour. The existing pedestrian counts adjacent to the site combined with the projected pedestrian trips associated with the site will not approach these thresholds. Thus, the sidewalk capacity will not be exceeded, and there will be no detrimental impacts.

5. CONCLUSIONS

This report has presented the findings of a Traffic Impact Study (TIS) conducted for the Portner Place development located in the northwest quadrant of Washington, DC in support of a Planned Unit Development (PUD) application and zoning map amendment from R-5-B District to R-5-D and CR District. Based on the analyses presented in this report, the following can be concluded:

- The site is well served by carshare, transit, pedestrian, bicycle, and Capital Bikeshare facilities.
- The project is planned to provide two 30' loading berths and one 20' loading berth on the lower level of the two-story below-grade parking garage. Given the size of the residential units and retail space in the development, these loading berths are adequate to serve the development.
- The project is planned to provide a total of 137 parking spaces. This meets the zoning requirements and is sufficient to meet the demands of the site.
- The following Transportation Demand Management (TDM) strategies are planned to be implemented:
  - The Applicant will identify a TDM Leader (for planning, construction, and operations) and provide DDOT/Zoning Enforcement with annual TDM Leader contact updates.
  - The Applicant will provide an adequate amount of short-and long-term bicycle parking spaces, including secure bicycle rooms within the building that can house up to 137 bicycles.
  - The Applicant will unbundle parking costs from the cost of lease or purchase.
  - The Applicant will post all TDM commitments online, publicize availability, and allow the public to see what commitments have been promised.
  - The Applicant will provide website links to CommuterConnections.com and goDCgo.com on developer and property management websites.
  - A TransitScreen will be installed in the residential lobbies to keep residents and visitors informed on all available transportation choices and provide real-time transportation updates. In addition, the TDM Leader will make printed materials related to local transportation alternatives available to residents and employees upon request and at move-in for new tenants.
  - The Applicant will provide a one-time membership fee at initial lease and/or sale of unit in a car sharing and/or Capital Bikeshare program for each residential unit.
- Most of the study intersections operate at acceptable conditions during the morning and afternoon peak hours for the 2014 Existing, 2017 Background, and 2017 Total Future scenarios. As a result, no significant vehicular impacts are expected with the completion of the project.