

**COMPREHENSIVE TRANSPORTATION REVIEW**

# **400 FLORIDA AVENUE NE PUD**

**WASHINGTON, DC**

**September 12, 2016**



**ZONING COMMISSION**  
District of Columbia  
CASE NO.16-10  
EXHIBIT NO.27D

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## EXECUTIVE SUMMARY

The following report is a Comprehensive Transportation Review (CTR) for the 400 Florida Avenue NE development. The report reviews the transportation aspects of the project's consolidated Planned Unit Development (PUD) application. The Zoning Commission Case Number is 16-10.

The purpose of this study is to evaluate whether the project will generate a detrimental impact to the surrounding transportation network. This evaluation is based on a technical comparison of the existing conditions, background conditions, and future conditions. This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network assuming that all planned site design elements are implemented.

### Proposed Project

The 400 Florida Avenue NE site is currently occupied by a vacant lot, a two-story carry-out restaurant, and one vacant two-story structure. The site is generally bound by a public alley to the north, 5<sup>th</sup> Street to the east, Florida Avenue to the south, and 4<sup>th</sup> Street to the west. The resulting development will be a mixed-use development consisting of 110 residential dwelling units and 164 hotel rooms.

As part of the development, sections of the roadway network surrounding the site will be improved. Pedestrian facilities along the perimeter of the project on 4<sup>th</sup> Street, 5<sup>th</sup> Street, and Florida Avenue will be improved so that they meet or exceed DDOT and ADA standards. This includes sidewalks that meet or exceed width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as room for outdoor seating.

Vehicular and loading access for the project will be provided primarily via 4<sup>th</sup> Street and 5<sup>th</sup> Street. Those in turn provide access to the alley that connects to the loading bay, the service and delivery space, as well as the two car share spaces and one electric vehicles charging station. The development will be supplied by a total of 50 off-site parking spaces in the planned 1270 4<sup>th</sup> Street development (Z.C 14-07), which will be accessed from a public alley off of Morse Street and is less than 0.1 miles from the proposed development.

The development will supply long-term bicycle parking within the development and short-term bicycle parking around the perimeter of the site.

### Multi-Modal Impacts and Recommendations

#### *Transit*

The site is served by regional and local transit services such as Metrorail and Metrobus. The site is 0.3 miles from the NoMa-Gallaudet U Metrorail Station portal at 2<sup>nd</sup> Street and N Street, and many Metrobus stops are located within a block of the site along Florida Avenue.

Although the development will be generating new transit trips, existing facilities have enough capacity to handle the new trips.

#### *Pedestrian*

The site is surrounded by a well-connected pedestrian network. Most roadways within a quarter-mile radius provide sidewalks and acceptable crosswalks and curb ramps, particularly along the primary walking routes. There are some pedestrian barriers surrounding the site such as limited connectivity due to the rail tracks to the west.

As a result of the development pedestrian facilities along the perimeter of the site will be improved, for example by removing four curb cuts, two on Florida Avenue and two on 4<sup>th</sup> Street. The development will improve sidewalks adjacent to the site such that they meet or exceed DDOT requirements and provide an improved pedestrian environment.

#### *Bicycle*

The site is very well served by existing bicycle infrastructure. The site is just blocks away from trails and bike lanes, such as the Metropolitan Branch Trail to the west and bike lanes along 4<sup>th</sup> Street and 6<sup>th</sup> Street which run near the proposed development.

The development will provide short-term bicycle parking along the perimeter of the site and on-site secure long-term bicycle parking for residents and employees of the development. Additional long-term secure bicycle parking will be provided for people unrelated to the development that wish to store their bicycles securely.

#### *Vehicular*

The site is well-connected to regional roadways such as I-395 and US-50, principal and minor arterials such as Florida Avenue



and 6<sup>th</sup> Street, and an existing network of collector and local roadways.

In order to determine impacts that the proposed development will have on the transportation network, this report projects future conditions with and without the development of the site and performs analyses of intersection delays and queues. These are compared to the acceptable levels of delay set by DDOT standards as well as existing queues to determine if the site will negatively impact the study area. The analysis concluded that no intersections would require mitigation as a result of buildout of the development.

#### *Summary and Recommendations*

This report concludes that the proposed development will not have a detrimental impact to the surrounding transportation network assuming that all planned site design elements are implemented.

The PUD has several positive elements contained within its design that minimize potential transportation impacts, including:

- The site's close proximity to Metrorail.
- The inclusion of secure long-term bicycle parking spaces within the development that exceed zoning requirements.
- The inclusion of secure long-term bicycle spaces within the development that are being made available to people unrelated to the development.
- The installation of short-term bicycle parking spaces around the perimeter of each parcel that meet or exceed zoning and DDOT requirements.
- The creation of wide pedestrian paths which will meet or exceed DDOT and ADA requirements.
- The inclusion of one (1) electric vehicle charging and two (2) carshare parking spaces.
- A robust Parking Management plan that reduces impact of the need to provide parking off-site for the development.
- A robust Transportation Demand Management (TDM) plan that reduces the demand of single-occupancy, private vehicles during peak period travel times or shifts single-occupancy vehicular demand to off-peak periods.



# INTRODUCTION

## PURPOSE OF STUDY

This report reviews the transportation elements of the 400 Florida Avenue NE PUD. The site, shown in Figure 1 and Figure 2, is located in the Florida Avenue Market/Union Market neighborhood in Northeast DC.

The purpose of this report is to:

1. Review the transportation elements of the development site plan and demonstrate that the site conforms to DDOT's general policies of promoting non-automobile modes of travel and sustainability.
2. Provide information to DDOT and other agencies on how the development of the site will influence the local transportation network. This report accomplishes this by identifying the potential trips generated by the site on all major modes of travel and where these trips 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. The report discusses what improvements to the transportation network are needed to mitigate adverse impacts.

## CONTENTS OF STUDY

This report contains nine sections as follows:

- Study Area Overview  
This section reviews the area near and adjacent to the proposed project and includes an overview of the site location.
- Project Design  
This section reviews the transportation components of the project, including the site plan and access. This chapter also contains the proposed Transportation Demand Management (TDM) plan for the site.
- Trip Generation  
This section outlines the travel demand of the proposed project. It summarizes the proposed trip generation of the project.
- Traffic Operations  
This section provides a summary of the existing roadway facilities and an analysis of the existing and future roadway capacity in the study area. This section highlights the vehicular impacts of the project, including presenting mitigation measures for minimizing impacts.
- Transit  
This section summarizes the existing and future transit service adjacent to the site, reviews how the project's transit demand will be accommodated, outlines impacts, and presents recommendations as needed.
- Pedestrian Facilities  
This section summarizes existing and future pedestrian access to the site, reviews walking routes to and from the project site, outlines impacts, and presents recommendations as needed.
- Bicycle Facilities  
This section summarizes existing and future bicycle access to the site, reviews the quality of cycling routes to and from the project site, outlines impacts, and presents recommendations as needed.
- Safety/Crash Analysis  
This section reviews the potential safety impacts of the project. This includes a review of crash data at intersections in the study area and a qualitative discussion on how the development will influence safety.
- Summary and Conclusions  
This section presents a summary of the recommended mitigation measures by mode and presents overall report findings and conclusions.



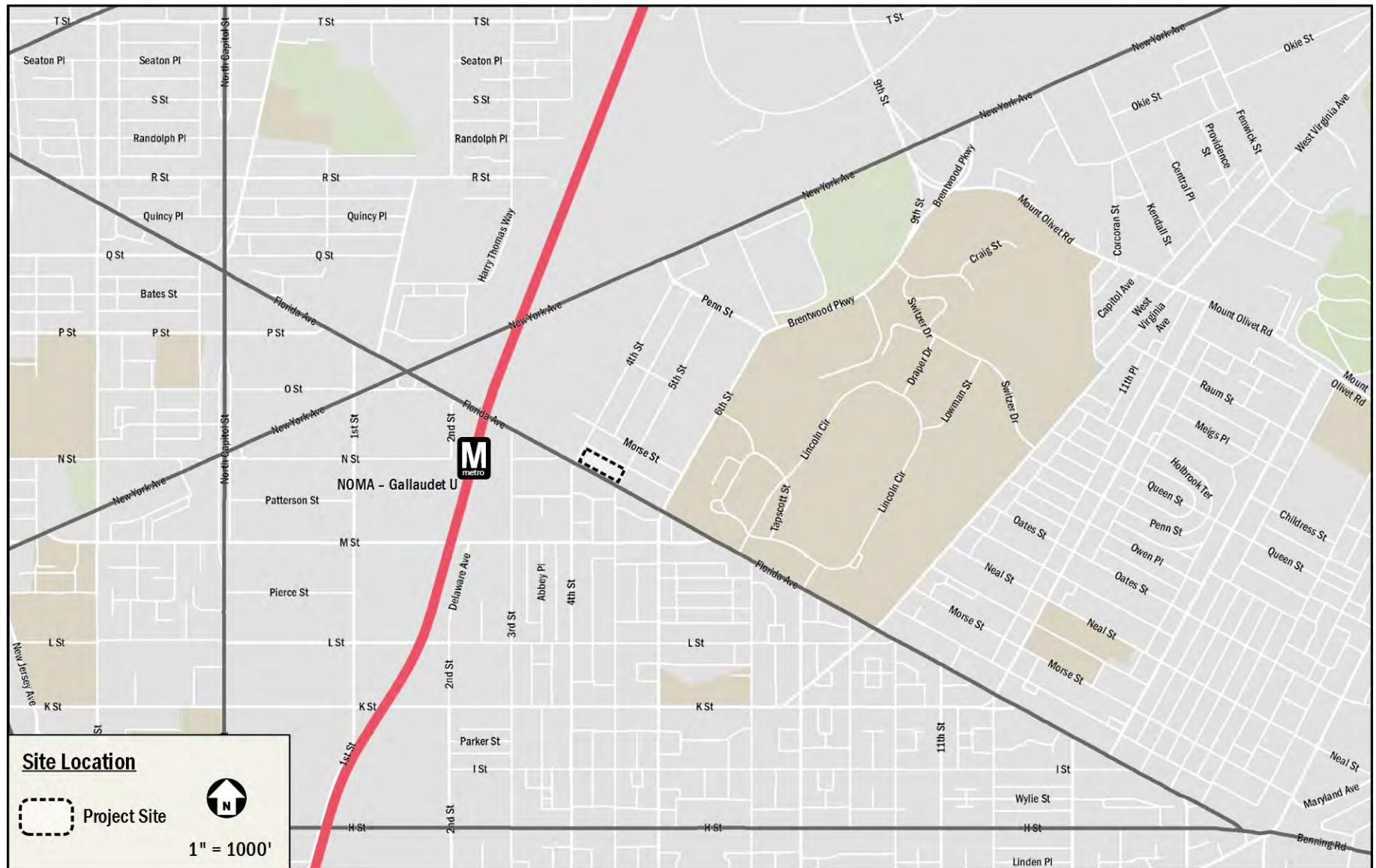


Figure 1: Site Location

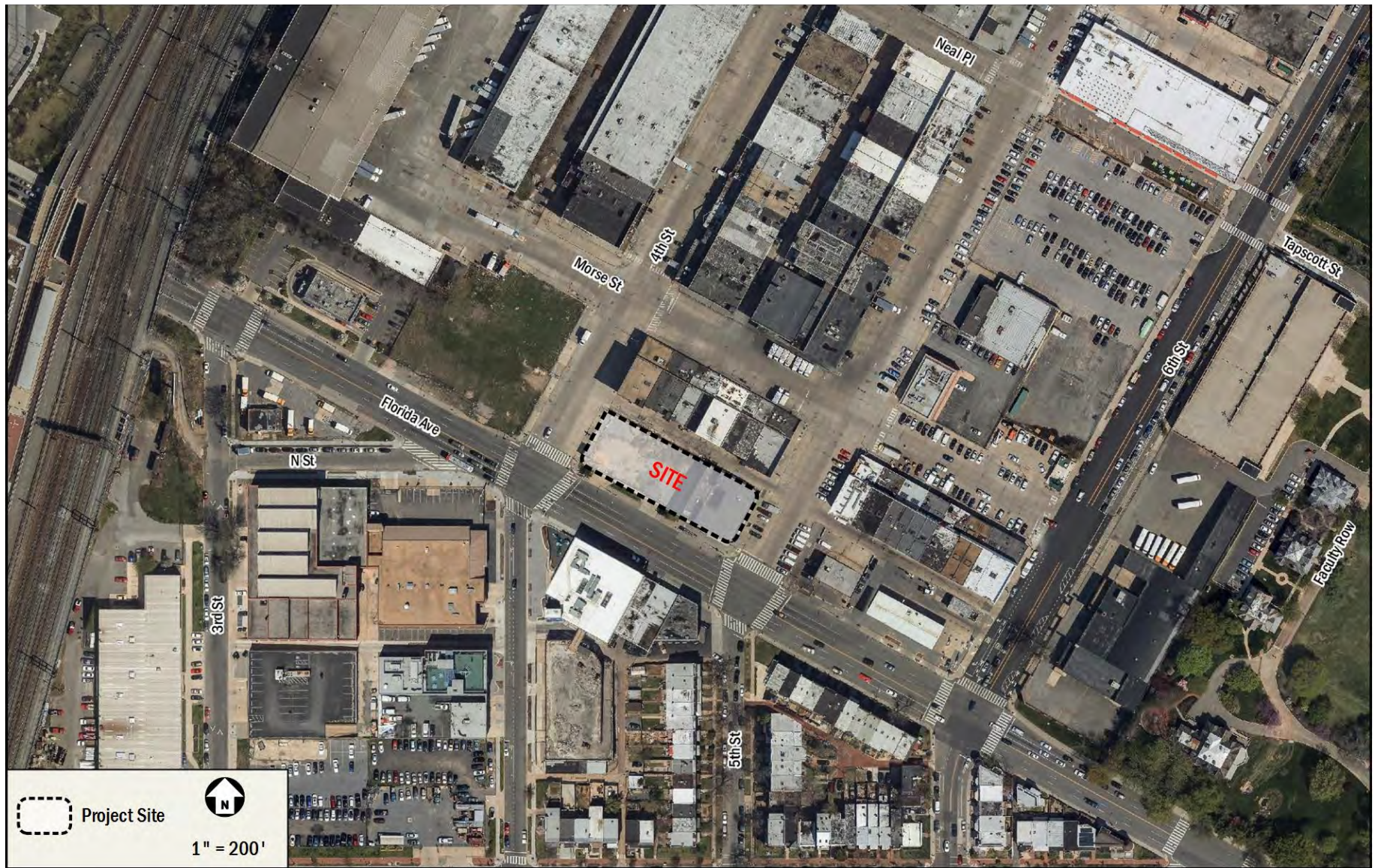


Figure 2: Site Aerial



## STUDY AREA OVERVIEW

This section reviews the study area and includes an overview of the site location, including a summary of the major transportation characteristics of the area and of future regional projects.

The following conclusions are reached within this chapter:

- The site is surrounded by an extensive regional and local transportation system that will connect the residents, employees, and patrons of the proposed development to the rest of the District and surrounding areas.
- The site is well-served by public transportation with access to Metrorail, and several local Metro bus lines.
- There is excellent existing bicycle infrastructure including the Metropolitan Branch Trail and several bike lanes in the vicinity of the site.
- Pedestrian conditions are generally good, particularly along anticipated major walking routes.

### MAJOR TRANSPORTATION FEATURES

#### Overview of Regional Access

The 400 Florida Avenue NE site has ample access to regional vehicular- and transit-based transportation options, as shown in Figure 4, that connect the site to destinations within the District, Virginia, and Maryland.

The site is accessible from Florida Avenue which connects to several US highways such as US-50 (New York Avenue) and US-1, as well as Interstate-395. The highways and interstates create connectivity to the Capital Beltway (I-495) that surrounds Washington, DC and its inner suburbs. All of these roadways bring vehicular traffic within half-mile of the site, at which point arterials and local roads can be used to access the site directly.

Along this site there are several local bus stops that connect the city limits with the innermost roads of Washington, DC. The multiple bus route options allow for more frequent bus pickups, and specified travel destination options, as shown in Figure 5.

The site is located extremely close to the NoMa-Gallaudet U Metrorail station. The proposed development has access to the

Red line which provides connections to areas in the District and Maryland. The Red Line connects Prince George's County and Montgomery County, Maryland while providing access to the District core. In addition, the Red Line provides connections to all additional Metrorail lines allowing for access to much of the DC Metropolitan area.

Overall, the site has access to several regional roadways and transit options, making it convenient to travel between the site and destinations in the District, Virginia, and Maryland.

#### Overview of Local Access

The site is served by a local vehicular network that includes several primary and minor arterials such as Florida Avenue, New York Avenue, and 6<sup>th</sup> Street. In addition, there is an existing network of connector and local roadways that provide access to the site.

The Metrobus system provides local transit service in the vicinity of the site, including connections to several neighborhoods within the District and additional Metrorail stations. As shown in Figure 5, there are three bus routes that service the site. In the vicinity of the site, the majority of routes travel along Florida Avenue. These bus routes connect the site to many areas of the District. A detailed review of transit stops within a quarter-mile walk of the site is provided in a later section of this report.

There are existing bicycle facilities that connect the site to areas within the District, most notably the Metropolitan Branch Trail, which travels along the Red Line Metrorail tracks and provides a connection to Union Station. Other facilities include bike lanes along 4<sup>th</sup> Street, 6<sup>th</sup> Street, Q Street, and R Street, which provide north-south and east-west connectivity. A detailed review of existing and proposed bicycle facilities and connectivity is provided in a later section of the report.

Anticipated pedestrian routes, such as those to public transportation stops, retail zones, and community amenities, provide well-connected pedestrian facilities. There are some pedestrian barriers in the area that limit the overall connectivity to and from the site and some sidewalks that do not meet DDOT standards; however, other approved developments are expected to improve upon some of these deficiencies. A detailed review of existing and proposed pedestrian access and infrastructure is provided in a later section of this report.



Overall, the 400 Florida Avenue NE site is surrounded by an expansive local transportation network that allows for efficient transportation options via transit, bicycle, walking, or vehicular modes.

**Carsharing**

Four car-sharing companies provide service in the District: Zipcar, Enterprise Carshare, Maven, and Car2Go. All four services are private companies that provide registered users access to a variety of automobiles. Of these, Zipcar, Enterprise Carshare, and Maven have designated spaces for their vehicles. There are four Carshare location within a quarter-mile of the site, housing a total of ten vehicles. Table 1 breaks down the different location that are made available to the public.

Carsharing is also provided by Car2Go, which provides point-to-point carsharing. Car2Go currently has a fleet of vehicles located throughout the District and Arlington. 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 and mobile phone application, which provides an additional option for car-sharing patrons.

**Walkscore**

Walkscore.com is a website that provides scores and rankings for the walking, biking, and transit conditions within neighborhoods of the District. Based on this website the planned development is located in the Trinidad-Langston neighborhood. The site location has a walk score of 93 (or “Walker’s Paradise”), a transit score of 78 (or “Excellent Transit”), and a bike score of 89 (or “Very Bikeable”). Figure 3

shows the neighborhood borders in relation to the site location and displays a heat map for walkability and bikeability.

The site is situated in an area with good walk scores because of the abundance of neighborhood serving retail locations, where most errands can be completed by walking.

The site is situated in an area with good bike scores due to its proximity to roadways with bike lanes and a flat topography. The high transit score was based on the proximity to NoMa-Gallaudet University Metrorail station, car share, and multiple bus lines.

Overall, the Trinidad-Langston neighborhood has high walk, high transit, and high bike scores. Additionally, other planned developments and roadway improvements will help increase the walk and bike scores in the Trinidad-Langston neighborhood.

**FUTURE PROJECTS**

There are a few District initiatives and approved developments located in the vicinity of the site. These planned and proposed projects are summarized below.

**Local Initiatives**

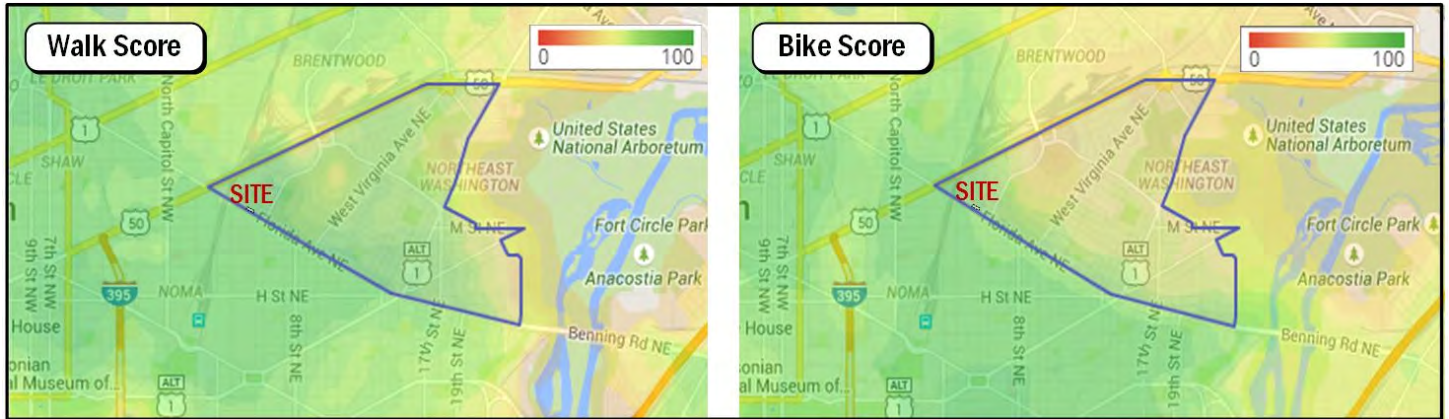
*MoveDC: Multimodal Long-Range Transportation Plan*

MoveDC is a long-range plan that provides a vision for the future of DC’s transportation system. As the District grows, so must the transportation system, specifically in a way that expands transportation choices while improving the reliability of all transportation modes.

The MoveDC report outlines recommendations by mode with the goal of having them completed by 2040. The plan hopes to achieve a transportation system for the District that includes:

**Table 1: Car-share within 0.25 miles of the Site**

Carshare Location	Number of Vehicles
<b>Zipcar</b>	
NoMa/Gallaudet Metro (100 Florida Avenue NE)	1 vehicle
Constitution Square (130 M Street NE)	2 vehicles
5 <sup>th</sup> /L Street NE (449 L Street NE)	1 vehicle
Gallaudet University	2 vehicles
<b>Enterprise Carshare</b>	
66 New York Avenue NE	6 vehicles
<b>Total</b>	<b>12 vehicles</b>



**Figure 3: Summary of Walkscore and Bikescore**

- 70 miles of high-capacity transit (streetcar or bus)
- 200 miles of on-street bicycle facilities or trails
- Sidewalks on at least one side of every street
- New street connections
- Road management/pricing in key corridors and the Central Employment Area
- A new downtown Metrorail loop
- Expanded commuter rail
- Water taxis

In direct relation to the proposed development, the MoveDC plan outlines recommended pedestrian, bicycle, and transit improvements such as a new trail, new bicycle trails and cycle tracks, and a high-capacity surface transit route. These recommendations would create additional multi-modal capacity and connectivity to the proposed development and are discussed further down in the report.

*SustainableDC: Sustainable DC Plan*

SustainableDC is planning effort initiated by the Department of Energy & Environment and the Office of Planning that provides the District with a framework of leading Washington DC to become the most sustainable city in the nation. The 2012 report proposes a 20-year timeframe to answer challenges in areas of: (1) Jobs & the economy; (2) Health & Wellness; (3) Equity & Diversity; (4) Climate & Environment; (5) Built Environment; (5) Energy; (6) Food; (7) Nature; (8) Transportation; (9) Waste; and (10) Water. With respect to transportation, the sustainability goals targeted in 20 years include:

- Improving connectivity and accessibility through efficient, integrated, and affordable transit systems

- Expanding provision of safe, secure infrastructure for cyclists and pedestrians
- Reducing traffic congestion to improve mobility
- Improving air quality along major transportation routes

A combination of increasing public transit and decreasing vehicular mode shares has been suggested to meet the transportation targets. The high walk and bike scores in the NoMa neighborhood are examples of the reduction in vehicle use and the need to expand safe and secure infrastructure for cyclists and pedestrians.

*NoMa Neighborhood Access Study and Transportation Management Plan*

Published in 2010, the purpose of this DDOT study was to provide a framework for handling expected growth and changing transportation needs in the neighborhood. By providing strategies for managing congestion and mitigating potential conflicts between multi-modal users, the Plan seeks to improve safety, comfort and efficiency of all transportation modes.

To accomplish this, the Plan identifies the following five goals:

- **Connectivity:** The NoMA neighborhood is fully connected via a multi-modal transportation system to surrounding neighborhoods, the City, and the region.
- **Multi-modal accessibility:** The transportation network functions for all modes.
- **Sustainability:** Bicycling, walking and transit represent significant proportions of all trips; green features and policies are incorporated.



- Safety and efficiency: The transportation network is safe and efficient for all users.
- Coordination: Transportation improvements are made in sync with land use changes to ensure continued mobility and accessibility; construction is coordinated so as not to diminish quality of life for residents and visitors.

The Plan identified the following recommendations in direct relation to the 400 Florida Avenue NE development:

- Short Term Recommendations (by 2015)  
(1) Filling a gap in the sidewalk network on 3rd Street in between N Street and Florida Avenue; (2) Implementing a lane reduction on Florida Avenue to provide space for a wider sidewalk under the CSX tracks; (3) Provide Leading Pedestrian Intervals (LPI) at ten intersection; (4) Prohibit right turns on red at six intersections; (5) Improve bike parking facilities throughout the area; and (6) Convert Pierce, Patterson, L, and M Streets to two-way between First Street NE and North Capitol Street.
- Medium Term Recommendations (by 2020)  
(1) Provide six new traffic signals throughout the area; (2) Realigning selected intersections to create more compact intersections with right-angle crossings, slow turning motor vehicles and improve visibility; (3) Altering lane configurations, for example by adding right-turn only lanes, to maximize the operation and flow of traffic at intersections throughout the study area; (4) Implementing an extension to the existing DC Circulator system to better serve NoMa; and (5) Developing a connected network of bicycle facilities throughout the study area including shared use paths, cycle tracks, bicycle lanes, and shared lane markings.
- Long Term Recommendations (by 2030)  
(1) Implementing grid extensions, alternative access routes, and one-way/ two-way traffic conversions to further improve access and circulation in NoMa; and (2) Designating First Street in between Massachusetts Avenue and G Street as a pedestrian priority zone. In addition, this Plan recommends an additional north/south pedestrian priority street in between First Street and North Capitol Street. Note that the proposed pedestrian priority street in between First Street and North Capitol Street would have to be initiated by local developers as DDOT does not have regulatory authority over the required properties.

#### *Florida Avenue Multimodal Transportation Study*

Published in 2015, the purpose of the Florida Avenue Multimodal Transportation Study is to improve safety for all roadway users, particularly the most vulnerable (pedestrians and bicyclists), while ensuring safe access and maintaining mobility for all modes within and through the study area. The study area is bordered by Gallaudet University and Florida Avenue Market to the north, H Street and Greater Capitol Hill to the south, the “Virtual Circle” and NoMa District to the west, and the “Starburst Intersection” (the intersection of Florida Avenue with H Street/Benning Road/ Maryland Avenue/Bladensburg Road) to the east.

To accomplish this, the Florida Avenue Multimodal Study identifies the following nine needs that it addresses in the report:

- History of auto and non-auto related crashes;
- High automobile speeds;
- Lack of ADA compliant pedestrian facilities;
- Maintaining automobile access, particularly for corridor-wide trips and trucks;
- Meeting specialized needs of large deaf population due to the corridor’s proximity to Gallaudet University;
- Lack of bicycle facilities within the study area;
- Need for safe access to transit;
- Florida Market access and mobility needs; and
- Resident requests for supporting multimodal access.

These identified project needs informed the specific data to collect, required analysis to perform, and appropriate stakeholders to include in the process. As a result of the supporting analysis and community feedback, three alternatives were developed for further study and evaluation. However, after detailed analysis was conducted on Alternatives 1-3 and through public and stakeholder input, a fourth alternative was developed as an additional possible option. At a minimum, all recommendations include sidewalk widening on the south side of Florida Avenue west of West Virginia Avenue, pedestrian scale lighting throughout the entire corridor, and low-impact development and trees.

In direct relation to the development, Florida Avenue will be converted to two eastbound and two westbound lanes with a center left-turn lane in certain sections. 6<sup>th</sup> Street north of Florida Avenue will be improved to include a two-way cycle-track on the east side, widened sidewalks, and curb extensions



where possible. 6<sup>th</sup> Street south of Florida Avenue to K Street will be converted to one-way northbound, improved with widened sidewalks, and improved with a two-way cycle track on the east side.

### **Planned Developments**

There are several potential development projects in the vicinity of the 400 Florida Avenue NE site. For the purpose of this analysis, only approved developments expected to be complete prior to the planned development with an origin/destination within the study area were included. A detailed list of the background developments considered and a description of their applicability for incorporation in the study is included in the Technical Attachments. Of the background developments considered, nine were ultimately included and are described below. Figure 6 shows the location of these developments in relations to the proposed development.

#### *1270 4<sup>th</sup> Street NE (Z.C. Case No. 14-07)*

The third phase of the Union Market District development plan, calls for an 11-story, 408,000 sq. ft., 420 to 520-unit residential building with 40,000 sq. ft. of retail space and four or five levels of underground parking for 550 spaces. The current 51,000 sq. ft. site contains a warehouse and distribution building and the façade will be incorporated into the development.

While 1270 4<sup>th</sup> Street lies just outside the study area, it is expected to open before the completion of the 400 Florida Avenue NE development and will be included in the analysis.

#### *Gateway Market and Residences (Z.C. Case No. 06-40A/B/C)*

The second phase of the Union Market District development plan, Gateway Market at 340 Florida Avenue, will be a six-story, 188-unit apartment building (153,000 sq. ft.) with 30,000 sq. ft. of ground floor retail space. Gateway Market Center will also include affordable units (20% of the units) and 72 bike spaces. Construction began in 2015. The Joint Venture between LCOR, EDENS and Sang Oh & Company Inc. will jointly develop the project with LCOR retaining ownership in the residential piece and EDENS & Sang Oh retaining ownership in the retail piece. This development is has an expected delivery date of 2017.

Gateway Market lies in the study area and is expected to open before the 400 Florida Avenue NE development and will be included in the analysis.

#### *300 M Street NE (Z.C. Case No. 14-19)*

The proposed six-story, mixed-use project will have 401 new apartments, 9,000 - 12,900 sq. ft. of retail space and 175 parking spaces in a two-level underground garage. The property is located in NoMa at 3rd and M Streets, NE, one block from the M Street entrance to the NoMa-Gallaudet Metro Station. The developer submitted plans to the Zoning Commission in October 2014. This development has an expected delivery date of 2018.

300 M Street lies in the study area, it is expected to open before the completion of the 400 Florida Avenue NE development and will be included in the analysis.

#### *The Highline at Union Market (Z.C. Case No. 15-01)*

The Highline at Union Market project will feature 313 dwelling units and 10,000 sf of retail. This development has an expected delivery date of 2018.

Highline at Union Market lies in the study area, it is expected to open before the completion of the 400 Florida Avenue NE development and will be included in the analysis.

#### *Angelika (Phase I) (Z.C. Case No. 14-12)*

The Angelika (Phase I) development is located within Union Market and includes a 1,250 multi-screen theater, 62,000 square feet of retail space, and 115,000 square feet of office space or 100 residential units.

The Angelika (Phase I) lies in the study area, it is expected to open before the completion of the 400 Florida Avenue NE development and will be included in the analysis.

#### *411 New York Avenue NE (Z.C. Case No. 15-19)*

Plans call for a mixed-use art studio (3,000 sf) and hotel (178 rooms) development. This development has an expected delivery date of 2018.

411 New York Avenue lies in the study area, it is expected to open before the completion of the 400 Florida Avenue NE development and will be included in the analysis.

#### *501 New York Avenue NE (Z.C. Case No. 11-25)*

A 220- to 240-room hotel. The new building, topping out at 90 feet, will include 115 parking spaces. This development has an expected delivery date of 2016.



501 New York Avenue lies in the study area, it is expected to open before the completion of the 400 Florida Avenue NE development and will be included in the analysis.

*301 Florida Avenue NE (Z.C. Case No. 15-22)*

Plans call for a mixed-use retail (4,837 sf) and residential (56 units) building. This development has an expected delivery date of 2018.

301 Florida Avenue lies in the study area, it is expected to open before the completion of the 400 Florida Avenue NE development and will be included in the analysis.

*Gallaudet 6<sup>th</sup> Street Development (Z.C. Case No. 15-24/A)*

Plans call for a mixed use development with up to 566 dwelling units, 48,550 square feet of retail, and 186,160 square feet of office space in Phase B (2018) and up to 570 residential dwelling units, 82,105 square feet of retail, 305,930 square feet of office space, and 32,390 square feet of University-support space to follow in Phases A and C (2021).

The 6<sup>th</sup> Street Gallaudet Development lies in the study area, Phase B is expected to open before the completion of the 400 Florida Avenue NE development and will be included in the analysis.



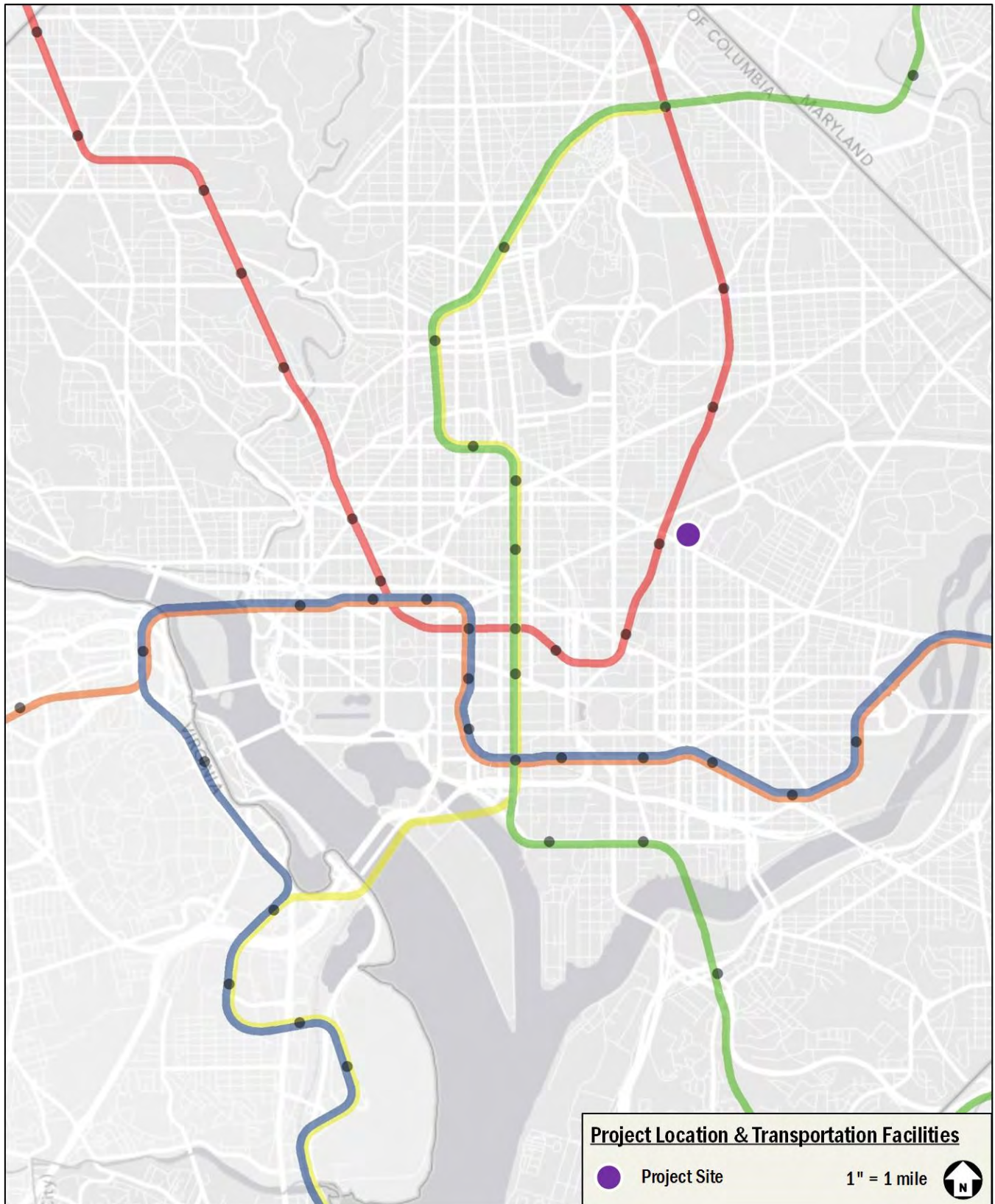


Figure 4: Major Regional Transportation Facilities

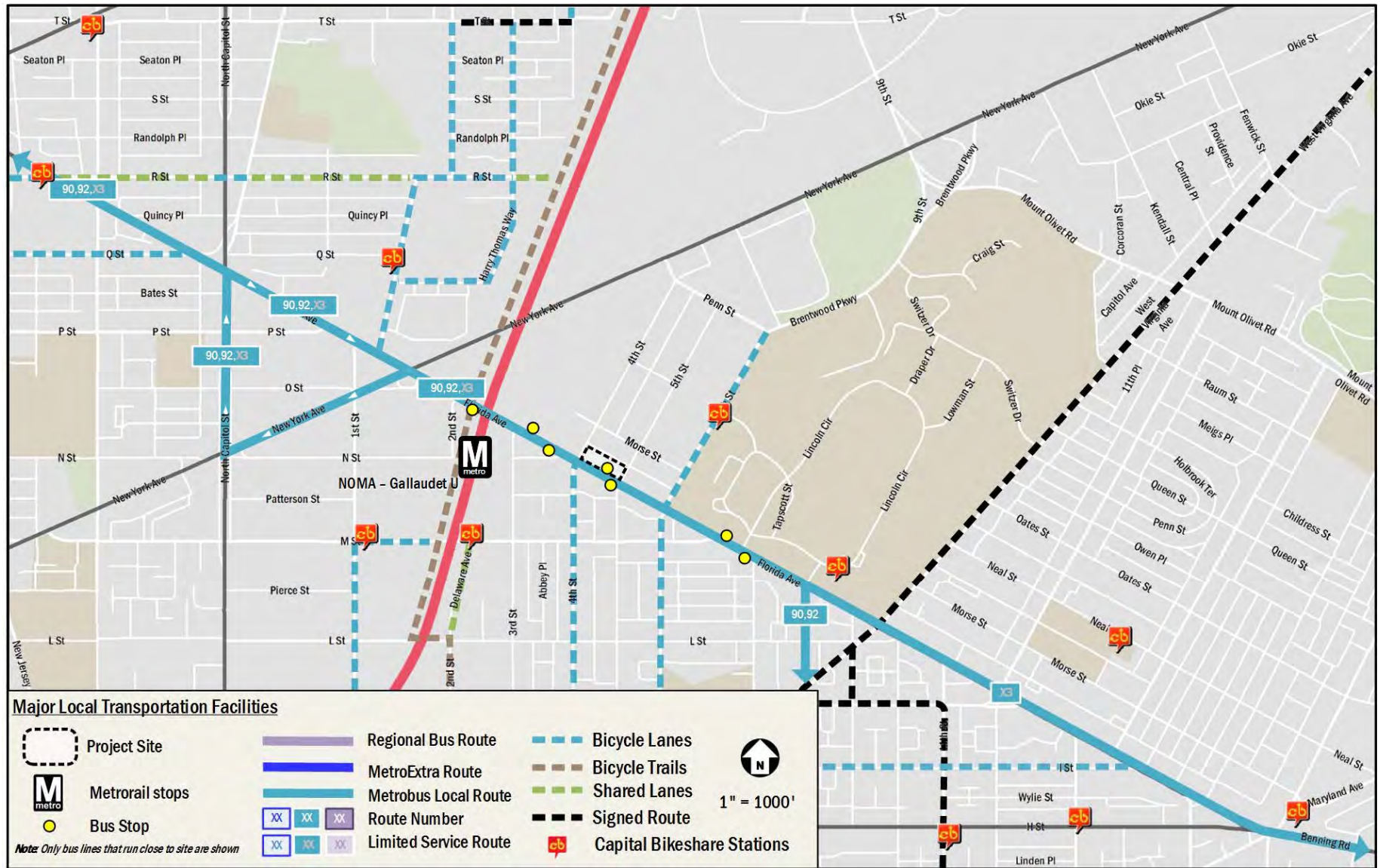


Figure 5: Major Local Transportation Facilities

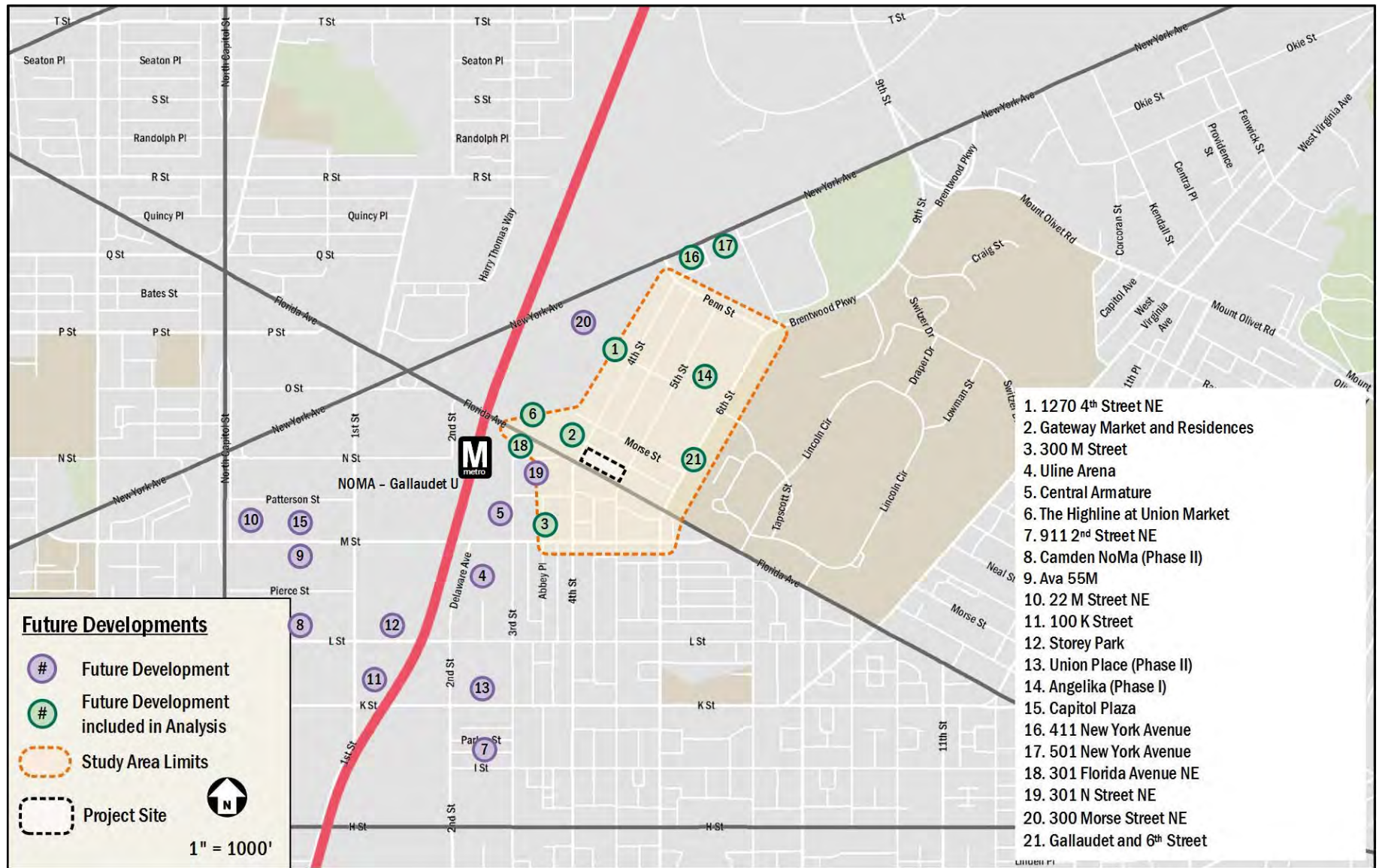


Figure 6: Planned Development Map



## PROJECT DESIGN

This section reviews the transportation components of the 400 Florida Avenue NE development, including the proposed site plan and access points. It includes descriptions of the site's vehicular access, loading, parking, bicycle and pedestrian facilities, and Transportation Demand Management (TDM) plan. It supplements the information provided in the site's plan package that accompanied the Zoning Application, which includes several illustrations of site circulation and layout.

The site is generally bound by a public alley to the north, 5<sup>th</sup> Street to the east, Florida Avenue to the south, and 4<sup>th</sup> Street to the west. The planned development will replace a vacant lot, a two-story carry-out restaurant, and one vacant two-story structure with a mixed-use structure consisting of 110 residential dwelling units and 164 hotel rooms. The development will be served by a total of 53 off-street parking spaces, 50 of which will be located off site within a distance of 0.1 miles of the proposed development, two (2) car share spaces, and one (1) on-site electric vehicle charging space which will be accessed from the alley connecting 4<sup>th</sup> Street and 5<sup>th</sup> Street.

Figure 7 shows an overview of the development program and site plan elements.

### SITE ACCESS AND CIRCULATION

#### **Pedestrian Access**

Primary pedestrian access to the residential component of the development is expected to occur along Florida Avenue. For the hotel component, pedestrian access is expected to occur along Florida Avenue and the public alley abutting the northern portion of the site.

#### **Bicycle Access**

Bicycle access to the at-grade secure long-term bicycle parking will be from the alley abutting the northern portion of the site. Short-term bicycle parking will be located around the perimeter of the site, along 4<sup>th</sup> Street, Florida Avenue, and 5<sup>th</sup> Street. Circulation is primarily expected to occur along planned bicycle facilities on 4<sup>th</sup> Street.

#### **Vehicular Access**

Most of the vehicular access to the site will be via 4<sup>th</sup> Street and 5<sup>th</sup> Street, which are local roadways. An existing 25-foot public alley that links 4<sup>th</sup> Street and 5<sup>th</sup> Street will provide access to

two (2) car share parking spaces, one (1) electric vehicle charging space, and to loading facilities. Fifty (50) reserved parking spaces at the 1270 4<sup>th</sup> Street development, which will be primarily accessed via a public alley off of Morse Street north of the site, will be made available for the use of the 400 Florida Avenue NE development.

Hotel valet operations will take place curbside on 4<sup>th</sup> Street. The Applicant will coordinate with DDOT in regards to the proposed valet operations. The hotel is not expected to service the type of groups that require the use of a Motorcoach.

As the majority of vehicular parking will be located off site, increased pedestrian activity is expected between the site and the off-site parking garage located north of the site at 1270 4<sup>th</sup> Street. Based on plans included in the 1270 4<sup>th</sup> Street development's TIS, improved pedestrian facilities along 4<sup>th</sup> Street including sidewalks, curb ramps, and crosswalks, will adequately cater the additional pedestrian trips generated by the off-site parking arrangement.

A circulation plan with vehicular, bicycle, pedestrian, and loading routes is shown on Figure 8.

### LOADING

The proposed loading facilities in the PUD should accommodate all delivery demand without detrimental impacts. Figure 7 shows the locations of the loading berths and a shared service/delivery space.

Truck routing to and from the site will be focused on designated primary truck routes, such as Florida Avenue, New York Avenue, and 6<sup>th</sup> Street. The majority of truck restricted routes are to the south of the site on 3<sup>rd</sup> Street, 4<sup>th</sup> Street, and 5<sup>th</sup> Street, all south of Florida Avenue. Turning maneuvers into and out of the site for the 30-foot loading berth are included in the Technical Appendix.

The proposed development is expected to generate approximately 6-7 truck trips per day. This includes daily trash removal services, mail and parcel delivery, hotel pickup and delivery, and residential move-in and move-out trips. One (1) trash removal truck, two (2) mail and parcel delivery trucks, three (3) hotel pickup and delivery trucks and approximately one (1) residential move-in or -out trucks (conservatively calculated using an average of 18 months average turnover per unit), will service the development on a daily basis. The loading



facilities provided by the development will be sufficient to accommodate this demand.

The Applicant is seeking variance relief from the loading requirements of 11 DCMR § 2201.1.

This report recommends that the PUD does not need an extensive loading management plan, because loading operations occur on-site, there are sufficient docks, and the building is close to several major truck routes. Thus, the loading management plan for the development should include the following elements:

- A loading facility manager will be designated to track and coordinate loading between the hotel and the apartment building. The loading facility manager will coordinate with residents and tenants to schedule deliveries and to ensure conflicts in the alley will be minimized.
- All residents and tenants will be required to schedule deliveries that utilize the loading docks – defined here as any loading operation conducted using a truck 20' in length or larger.
- Loading will be prohibited curbside from 4<sup>th</sup> Street, 5<sup>th</sup> Street, and Florida Avenue, and all loading activity will be directed to utilize the loading facilities off of the alley.

## PARKING

Based on current District zoning laws, the following outlines the parking requirements for all land uses of the development, based on the proposed map amendments:

- Residential  
1 space per 4 dwelling units, amounting to a minimum requirement of 28 spaces
- Hotel  
1 space per 4 hotel rooms, amounting to a minimum requirement of 41 spaces

A total of 53 parking spaces will be reserved for the exclusive use of the proposed development. On-site, two (2) car share spaces and one (1) electric vehicle parking and charging space will abut the public alley to the north of the site, one of which will be a service and delivery space during established delivery times. An additional 50 off-site parking spaces are planned to be accommodated in the below-grade parking garage of the

1270 4<sup>th</sup> Street development (Z.C Case No. 14-07), which is less than 0.1 miles from the proposed development. This is pursuant to an agreement with the owner of 1270 4<sup>th</sup> Street to provide a minimum of 20 parking spaces to be available on a monthly basis for project residents and a minimum of 30 parking spaces to be available on an hourly or daily basis for hotel guests. Parking is expected to be priced at the market-rate.

It should be noted that the Zoning Regulations, which govern minimum parking requirements, were rewritten and will come into effect September 2016. Under § 701.5 of the new zoning regulations, the initial parking requirements would be 67 total parking spaces based on the new rate of 1 space per 3 residential dwelling units in excess of 4 units and 0.5 spaces per 1,000 square feet of hotel in excess of 3,000 square feet. Under § 702.1 of the new zoning regulations, the parking requirement would be further reduced to 34 parking spaces. Under § 702.1, parking requirements for any new site located within 0.5 miles of a Metrorail Station or within 0.25 miles of a Priority Corridor Network Metrobus Route shall be reduced by half (50%). Given that the site is located less than 0.3 miles from the NoMa-Gallaudet Metrorail station, the parking requirements under the incoming zoning regulations would be 34 spaces, which the current development plan exceeds when the off-site parking is accounted for.

### On-Site Parking

As noted previously, three parking spaces will be made available on-site. Two are intended to be dedicated for car sharing services and the remaining space will be available for electric vehicle charging when not in use for service and loading delivery operations. Due to the constraints of the lot, space is not available to provide for both adequate ramping and parking in a below grade garage to serve the development. Were a below grade garage proposed for this development, it is likely that a minimal number of parking spaces could be provided per level. The low number of parking spaces that could be provided below grade and the space that would be necessary to accommodate ramping to reach those spaces would be extremely difficult to build on such a small site. Therefore, the applicant is seeking flexibility from the parking requirements since the site cannot support on-site off-street parking.

Given the urban nature of the site and its proximity to many non-auto modes of transportation, the design of the site will



adequately serve the vehicular needs of the development based on the proposed use of the site.

### **Off-Site Parking**

A review of existing and planned off-site parking locations was conducted to evaluate the availability of surplus parking during evenings and weekends in the near vicinity of the proposed development. This effort inventoried the expected number of parking spaces dedicated for office use as they will most likely be vacant during evenings and weekends. As such, at least 221 dedicated office-use parking spaces and an additional 490 public general-use parking spaces are expected to be in operation within a quarter-mile of the site by the time the proposed development opens in 2018, as shown in Figure 9.

In the event that guests, employees, or residents were to arrive via auto, parking will be available in nearby public parking garages (noted above) or through valet parking offered curbside along 4<sup>th</sup> Street (for the hotel) and 5<sup>th</sup> Street (for residential). An assessment of nearby planned parking facilities revealed ample off-street parking availability near the site in several nearby parking garages that could absorb any valet or self-parking needs of hotel guests or residents beyond those contracted by the developer.

Based on the experience at the Quincy Hotel in DC, a similar standard style hotel which experiences an average of approximately 7.8 vehicles per day for a 99-room hotel that has typical-sized rooms, the proposed hotel could also easily accommodate the expected parking demand. Factoring the number of vehicles to be consistent with 164 rooms, the estimated number of vehicles that would drive and park would be approximately 19 vehicles per day. This 19-vehicle parking demand projection for the proposed hotel represents a worst-case scenario given that this is the total maximum parking demand per day and is not cumulative.

In addition, the TDM elements as discussed further in this document are designed to discourage auto ownership among residents and to encourage the use of the wealth of alternative modes of transportation surrounding the site. In either event, available parking contracted by the developer as well as additional parking planned in the local area is able to accommodate this limited parking demand. In addition, a parking management plan, as outlined further below, is proposed to mitigate any additional impacts that may arise

given the need to provide most of the development's parking off-site.

Given site's location within close walking distance of the NoMa-Gallaudet U. Metrorail station, the proposed development has excellent access to regional and national travel with direct access to Union Station via Circulator Bus and the Metrorail Red line, Reagan National Airport via the Metrorail Yellow Line, Dulles Airport via the Metrorail Silver Line, and BWI Airport via connections to Union Station. There are also numerous intercity bus lines that provide direct regional access from New York to Washington, DC, that include Bolt Bus, Greyhound, Megabus, Peter Pan Trailways, Washington Deluxe, and DC2NY.

As such, the project will adequately serve the demands of the site due to the following various considerations:

- Well-situated to be served by the NoMa-Gallaudet U. Metrorail station within walking distance of the site.
- Served by bus routes within a quarter-mile walking distance.
- The applicant has worked with DDOT to incorporate bicycle parking within the site. The design of these spaces will reflect similar dimensions as currently incorporated in other developments throughout the District.
- There are numerous nearby off-street parking garages and surface parking lots that could accommodate valet operations or personal vehicle parking off-site, as discussed previously.
- The site area has a walkability score of 93, a transit score of 78, and biking score of 89 as calculated by WalkScore.com, which are referred to as "Walker's Paradise/Excellent Transit/Very Bikable," respectively.

This report concludes that the development is providing enough parking supply to accommodate the expected site-generated demand for parking. The proximity to Metrorail and the Metropolitan Branch Trail, combined with robust Parking Management and Transportation Demand Management (TDM) plans will reduce auto dependency and the overall parking demand and impacts of the development.



## Parking Management Plan

As noted above, the following parking management initiatives are proposed in order to reduce the impact of the need to provide parking for the project off-site. These measures include:

- On-site Parking: Dedicate two parking spaces along the alley for car sharing services and one parking space along the alley as an EV-charging space.
- Dedicated Off-site Parking: Reserve 50 parking spaces in the proposed parking garage located across 4th Street, with 20 residential spaces to be rented on a monthly basis, and 30 hotel spaces to be rented on an hourly or daily basis.
- Valet: Provide valet parking for pick-up/drop-off on 4th Street (for the hotel) and 5th Street (for the residential building).
  - Designate a staff member to greet incoming hotel guests at the entrance of the hotel. This staff member will act as a doorman/curbside greeter who will be at the hotel to direct any vehicles that arrive at the front door to the valet zone or a nearby local garage, ensuring that no illegal parking or idling occurs in front of the building to impact traffic.
  - In addition to the 50 off-site parking spaces, the Applicant will coordinate with local overnight parking garages with whom the hotel operator has established a relationship to ensure that parking is available for the hotel users who decide to drive. As noted above, at least 221 dedicated office-use parking spaces and an additional 490 public general-use parking spaces are expected to be in operation within a quarter-mile of the site by the time the proposed development opens in 2018.
  - Designate a separate staff member to coordinate valet parking operations for guests to facilitate off-site parking. The Applicant will implement the following valet plan, and will continually adapt this plan in order to streamline the process based on continued experience at the subject property:
    - Locate signage at the front of the valet station stating that there is no parking at the subject property and that valet service is offered upon request. If guests choose to valet their vehicles, the valet will transport the vehicles between the hotel entrance and the designated parking facility. The number of valets may be adjusted in order to achieve the most efficient and cost effective valet parking system.
    - The valet will provide guests with valet tickets that will instruct guests on how to retrieve their vehicle. This may include contacting the valet stand directly, contacting the hotel front desk, and/or the ability to request the vehicle via text and/or smartphone app. When guests are ready to access their vehicle, they will be able to contact the valet via these communications in order to accelerate the delivery of their vehicle to the valet staging area on their departure.
- Information to Hotel Guests: Inform hotel guests about parking and alternate modes of transportation at every step of the pre-reservation and reservation process, through check-in, including providing thorough information regarding transportation alternatives and parking information so that guests know what to expect when booking a reservation. Detailed transportation and parking information will be prominently displayed on the hotel website, Online Travel Agency (“OTA”) websites, other online booking and informational websites with which the hotel partners (including rating review websites), email booking confirmations and reminders, verbally via reservationists, printed brochure available for distribution, and at the hotel valet station. All information will emphasize and encourage alternate



modes given the hotel's convenient location near Metrorail and Metrobus facilities. These alternate modes will include regional travel options such as Union Station and nearby airports and their connections to the hotel via commuter rail, Metrorail, intercity bus, taxi, Uber/Lyft, and carshare. The website link will also provide off-site locations where hotel guests can find parking, in the event that they decide to drive.

Ensure that all hotel confirmations contain notice to guests that no parking is available on-site and that the hotel encourages and emphasizes alternative modes. The reservation email shall provide the alternative transportation options and the locations of off-site parking facilities, in the event guests decide to drive, and the Applicant shall assist guests in planning ahead to use alternative methods of transportation.

- **Cost of Parking:** Unbundle the cost of residential parking from the cost of lease or purchase of each unit. Parking will be available on a monthly basis at market rate.
- **RPP:** Restrict residents of the building from obtaining a Residential Parking Permit ("RPP"), with penalty of lease termination

## CURBSIDE MANAGEMENT

In order to facilitate curbside drop-off/pick-up, guest loading, and valet operations for the hotel use along 4<sup>th</sup> Street and the residential use along 5<sup>th</sup> Street, a curbside management plan has been developed. The site is approximately 80 feet in width along both 4<sup>th</sup> Street and 5<sup>th</sup> Street and currently includes back-in parking spaces within the site's frontage that will be converted into standard curb frontage with the redevelopment of the property (as is common throughout the redeveloped Union Market area). With the development of the hotel, it is proposed that the 80 feet of curbside along both 4<sup>th</sup> Street and 5<sup>th</sup> Street be designated as a drop-off/pick-up passenger loading zone 24-hours per day, seven days per week. This will accommodate approximately three to four vehicles for drop-off/pick-up, passenger loading, and valet operations. As noted above, curbside valet operations will be closely monitored as a part of the parking management plan.

## BICYCLE AND PEDESTRIAN FACILITIES

### Bicycle Facilities

The project will include 16 short-term bicycle spaces at street level along the perimeter of the site on 4<sup>th</sup> Street, Florida Avenue, and 5<sup>th</sup> Street. These short-term spaces will include inverted U-racks placed in high-visibility areas. The Applicant is working in conjunction with DDOT in selecting location for the racks in public space.

The project will also include secure long-term bicycle parking. The plans identify a total of 106 long-term spaces in the proposed development in two separate spaces located on the ground floor. The first storage and maintenance space will house a 60 long-term bicycle spaces for residents of the proposed development. The second storage and maintenance space will house 46 long-term bicycle spaces and a shower/changing area for public use, which will cater to employees of the development as well as to the general public that may wish to store their bicycles securely.

The 106 secure long-term bicycle parking spaces will exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*.

As discussed previously, the site will have access to planned bicycle facilities on 4<sup>th</sup> Street and 6<sup>th</sup> Street.

### Pedestrian Facilities

As discussed previously, pedestrian facilities will be improved greatly around the site. Under existing conditions, pedestrian facilities around the site do not meet DDOT and ADA standards. As part of the PUD, pedestrian facilities around the perimeter of the site will be improved to meet DDOT and ADA standards. This includes sidewalks that meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as curb extensions and room for outdoor seating.

The inclusion of permeable pavers, planting beds, additional streetlights, and outdoor seating areas will be a great improvement over existing conditions. Figure 24 shows the planned streetscape and pedestrian improvements to the area surrounding the project.





## TRANSPORTATION DEMAND MANAGEMENT (TDM)

TDM is the application of policies and strategies used 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.

The Transportation Demand Management (TDM) plan for the 400 Florida Avenue NE development is based on the DDOT expectations for TDM programs. The Applicant proposes the following TDM measures:

- The Applicant will exceed Zoning requirements to provide bicycle parking/storage facilities at the proposed development. This includes secure parking located on-site and short-term bicycle parking around the perimeter of the site.
- The Applicant will make secure long-term bicycle parking, and shower/changing and maintenance facilities available to members of the general public.
- The Applicant will unbundle the cost of residential parking from the cost of lease or purchase of each unit. Off-site parking will be available on a monthly basis at market-rate
- The Applicant will identify TDM Leaders (for planning, construction, and operations). The TDM Leaders will work with residents, employees, and hotel guests in the building to distribute and market various transportation alternatives and options.
- The Applicant will provide TDM materials to new residents in the Residential Welcome Package materials.
- The Applicant will establish a TDM marketing program that provides detailed transportation information to hotel guests at every step of the pre-reservation and reservation process, through check-in communicating what guests should expect with regards to parking and transportation. All information will emphasize and encourage alternative modes given the hotel's convenient location near Metrorail.
- The Applicant will provide residents and hotel employees who wish to carpool with detailed carpooling information and will be referred to other carpool matching services sponsored by the

Metropolitan Washington Council of Governments (MWCOC).

- The Applicant will install Transportation Information Center Displays (electronic screens) within the residential, and hotel lobbies, containing information related to local transportation alternatives.
- The Applicant will offer either a one-year membership to Capital Bikeshare or a one-year membership to a carsharing service to each residential unit for the initial lease up of each unit, and to hotel employees during the first year of operation.
- The Applicant will coordinate free daily Capital Bikeshare passes to hotel guests as a part of Capital Bikeshare's Bulk Membership program for hotels. These daily passes will be available upon request for hotel guests for the life of the hotel project or the life of the Capital Bikeshare Bulk Membership program (whichever ends first).
- The Applicant will provide a bicycle repair station within each of the long-term bicycle storage rooms, two (2) stations total, as well as one (1) shower/changing area in the public storage component.
- The Applicant will dedicate two (2) parking spaces along the alley for car sharing services to use with right of first refusal.
- The Applicant will restrict residents of the building from obtaining a Residential Parking Permit ("RPP"), with penalty of lease termination.
- The Applicant will place and fund the operations and maintenance for one year of a new Capital Bikeshare Station.



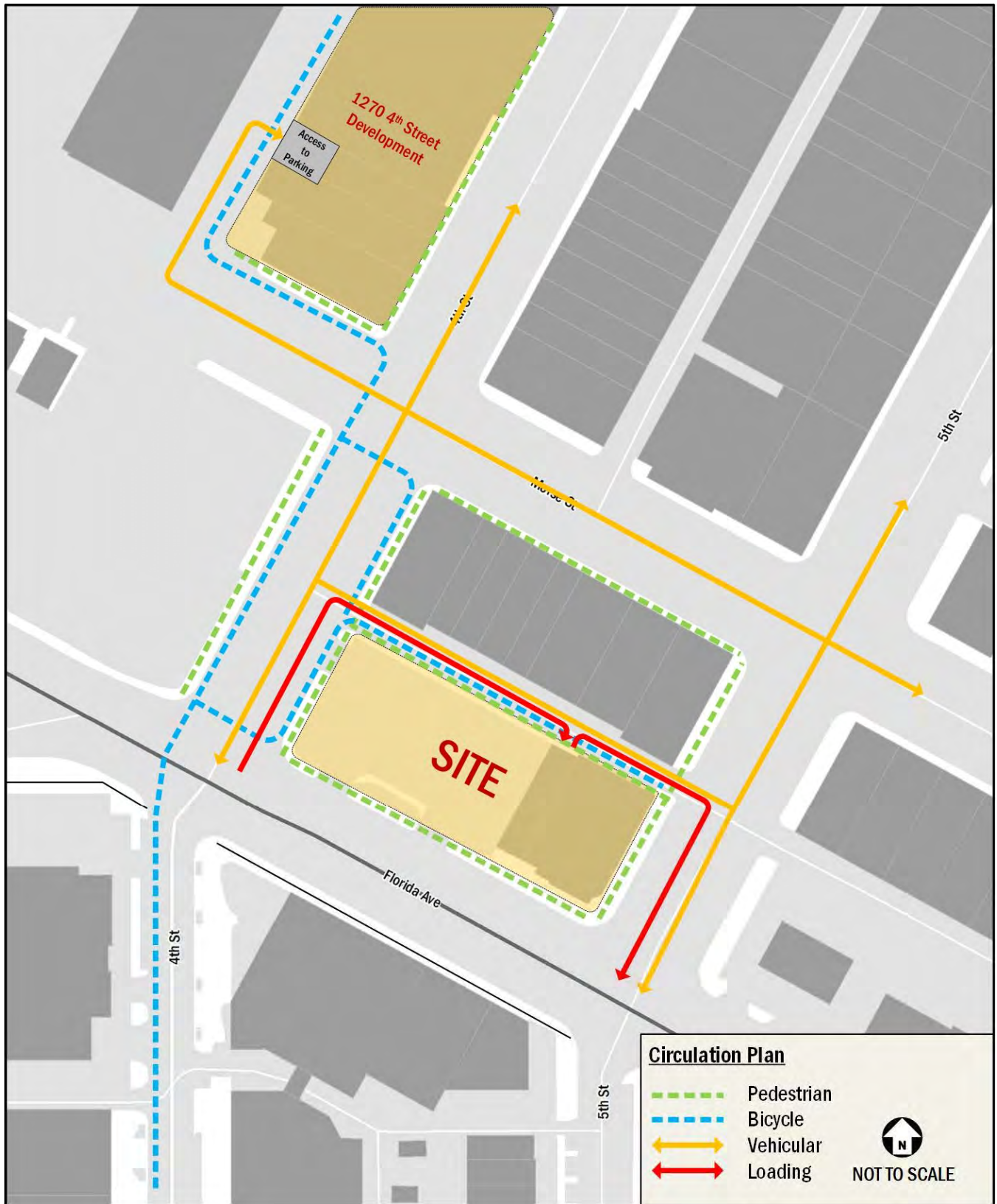


Figure 8: Circulation Plan

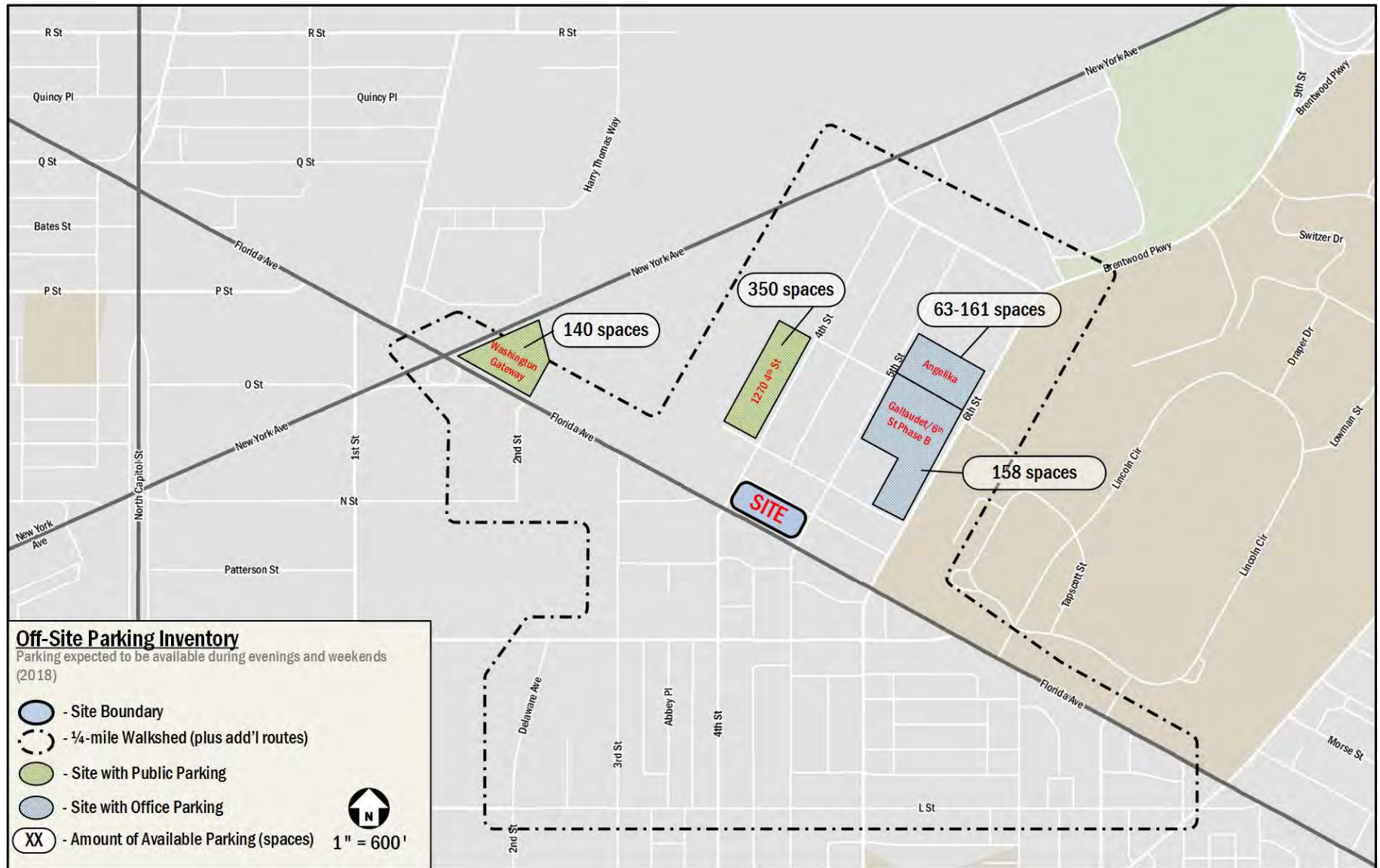


Figure 9: Future Off-Site Parking Inventory



## TRIP GENERATION

This section outlines the transportation demand of the proposed 400 Florida Avenue NE project. It summarizes the projected trip generation of the site by mode, which forms the basis for the chapters that follow.

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

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

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

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

**Table 2: Summary of Mode Split Assumptions**

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



**Table 3: Multi-Modal Trip Generation Summary**

Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto	Apartments	4 veh/hr	14 veh/hr	18 veh/hr	15 veh/hr	8 veh/hr	23 veh/hr
	Hotel	18 veh/hr	12 veh/hr	30 veh/hr	18 veh/hr	17 veh/hr	35 veh/hr
	Pass-by	8 veh/hr	5 veh/hr	13 veh/hr	8 veh/hr	7 veh/hr	15 veh/hr
	<b>Total</b>	<b>30 veh/hr</b>	<b>31 veh/hr</b>	<b>61 veh/hr</b>	<b>41 veh/hr</b>	<b>32 veh/hr</b>	<b>73 veh/hr</b>
Transit	Apartments	5 ppl/hr	18 ppl/hr	23 ppl/hr	20 ppl/hr	11 ppl/hr	31 ppl/hr
	Hotel	39 ppl/hr	28 ppl/hr	67 ppl/hr	39 ppl/hr	37 ppl/hr	76 ppl/hr
	<b>Total</b>	<b>44 ppl/hr</b>	<b>46 ppl/hr</b>	<b>90 ppl/hr</b>	<b>59 ppl/hr</b>	<b>48 ppl/hr</b>	<b>107 ppl/hr</b>
Bike	Apartments	2 ppl/hr	8 ppl/hr	10 ppl/hr	9 ppl/hr	4 ppl/hr	13 ppl/hr
	Hotel	6 ppl/hr	4 ppl/hr	10 ppl/hr	6 ppl/hr	5 ppl/hr	11 ppl/hr
	<b>Total</b>	<b>8 ppl/hr</b>	<b>12 ppl/hr</b>	<b>20 ppl/hr</b>	<b>15 ppl/hr</b>	<b>9 ppl/hr</b>	<b>24 ppl/hr</b>
Walk	Apartments	3 ppl/hr	10 ppl/hr	13 ppl/hr	12 ppl/hr	6 ppl/hr	18 ppl/hr
	Hotel	11 ppl/hr	8 ppl/hr	19 ppl/hr	11 ppl/hr	11 ppl/hr	22 ppl/hr
	<b>Total</b>	<b>14 ppl/hr</b>	<b>18 ppl/hr</b>	<b>32 ppl/hr</b>	<b>23 ppl/hr</b>	<b>17 ppl/hr</b>	<b>40 ppl/hr</b>



## TRAFFIC OPERATIONS

This section provides a summary of an analysis of the existing and future roadway capacity in the study area. Included is an analysis of potential vehicular impacts of the 400 Florida Avenue NE project and a discussion of potential improvements.

The purpose of the capacity analysis is to:

- Determine the existing capacity of the study area roadways;
- Determine the overall impact of the proposed development on the study area roadways; and
- Discuss potential improvements and mitigation measures to accommodate the additional vehicular trips

This analysis was accomplished by determining the traffic volumes and roadway capacity for the following scenarios:

1. 2016 Existing Conditions
2. 2018 Future Conditions without the development (2018 Background)
3. 2018 Future Conditions with the development (2018 Future)

The capacity analysis focuses on the morning and afternoon commuter peak hours, as determined by the existing traffic volumes in the study area.

The following conclusions are reached within this chapter:

- The existing study area intersections generally operate at an acceptable level of service during all analysis scenarios for both the morning and afternoon peak hours.
- Existing areas of concern for roadway capacity are primarily focused along the heavily trafficked commuter routes such as Florida Avenue.
- The addition of trips generated by background developments and inherent growth on the study area roadways causes a number of intersections to experience unacceptable levels of delay and queuing.
- There are no study intersections that operate at an unacceptable level of service as a result of the proposed development.
- Overall, this report concludes that the project will not have a detrimental impact to the surrounding transportation network.

## STUDY AREA, SCOPE, & METHODOLOGY

This section outlines the vehicular trips generated in the study area along the vehicular access routes and defines the analysis assumptions.

The scope of the analysis contained within this report was discussed with and agreed to with DDOT. The general methodology of the analysis follows national and DDOT guidelines on the preparation of transportation impact evaluations of site development.

### Capacity Analysis Scenarios

The vehicular analyses are performed to determine if the proposed development will lead to adverse impacts on traffic operations. (A review of impacts to each of the other modes is outlined later in this report.) This is accomplished by comparing future scenarios: (1) without the proposed development (referred to as the Background condition) and (2) with the development approved and constructed (referred to as the Future condition).

Specifically, the roadway capacity analysis examined the following scenarios:

1. 2016 Existing Conditions
2. 2018 Future Conditions without the development (2018 Background)
3. 2018 Future Conditions with the development (2018 Future)

### Study Area

The study area of the analysis is a set of intersections where detailed capacity analyses were performed for the scenarios listed above. The set of intersections decided upon during the study scoping process with DDOT are those intersections most likely to have potential impacts or require changes to traffic operations to accommodate the proposed development. Although it is possible that impacts will occur outside of the study area, those impacts are not significant enough to be considered a detrimental impact nor worthy of mitigation measures.

Based on the projected future trip generation and the location of the site access points, the following intersections were chosen for analysis:

1. Florida Avenue & 3<sup>rd</sup> Street NE
2. Florida Avenue & 4<sup>th</sup> Street NE



3. Florida Avenue & 5<sup>th</sup> Street NE
4. Florida Avenue & 6<sup>th</sup> Street NE
5. M Street & 4<sup>th</sup> Street NE
6. M Street & 5<sup>th</sup> Street NE
7. Morse Street & 4<sup>th</sup> Street NE
8. Morse Street & 5<sup>th</sup> Street NE
9. Neal Place & 4<sup>th</sup> Place NE
10. Morse Street & 6<sup>th</sup> Street NE
11. Penn Street & 4<sup>th</sup> Street NE
12. Penn Street & 6<sup>th</sup> Street/Brentwood Parkway NE

Figure 10 shows a map of the study area intersections.

### Traffic Volume Assumptions

The following section reviews the traffic volume assumptions and methodologies used in the roadway capacity analyses.

#### *Existing Traffic Volumes*

The existing traffic volumes are comprised of turning movement count data, which is a mix of new counts and data on record. Figure 10 includes the date at which turning movement data was collected for each study intersection. The results of the traffic counts are included in the Technical Attachments. The existing peak hour traffic volumes are shown on Figure 11. For all intersections the individual morning and afternoon peak hours were used.

#### *2018 Background Traffic Volumes (without the project)*

The traffic projections for the 2018 Background conditions consist of the existing volumes with two additions:

- Traffic generated by developments expected to be completed prior to the project (known as background developments); and
- Inherent growth on the roadway (representing regional traffic growth).

Following national and DDOT methodologies, a background development must meet the following criteria to be incorporated into the analysis:

- Be located in the study area, defined as having an origin or destination point within the cluster of study area intersections;
- Have entitlements; and
- Have a construction completion date prior or close to the proposed development.

Based on these criteria, and as discussed previously, nine developments were included in the 2018 Background scenario. These developments are:

1. 1270 4<sup>th</sup> Street NE
2. Gateway Market
3. 300 M Street NE
4. 411 New York Avenue NE
5. 501 New York Avenue NE
6. Highline at Union Market
7. 301 Florida Avenue NE
8. Gallaudet 6<sup>th</sup> Street (Phase B)
9. Anglika (Phase I)

Existing studies were available for all background developments. Trip distribution assumptions for the background developments were based on their respective studies and altered where necessary based on anticipated travel patterns. Mode split and trip generation assumptions for the background developments are shown Table 4.

While the background developments represent local traffic changes, regional traffic growth is typically accounted for using growth rates. The growth rates used in this analysis are derived using the Metropolitan Washington Council of Government's (MWCOC) currently adopted regional transportation model, comparing the difference between the year 2015 and 2020 model scenarios. The growth rates observed in this model served as a basis for analysis assumptions, and where negative growth was observed, a conservative 0.10 percent annual growth rate was applied to the roadway. The applied growth rates are shown in Table 5.

The traffic volumes generated by background developments and by the inherent growth along the network were added to the existing traffic volumes in order to establish the 2018 Background traffic volumes. The traffic volumes for the 2018 Background conditions are shown on Figure 12.

#### *2018 Total Future Traffic Volumes (with the project)*

The 2018 Total Future traffic volumes consist of the 2018 Background volumes with the addition of the traffic volumes generated by the proposed development (site-generated trips). Thus, the 2018 Total Future traffic volumes include traffic generated by: the existing volumes, background developments, the inherent growth on the study area roadways, and the proposed project.





Trip distribution for the site-generated trips was determined based on: (1) CTPP TAZ data, (2) existing and future travel patterns in the study area, and (3) the allotted parking locations of various users of the development.

The residential trip distribution was significantly influenced by the CTPP TAZ flow data for drivers commuting from the site's TAZ, and adjusted based on traffic volumes and patterns. The origin of outbound and destination of inbound residential vehicular trips was the below-grade parking garage of the 1270 4<sup>th</sup> Street development.

The hotel distribution was mostly based on the locations of major routes used by visitors to the District, the locations of major airports in the area such as BWI, DCA, and IAD, major through routes such as I-95/I-495, and the locations of popular tourist attractions, mostly located to the southwest of the site. The origin of outbound and destination of inbound hotel vehicular trips was the below-grade parking garage of the 1270 4<sup>th</sup> Street development, with half the hotel trips being routed via the proposed valet area along 4<sup>th</sup> Street before or after they access the parking garage.

Based on this review and the site access locations, the site-generated trips were distributed through the study area intersections. A summary of trip distribution assumptions and specific routing is provided on Figure 13 for outbound trips and on Figure 14 for inbound trips.

The traffic volumes for the 2018 Total Future conditions were calculated by adding the development-generated traffic volumes to the 2018 Background traffic volumes. Thus, the future condition with the proposed development scenario includes traffic generated by: existing volumes, background developments through the year 2018, inherent growth on the network, and the proposed development. The site-generated traffic volumes are shown on Figure 17 and the 2018 Total Future traffic volumes are shown on Figure 18.

### **Geometry and Operations Assumptions**

The following section reviews the roadway geometry and operations assumptions made and the methodologies used in the roadway capacity analyses.

#### *Existing Geometry and Operations Assumptions*

The geometry and operations assumed in the existing conditions scenario are those present when the main data collection occurred. Gorove/Slade made observations and

confirmed the existing lane configurations and traffic controls at the intersections within the study area. Existing signal timings and offsets were obtained from DDOT and confirmed during field reconnaissance.

The lane configurations and traffic controls for the Existing conditions are shown on Figure 15.

#### *Future Geometry and Operations Assumptions*

Following national and DDOT methodologies, a background improvement must meet the following criteria to be incorporated into the analysis:

- Be funded; and
- Have a construction completion date prior or close to the proposed development.

Based on these criteria, the proposed reconfiguration to Florida Avenue and 6<sup>th</sup> Street based on the *Florida Avenue Multimodal Study*, and the Union Market two-way conversion plan based on plans contained within the approved TISs for the 1270 4<sup>th</sup> Street NE and the Angelika (Phase I) developments, were included in the background scenario. Detailed plans are included in the Appendix.

Florida Avenue will be converted to two eastbound and two westbound lanes with a center left-turn lane in certain sections. 6<sup>th</sup> Street north of Florida Avenue will be improved to include improved bicycle facilities, widened sidewalks, and curb extensions where possible. 6<sup>th</sup> Street south of Florida Avenue to K Street will be converted to one-way northbound, improved with widened sidewalks, and improved with a two-way cycle track on the east side.

Within Union Market, 4<sup>th</sup> Street and 5<sup>th</sup> Street will be converted to allow two-way traffic between Penn Street and Morse Street. As such, the intersection of Penn Street and 4<sup>th</sup> Street is expected to become an all-way stop controlled intersection.

Furthermore, per the recommendations of the 1270 4<sup>th</sup> Street NE (Z.C. Case No. 14-07) TIS, the intersection of Morse Street and 4<sup>th</sup> Street was converted to an all-way stop controlled intersection from a two-way stop controlled intersection.

Lane configurations and traffic controls for the 2018 Background and Future scenarios are shown on Figure 16.



## Vehicular Analysis Results

### *Intersection Capacity Analysis*

Intersection capacity analyses were performed for the three scenarios outlined previously at the intersections contained within the study area during the morning and afternoon peak hours. Synchro version 9.1 was used to analyze the study intersections based on the *Highway Capacity Manual* (HCM) 2000 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 D is typically used as the acceptable LOS threshold in the District; although LOS E or F is sometimes accepted in urbanized areas if vehicular improvements would be a detriment to safety or non-auto modes of transportation.

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 the *Synchro* 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. Detailed LOS descriptions and the analysis worksheets are contained in the Technical Attachments.

Table 6 shows the results of the capacity analyses, including LOS and average delay per vehicle (in seconds) for the Existing, 2018 Background, and 2018 Future scenarios. The capacity analysis results are shown on Figure 19 for the morning peak hour, and Figure 20 for the afternoon peak hour.

Study intersections generally operate at acceptable conditions during the morning and afternoon peak hours for the Existing, 2018 Background, and 2018 Future scenarios. However, four (4) intersections operate under unacceptable conditions during one or more peak hour:

- 4<sup>th</sup> Street & Florida Avenue NE (Existing PM, Background AM and PM, Future AM and PM)
- 6<sup>th</sup> Street & Florida Avenue NE (Existing PM, Background AM and PM, Future AM and PM)

- 4<sup>th</sup> Street & M Street NE (Background PM, Future PM)
- 6<sup>th</sup> Street & Morse Street NE (Existing PM)

### *Queuing Analysis*

In addition to the capacity analyses presented above, a queuing analysis was performed at the study intersections. The queuing analysis was performed using Synchro software. The 50<sup>th</sup> percentile and 95<sup>th</sup> percentile queue lengths are shown for each lane group at the study area signalized intersections. The 50<sup>th</sup> percentile queue is the maximum back of queue on a median cycle. The 95<sup>th</sup> percentile queue is the maximum back of queue that is exceeded 5% of the time. For unsignalized intersection, only the 95<sup>th</sup> percentile queue is reported for each lane group (including free-flowing left turns and stop-controlled movements) based on the HCM calculations.

Table 7 shows the queuing results for the study area intersections. Several of the study intersections have a lane group that exceeds its storage length during at least one peak hour in all of the study scenarios. These intersections are as follows:

- 6<sup>th</sup> Street & Florida Avenue NE (All Scenarios)
- 4<sup>th</sup> Street & M Street NE (Existing PM, Background PM, Future PM)
- Penn Street & 6<sup>th</sup> Street NE (Existing PM, Background PM, Future PM)

With the addition of the site-generated traffic, queues are slightly increased at all of the study intersections, but no major impacts are seen as a result of the development.

### **Mitigations**

The proposed development is considered to have an impact at an intersection within the study area if the capacity analyses show an LOS E or LOS F, or where the 95<sup>th</sup> percentile queues increase by more than 150 feet at an intersection or along an approach in the future conditions with the proposed development where one does not exist in the existing or background conditions. The development is also considered to have an impact if there is an increase in delay at any approach or the overall intersection operating under LOS E or F of greater than 5 seconds, when compared to the background condition. Following these guidelines, no intersections are impacted as a result of the planned development.



**Table 4: Summary of Background Development Trip Generation**

Background Development	ITE Land Use Code Trip Generation, 9th Ed.	Quantity	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
1270 4th Street	Based on Approved TIS	<b>Total Trips</b>	<b>93</b>	<b>145</b>	<b>238</b>	<b>288</b>	<b>256</b>	<b>544</b>
Gateway Market	Based on Approved TIS	<b>Total Trips</b>	<b>43</b>	<b>42</b>	<b>85</b>	<b>54</b>	<b>63</b>	<b>117</b>
300 M Street	Based on Approved TIS	<b>Total Trips</b>	<b>26</b>	<b>90</b>	<b>116</b>	<b>97</b>	<b>57</b>	<b>154</b>
411 New York Avenue	Based on Approved TIS	<b>Total Trips</b>	<b>88</b>	<b>30</b>	<b>118</b>	<b>41</b>	<b>88</b>	<b>129</b>
501 New York Avenue	Based on Approved TIS	<b>Total Trips</b>	<b>15</b>	<b>16</b>	<b>31</b>	<b>20</b>	<b>16</b>	<b>36</b>
Highline at Union Market	Based on Approved TIS	<b>Total Trips</b>	<b>20</b>	<b>66</b>	<b>86</b>	<b>74</b>	<b>44</b>	<b>118</b>
301 Florida Avenue	Based on Approved TIS	<b>Total Trips</b>	<b>4</b>	<b>14</b>	<b>18</b>	<b>10</b>	<b>9</b>	<b>19</b>
Gallaudet 6th Street (Phase B)	Based on Approved TIS	<b>Total Trips</b>	<b>128</b>	<b>102</b>	<b>230</b>	<b>119</b>	<b>154</b>	<b>273</b>
Angelika (Phase I)	Based on Approved TIS	<b>Total Trips</b>	<b>303</b>	<b>41</b>	<b>344</b>	<b>148</b>	<b>335</b>	<b>483</b>
<b>Net Background Site Trips</b>			<b>720</b>	<b>546</b>	<b>1,266</b>	<b>851</b>	<b>1,022</b>	<b>1,873</b>

**Table 5: Applied Annual and Total Growth Rates**

Road & Direction	Proposed Annual Growth Rate		Total Growth between 2015 and 2018	
	AM Peak	PM Peak	AM Peak	PM Peak
Florida Avenue NE – Northwestbound	0.10%	1.25%	0.30%	3.80%
Florida Avenue NE – Southeastbound	2.00%	0.25%	6.12%	0.75%
3rd Street NE – Northbound	11.50%	9.00%	38.62%	29.50%
3rd Street NE – Southbound	5.50%	5.75%	17.42%	18.26%
4th Street NE – Southbound	1.75%	2.75%	5.34%	8.48%
6th Street NE – Northbound	0.75%	0.25%	2.27%	0.75%
6th Street NE – Southbound	1.00%	0.50%	3.03%	1.51%
M Street NE – Eastbound*	0.10%	0.10%	0.30%	0.30%
M Street NE – Westbound*	0.10%	0.10%	0.30%	0.30%

\* based on DDOT AADTs

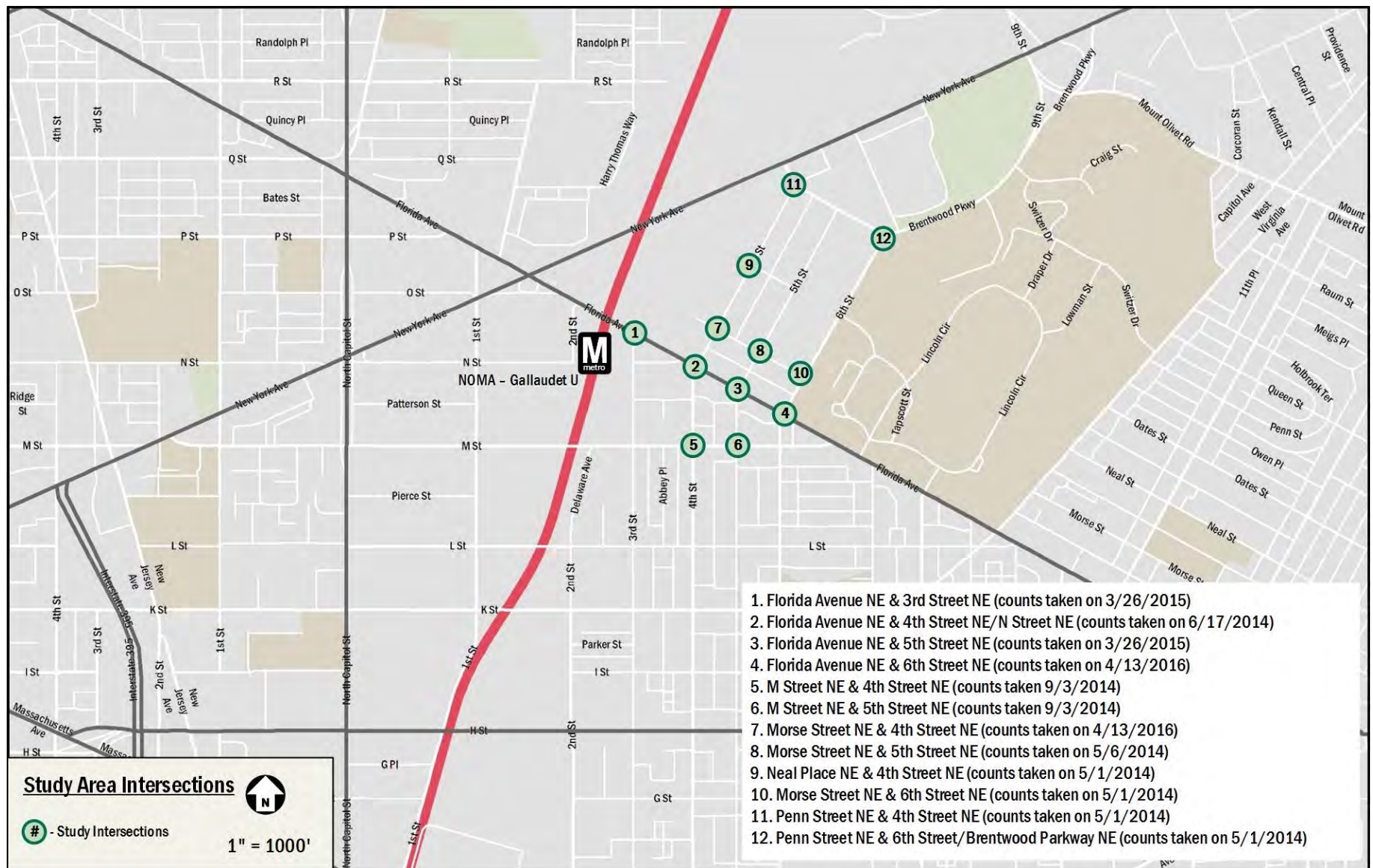


Figure 10: Study Area Intersections

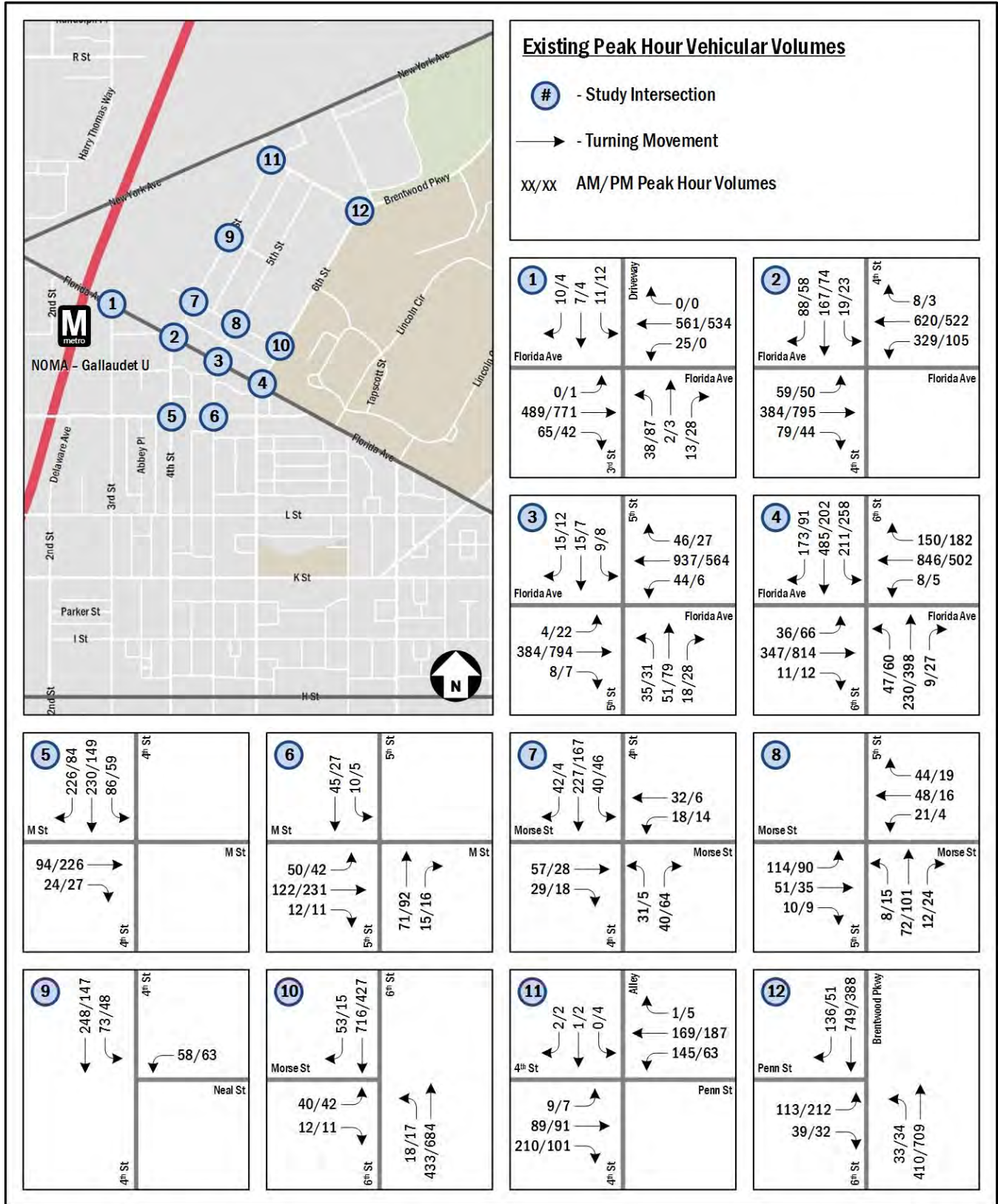


Figure 11: Existing Peak Hour Traffic Volumes

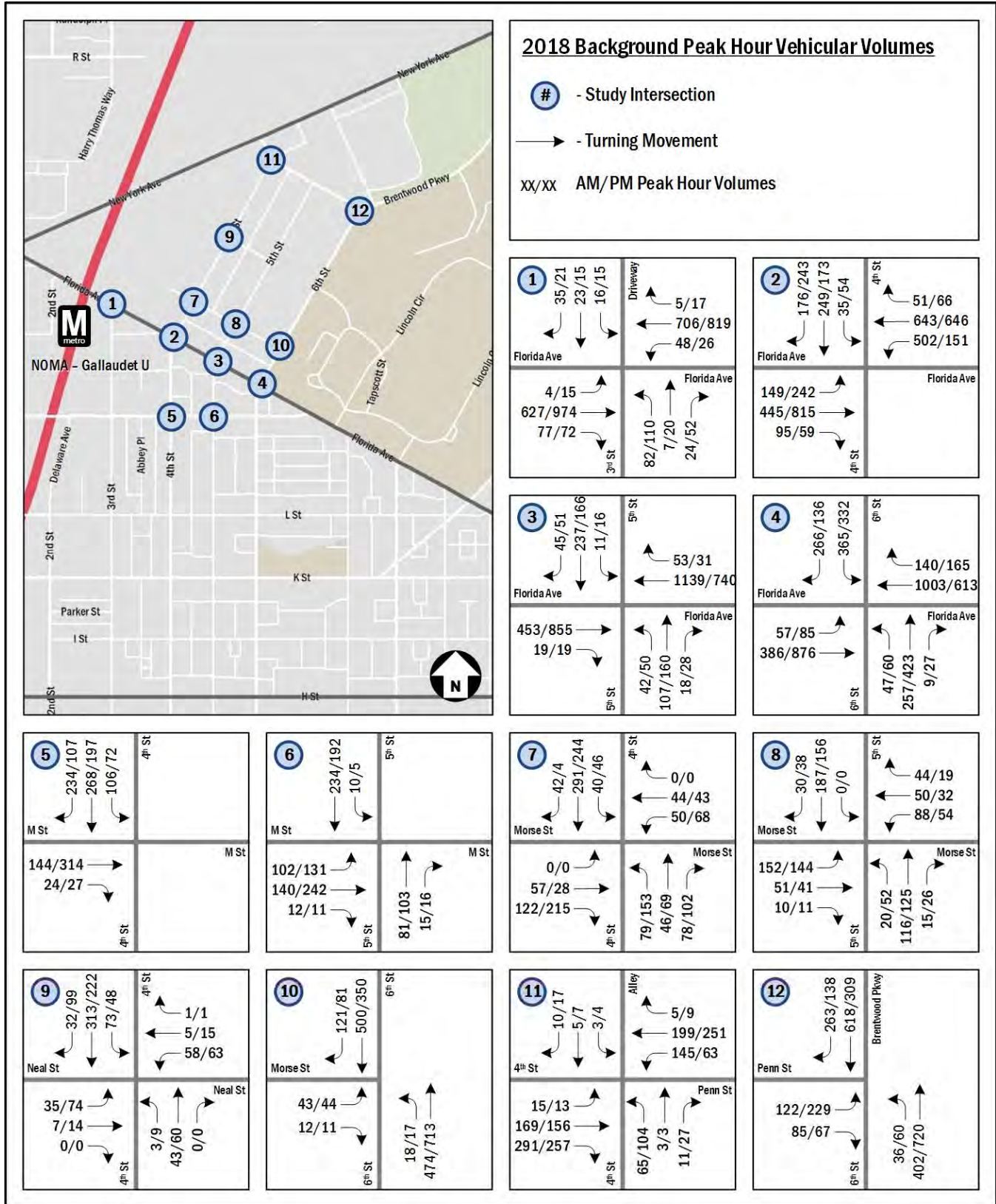


Figure 12: 2018 Background Peak Hour Traffic Volumes

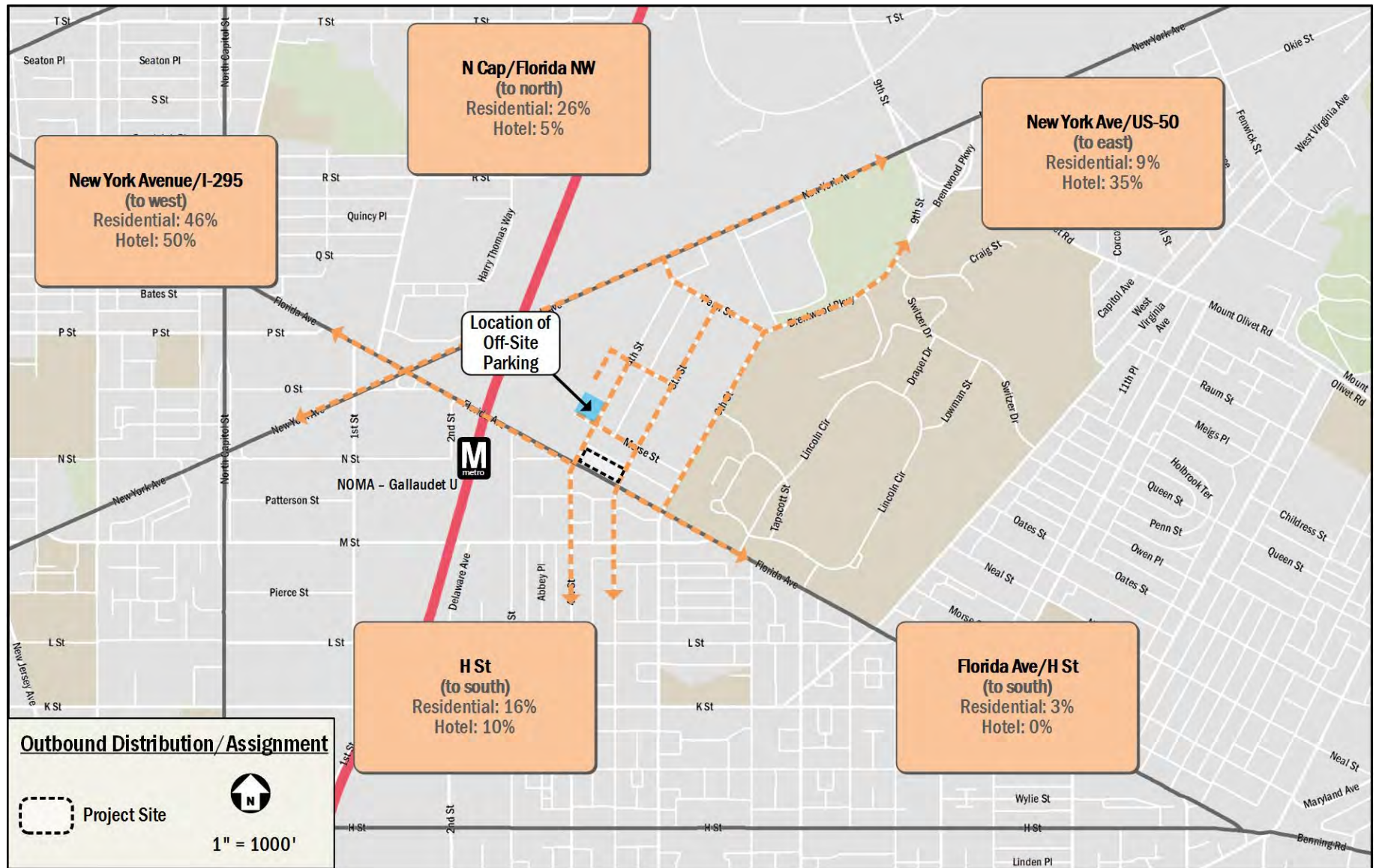


Figure 13: Outbound Trip Distribution and Routing

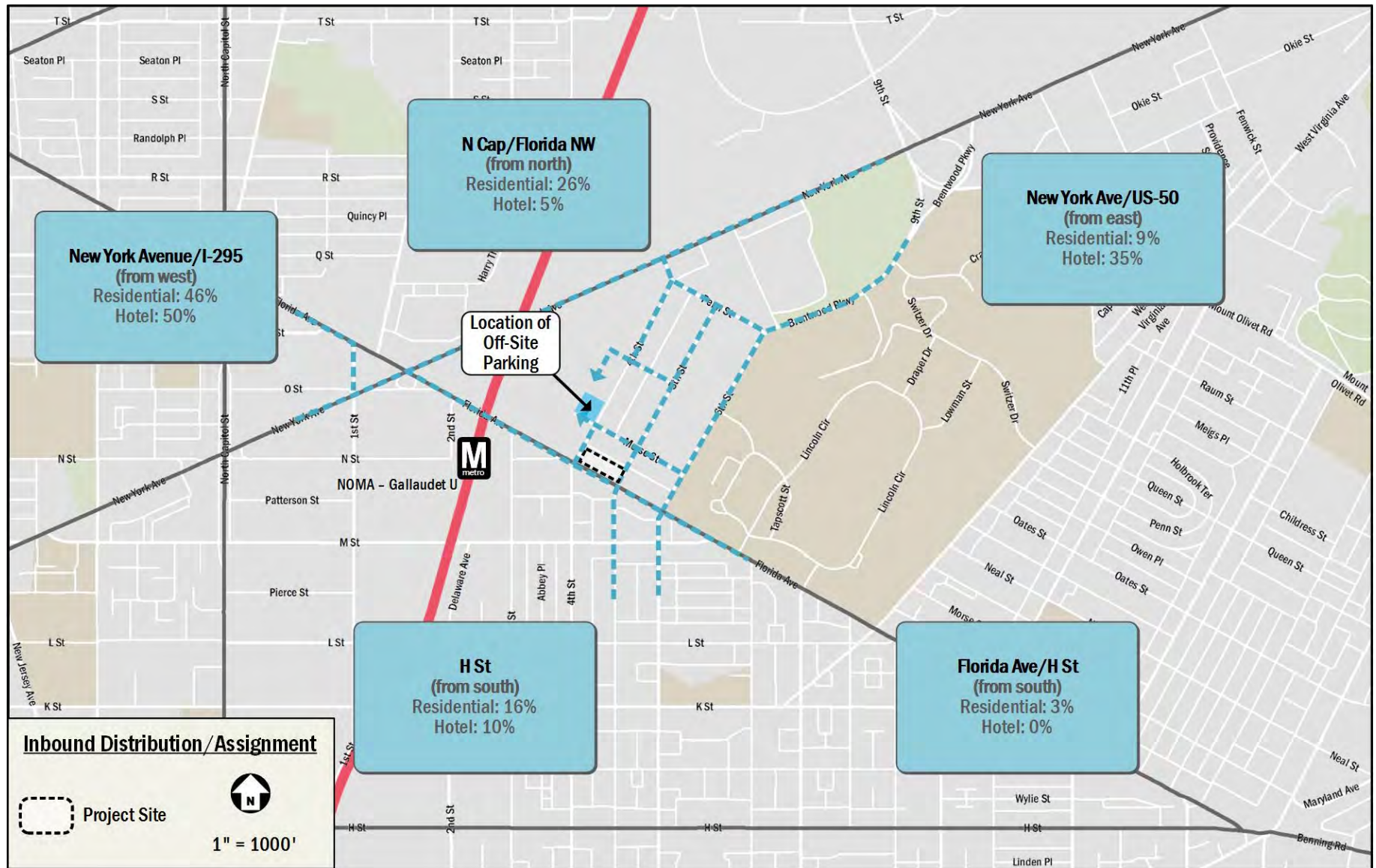


Figure 14: Inbound Trip Distribution and Routing



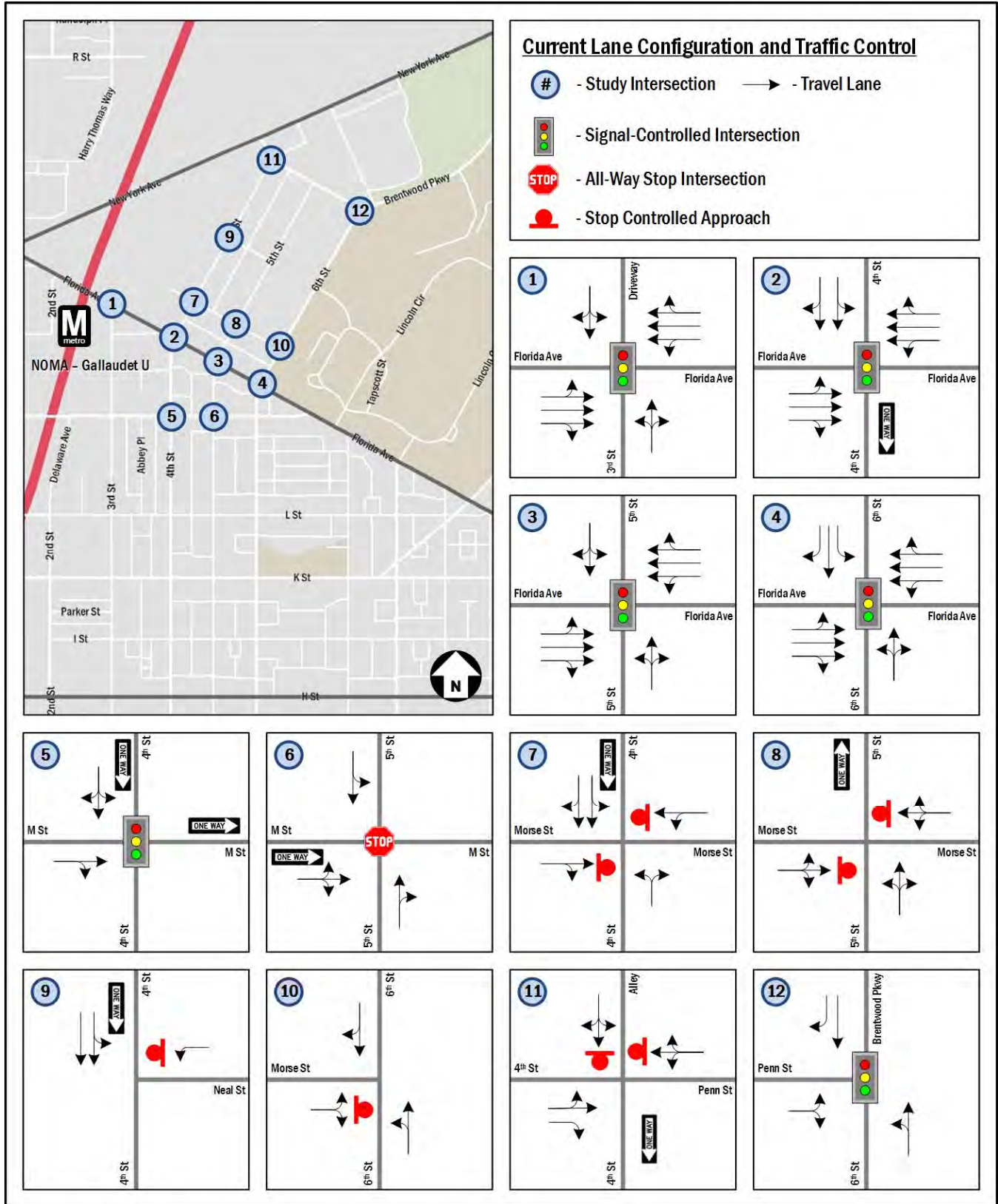


Figure 15: Current Lane Configuration and Traffic Control

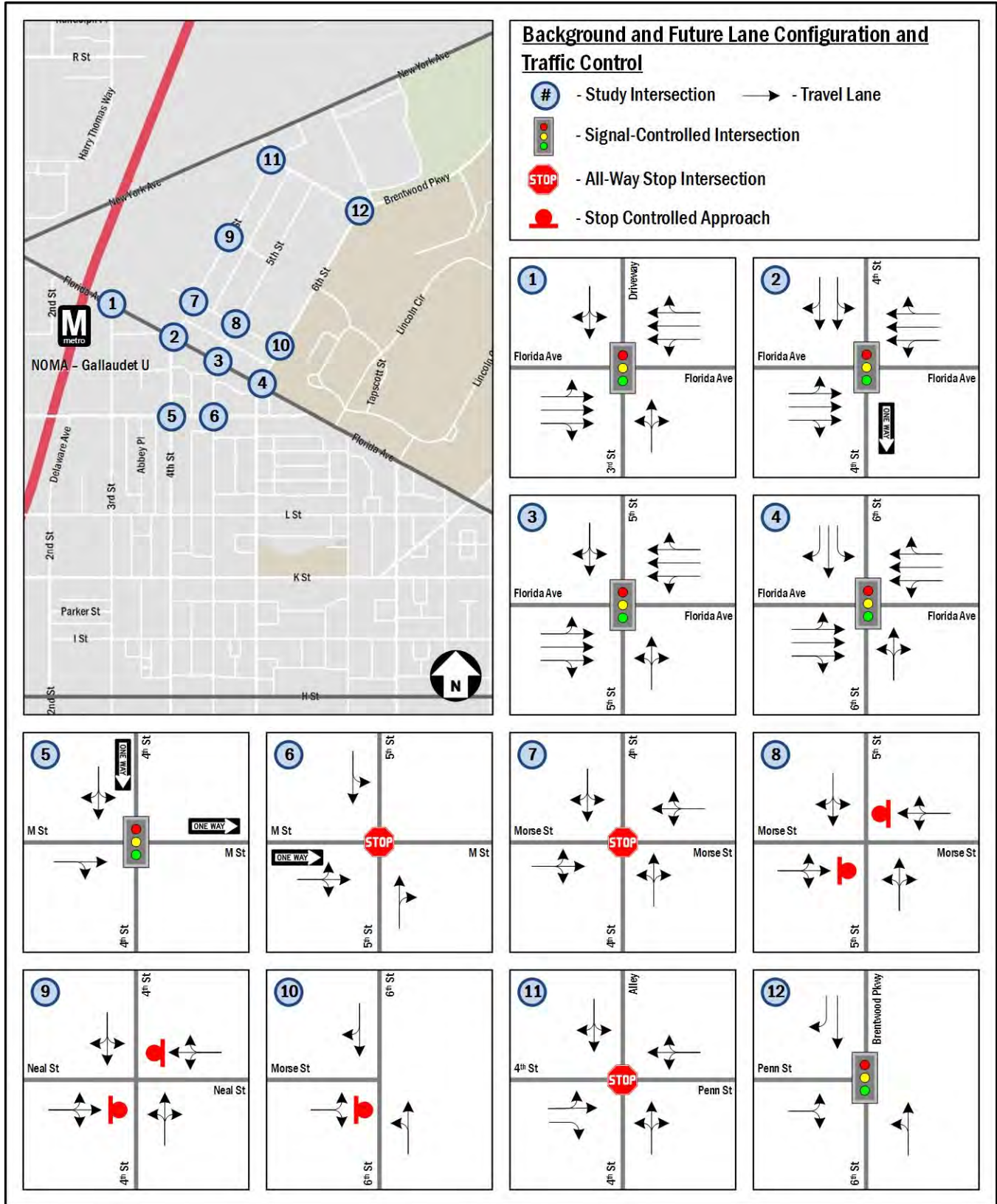


Figure 16: 2018 Background and Future Lane Configuration and Traffic Control

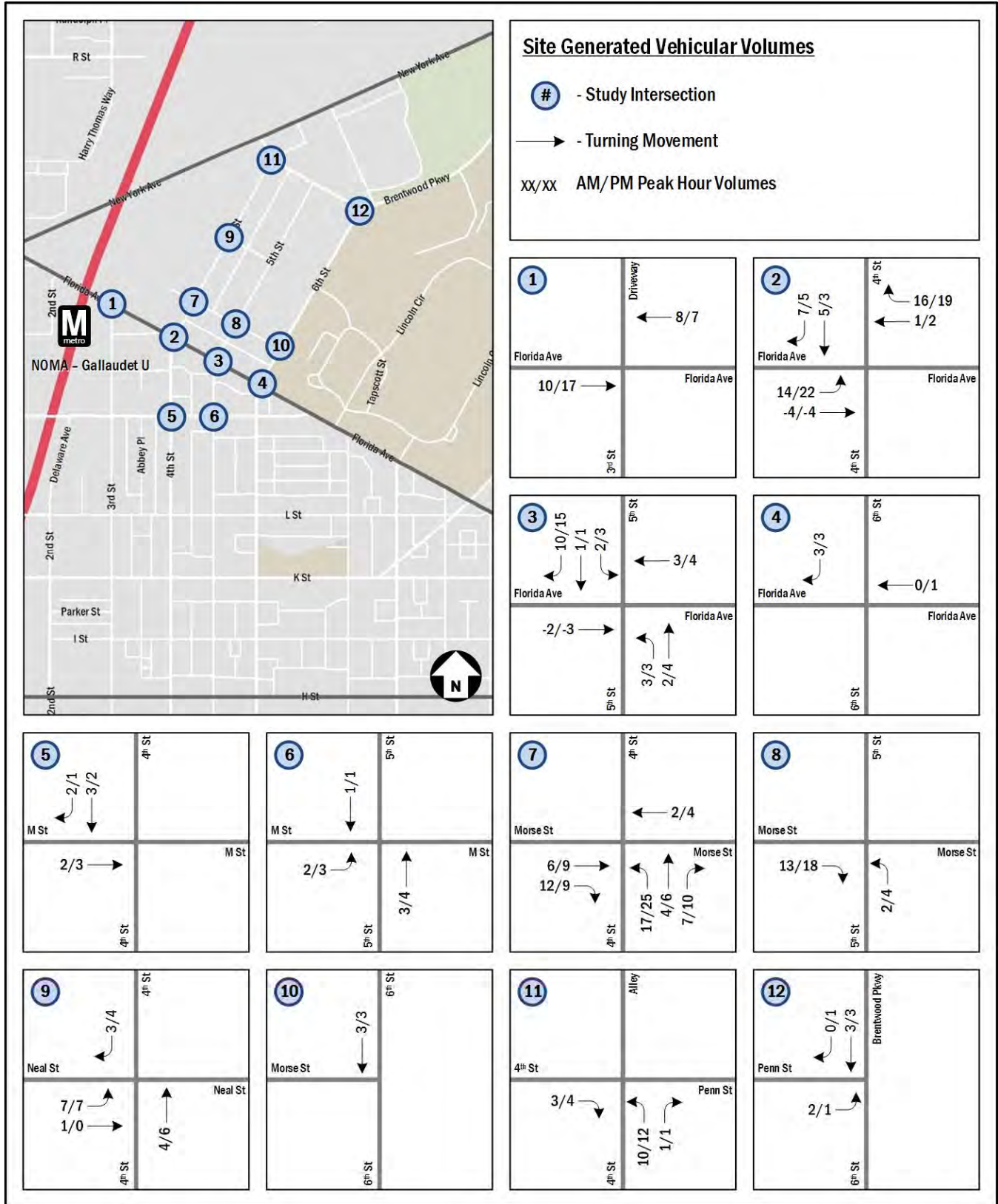


Figure 17: Site-Generated Peak Hour Traffic Volumes

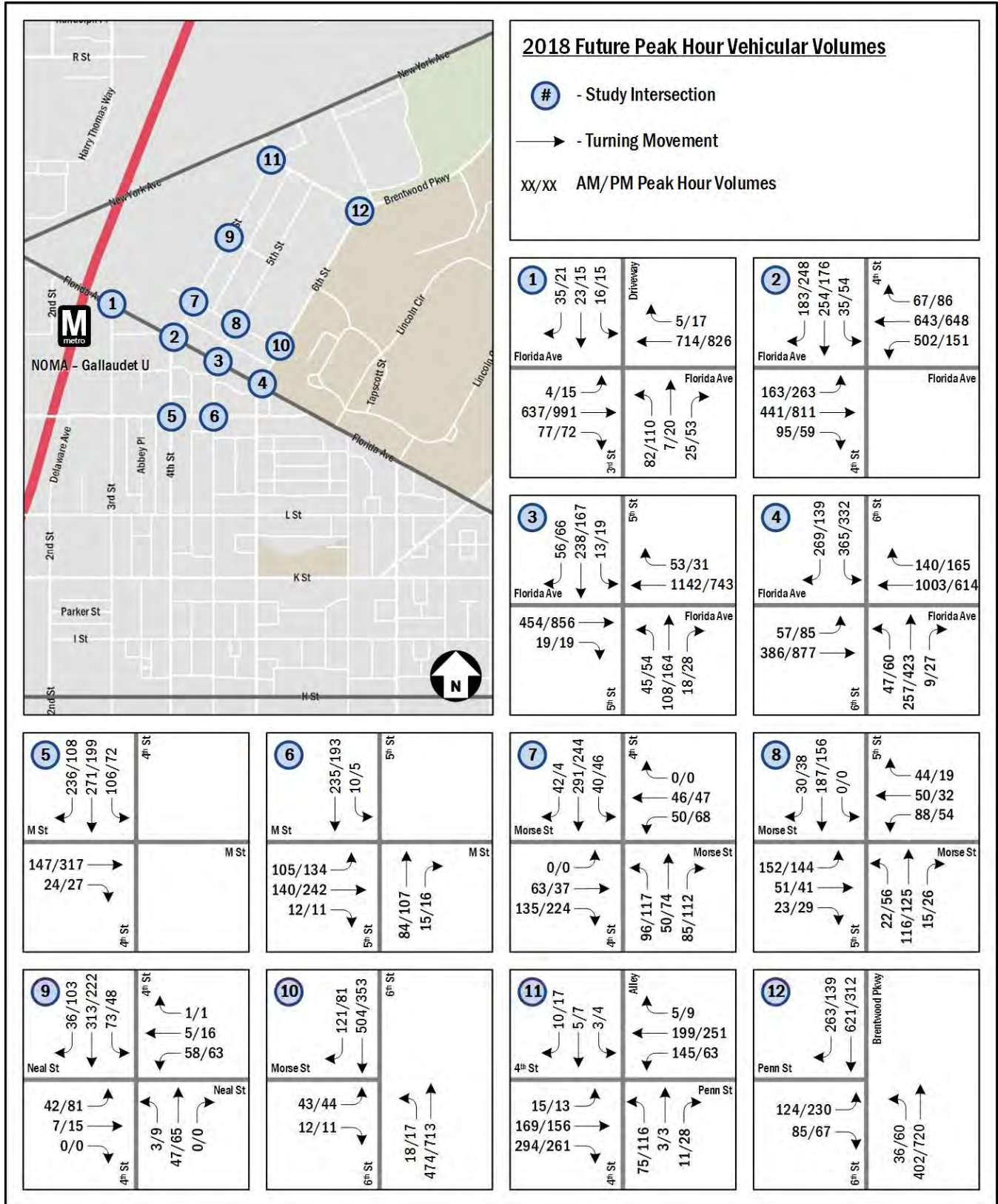


Figure 18: 2018 Future Peak Hour Traffic Volumes



Table 6: LOS Results

Intersection	Approach	Existing Conditions (2016)				Background Conditions (2019)				Future Conditions (2019)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. 3rd Street & Florida Avenue NE	<b>Overall</b>	<b>8.3</b>	<b>A</b>	<b>10.2</b>	<b>B</b>	<b>9.4</b>	<b>A</b>	<b>10.7</b>	<b>B</b>	<b>9.5</b>	<b>A</b>	<b>10.8</b>	<b>B</b>
	Eastbound	5.7	A	7.3	A	7.1	A	8.1	A	7.2	A	8.2	A
	Westbound	7.0	A	6.6	A	4.1	A	3.8	A	4.2	A	3.6	A
	Northbound	32.8	C	38.5	D	38.0	D	48.0	D	38.0	D	48.0	D
	Southbound	31.3	C	31.2	C	32.7	C	32.2	C	32.7	C	32.2	C
2. 4th Street & Florida Avenue NE	<b>Overall</b>	<b>25.7</b>	<b>C</b>	<b>78.8</b>	<b>E</b>	<b>63.8</b>	<b>E</b>	<b>189.4</b>	<b>F</b>	<b>63.0</b>	<b>E</b>	<b>187.7</b>	<b>F</b>
	Eastbound	49.7	D	125.0	F	150.6	F	387.2	F	147.7	F	384.5	F
	Westbound	10.9	B	26.3	C	24.0	B	12.4	B	24.2	C	12.8	B
	Northbound	29.2	C	27.4	C	32.4	C	31.1	C	32.7	C	31.3	C
	Southbound	29.2	C	27.4	C	32.4	C	31.1	C	32.7	C	31.3	C
3. 5th Street & Florida Avenue NE	<b>Overall</b>	<b>10.5</b>	<b>B</b>	<b>5.4</b>	<b>A</b>	<b>15.2</b>	<b>B</b>	<b>19.1</b>	<b>B</b>	<b>15.4</b>	<b>B</b>	<b>19.4</b>	<b>B</b>
	Eastbound	17.7	B	1.4	A	20.0	B	25.9	C	20.0	B	26.0	C
	Westbound	6.0	A	5.5	A	8.4	A	6.5	A	8.4	A	6.5	A
	Northbound	21.5	C	23.6	C	23.8	C	26.2	C	24.1	C	27.0	C
	Southbound	19.9	B	20.9	C	27.7	C	25.4	C	28.4	C	26.2	C
4. 6th Street & Florida Avenue NE	<b>Overall</b>	<b>28.9</b>	<b>C</b>	<b>40.2</b>	<b>D</b>	<b>91.1</b>	<b>F</b>	<b>64.0</b>	<b>E</b>	<b>91.0</b>	<b>F</b>	<b>64.1</b>	<b>E</b>
	Eastbound	34.9	C	74.2	E	56.7	E	122.2	F	56.6	E	122.4	F
	Westbound	41.7	D	34.2	C	168.3	F	47.5	D	168.3	F	47.6	D
	Northbound	9.4	A	11.3	B	7.7	A	8.4	A	7.7	A	8.4	A
	Southbound	18.0	B	16.2	B	23.3	C	26.8	C	23.3	C	26.8	C
5. M Street & 4th Street NE	<b>Overall</b>	<b>9.4</b>	<b>A</b>	<b>22.2</b>	<b>C</b>	<b>11.4</b>	<b>B</b>	<b>33.2</b>	<b>D</b>	<b>11.6</b>	<b>B</b>	<b>34.1</b>	<b>C</b>
	Eastbound	34.0	C	41.3	D	36.8	D	64.6	E	36.9	D	66.3	E
	Southbound	4.5	A	7.4	A	4.4	A	4.6	A	4.6	A	4.8	A
6. M Street & 5th Street NE	<b>Overall</b>	<b>8.5</b>	<b>A</b>	<b>9.5</b>	<b>A</b>	<b>10.3</b>	<b>B</b>	<b>12.3</b>	<b>B</b>	<b>10.4</b>	<b>B</b>	<b>12.5</b>	<b>B</b>
	Eastbound	8.9	A	10.0	B	10.8	B	14.1	B	10.9	B	14.3	B
	Northbound	8.0	A	8.5	A	8.7	A	9.5	A	8.8	A	9.6	A
	Southbound	8.0	A	8.1	A	10.4	B	10.6	B	10.5	B	10.7	B
	Southbound	8.0	A	8.1	A	10.4	B	10.6	B	10.5	B	10.7	B
7. Morse Street & 4th Street NE	<b>Overall</b>	--	--	--	--	<b>14.2</b>	<b>B</b>	<b>16.9</b>	<b>C</b>	<b>15.2</b>	<b>C</b>	<b>20.1</b>	<b>C</b>
	Eastbound	15.7	C	13.5	B	12.2	B	15.6	C	13.2	B	17.8	C
	Westbound	16.5	C	14.3	B	11.1	B	12.7	B	11.5	B	13.5	B
	Northbound Left	3.7	A	0.7	A	--	--	--	--	--	--	--	--
	Northbound	--	--	--	--	11.8	B	19.0	C	13.0	B	24.8	C
	Southbound Left	1.1	A	1.8	A	--	--	--	--	--	--	--	--
	Southbound	--	--	--	--	17.4	C	17.3	C	18.7	C	19.0	C
8. Morse Street & 5th Street NE	Eastbound	13.3	B	12.3	B	33.2	D	28.8	D	34.6	D	30.3	D
	Westbound	10.9	B	10.3	B	19.9	C	17.6	C	20.8	D	18.6	C
	Northbound Left	0.6	A	0.9	A	1.2	A	2.3	A	1.3	A	2.5	A
	Southbound Left	--	--	--	--	0.0	A	0.0	A	0.0	A	0.0	A
	Southbound	--	--	--	--	0.0	A	0.0	A	0.0	A	0.0	A



<b>9. Neal Place &amp; 4th Street NE</b>	Eastbound	--	--	--	--	16.2	C	16.2	C	16.6	C	16.8	C
	Westbound	13.0	B	11.0	B	20.5	C	18.8	C	20.7	C	19.1	C
	Northbound Left	--	--	--	--	0.5	A	1.1	A	0.5	A	1.1	A
	Southbound Left	1.9	A	1.9	A	1.9	A	1.4	A	1.9	A	1.4	A
<b>10. Morse Street &amp; 6th Street NE</b>	Eastbound	29.9	D	<b>35.1</b>	<b>E</b>	22.4	C	26.0	D	22.6	C	26.0	D
	Northbound Left	0.8	A	0.5	A	0.7	A	0.5	A	0.7	A	0.5	A
<b>11. Penn Street &amp; 4th Street NE</b> <i>*Intersection Sign Configuration not allowed in HCM analysis</i>	<b>Overall</b>	--*	--*	--*	--*	<b>11.3</b>	<b>B</b>	<b>11.4</b>	<b>B</b>	<b>11.5</b>	<b>B</b>	<b>11.6</b>	<b>B</b>
	Eastbound	--*	--*	--*	--*	9.7	A	9.8	A	9.8	A	10.0	A
	Westbound	--*	--*	--*	--*	14.2	B	14.1	B	14.4	B	14.4	B
	Northbound	--*	--*	--*	--*	10.0	A	10.7	B	10.2	B	11.0	B
	Southbound	--*	--*	--*	--*	9.0	A	9.2	A	9.1	A	9.2	A
<b>12. Penn Street &amp; 6th Street NE</b>	<b>Overall</b>	<b>17.4</b>	<b>B</b>	<b>20.0</b>	<b>B</b>	<b>16.2</b>	<b>B</b>	<b>24.8</b>	<b>C</b>	<b>16.3</b>	<b>B</b>	<b>24.8</b>	<b>C</b>
	Eastbound	33.4	C	39.3	D	36.7	C	49.8	D	37.0	D	50.0	D
	Northbound	15.5	B	19.4	B	14.6	B	23.9	C	14.6	B	23.9	C
	Southbound	15.4	B	9.3	A	11.9	B	8.7	A	12.0	B	8.7	A



**Table 7: Queueing Results**

Intersection	Lane Group	Storage Length (ft)	Existing Conditions (2016)				Background Conditions (2019)				Future Conditions (2019)			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
			50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %
1. 3rd Street & Florida Avenue NE	Eastbound	345	42	56	72	91	58	75	101	126	59	76	103	128
	Westbound	380	54	70	45	60	41	58	41	67	43	61	43	68
	Northbound	690	24	56	69	121	66	116	116	184	66	117	116	185
	Southbound	100	11	34	10	29	24	60	18	49	24	60	18	49
2. 4th Street & Florida Avenue NE	Eastbound Left	240	--	--	--	--	115	177	~193	#339	126	#198	~225	#375
	Eastbound	380	129	166	~267	#356	~260	#356	~532	#633	~256	#353	~528	#628
	Westbound Left	240	--	--	--	--	146	#324	30	53	150	#342	31	56
	Westbound	250	53	69	151	189	103	165	71	100	107	170	77	107
	Southbound	200	63	93	28	51	115	155	76	116	118	159	80	119
3. 5th Street & Florida Avenue NE	Eastbound	230	107	m133	6	m2	186	m158	351	m199	186	m160	352	m200
	Westbound	240	34	45	20	27	378	m124	56	m74	378	m126	56	m74
	Northbound	320	46	81	66	109	84	133	129	191	87	138	136	201
	Southbound	200	12	33	7	25	164	234	121	180	174	248	131	194
4. 6th Street & Florida Avenue NE	Eastbound Left	220	--	--	--	--	32	m#112	~72	m#150	33	m#112	~70	m#152
	Eastbound	240	54	89	239	#328	102	154	~333	#467	102	154	~334	#467
	Westbound	280	219	274	142	180	~492	#622	253	#359	~492	#622	253	#360
	Northbound	150	84	130	156	231	40	58	70	95	40	58	70	95
	Southbound Left	190	100	m161	116	204	227	340	190	m317	227	338	190	m318
	Southbound Thru	190	253	371	70	113	--	--	--	--	--	--	--	--
5. 4th Street & M Street NE	Eastbound	350	61	115	150	235	96	228	228	#402	98	166	232	#408
	Southbound	450	36	43	~440	m#553	31	31	31	m84	34	m111	32	m86
6. 5th Street & M Street NE	Eastbound	230	--	--	--	--	--	--	--	--	--	--	--	--
	Northbound	630	--	--	--	--	--	--	--	--	--	--	--	--
	Southbound	310	--	--	--	--	--	--	--	--	--	--	--	--
7. Morse Street & 4th Street NE	Eastbound	110	--	22	--	9	--	--	--	--	--	--	--	--
	Westbound	215	--	14	--	4	--	--	--	--	--	--	--	--
	Northbound	195	--	2	--	0	--	--	--	--	--	--	--	--
	Southbound Left	420	--	3	--	3	--	--	--	--	--	--	--	--
	Southbound	420	--	0	--	0	--	--	--	--	--	--	--	--
8. Morse Street & 5th Street NE	Eastbound	215	--	35	--	24	--	120	--	98	--	131	--	111
	Westbound	235	--	16	--	5	--	60	--	30	--	64	--	33
	Northbound	190	--	0	--	1	--	1	--	4	--	2	--	4
	Southbound	440	--	--	--	--	--	0	--	0	--	0	--	0



<b>9. Neal Place &amp; 4th Street NE</b>	Eastbound	230	--	--	--	--	--	11	--	22	--	13	--	25
	Westbound	230	--	11	--	8	--	23	--	25	--	23	--	26
	Southbound Left	560	--	5	--	3	--	0	--	1	--	0	--	1
	Southbound	560	--	0	--	0	--	5	--	3	--	5	--	3
<b>10. Morse Street &amp; 6th Street NE</b>	Eastbound	235	--	27	--	36	--	20	--	24	--	21	--	24
	Northbound	205	--	2	--	1	--	2	--	1	--	2	--	1
	Southbound	380	--	0	--	0	--	0	--	0	--	0	--	0
<b>11. Penn Street &amp; 4th Street NE</b>	Eastbound TL	100	--	--	--	--	--	--	--	--	--	--	--	--
	Eastbound Right	100	--	--	--	--	--	--	--	--	--	--	--	--
	Westbound	240	--	--	--	--	--	--	--	--	--	--	--	--
	Northbound	560	--	--	--	--	--	--	--	--	--	--	--	--
	Southbound	200	--	--	--	--	--	--	--	--	--	--	--	--
<b>12. Penn Street &amp; 6th Street NE</b>	Eastbound	255	83	141	155	233	112	183	196	#318	115	187	196	#319
	Northbound	400	233	m318	402	m540	228	m273	471	m585	228	m273	472	m586
	Southbound	600	320	474	111	165	230	337	88	135	232	340	89	136
	Southbound Right	600	0	22	0	14	0	29	0	22	0	29	0	22



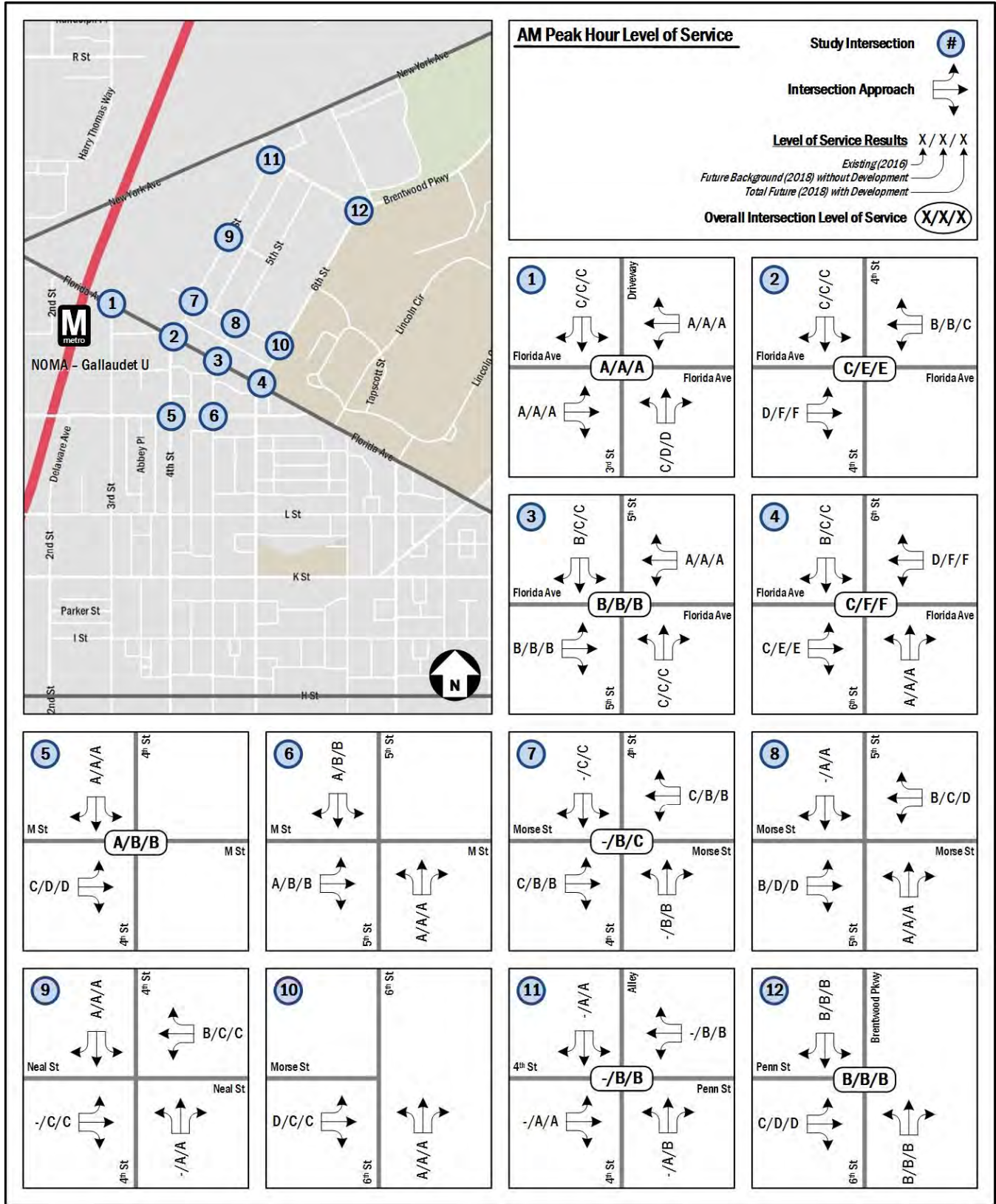


Figure 19: Morning Peak Hour Capacity Analysis Results

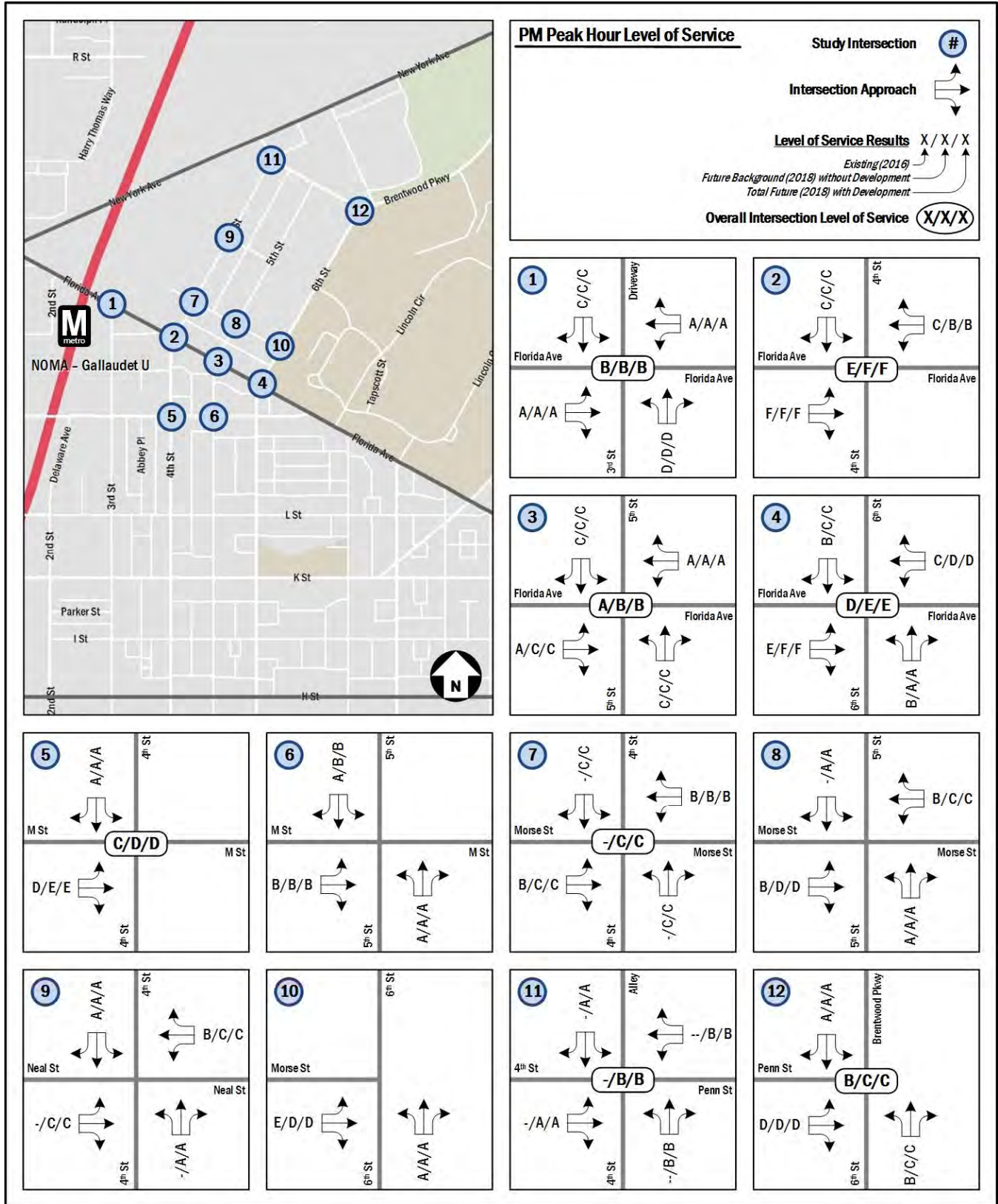


Figure 20: Afternoon Peak Hour Capacity Analysis Results



## TRANSIT

This section discusses the existing and proposed transit facilities in the vicinity of the site, accessibility to transit, and evaluates the overall transit impacts due to the 400 Florida Avenue NE project.

The following conclusions are reached within this chapter:

- The development has excellent access to transit
- The development is located 0.3 miles from the NoMa-Gallaudet U Metrorail station
- The development site is surrounded by several Metrobus routes that travel along multiple primary corridors
- The site is expected to generate a manageable number of transit trips, and the existing service is capable of handling these new trips

### EXISTING TRANSIT SERVICE

The study area is well served by Metrobus and Metrorail. 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 21 identifies the major transit routes, stations, and stops in the study area.

The NoMa-Gallaudet U Metrorail station is located 0.3 miles from the development site and is served by the Red Line, which provides direct connections to areas in the District and Maryland along with interchanges to Virginia. The Red Line connects Shady Grove with Glenmont while providing access to the District core in a “U” shape. Red Line trains run approximately every three to six minutes during the morning and afternoon peak hours. The Red Line runs about every 12 minutes during weekday non-peak hours, every 15-18 minutes on weekday evenings after 9:30 pm and 12 to 15 minutes on the weekends.

**Table 8: Metrobus Route Information**

Route Number	Route Name	Service Hours	Headway	Walking Distance to Nearest Bus Stop
90,92	U Street-Garfield Line	Weekdays: 4:05AM – 2:04 AM Weekends: 4:05AM – 2:18 AM	7-15 min	<0.1 miles, 1 minute
X3	Benning Road Line	Weekdays: Westbound 6:00AM-8:39AM Eastbound 3:31PM-5:37PM	20-30 min	<0.1 miles, 1 minute

The site is also serviced by Metrobus along multiple primary corridors. These bus lines connect the site to many areas of the District, including several Metrorail stations which provide further connections to Virginia and Maryland. Table 8 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.

Figure 21 shows a detailed inventory of the existing Metrobus stops within a quarter-mile walkshed of the site. Each stop is evaluated based on the guidelines set forth by WMATA’s *Guidelines for the Design and Placement of Transit Stops*, as detailed in Table 9. A detailed breakdown of individual bus stop amenities and conditions is included in the Technical Appendix.

### PROPOSED TRANSIT SERVICE

Due to growth of population, jobs, and retail in several neighborhoods in the District and the potential for growth in other neighborhoods, the District’s infrastructure is challenged with the need for transportation investments to support the recent growth and to further strengthen neighborhoods. In order to meet these challenges and capitalize on future opportunities, DDOT has developed a plan to identify transit challenges and opportunities and to recommend investments. This is outlined in DC’s *Transit Future System Plan* report published by DDOT in April 2010, which includes the reestablishment of streetcar service in the District.

One street car route is expected to travel near the site. The Woodley Park/Adams Morgan to Congress Heights line would run along Florida Avenue and connect the site to several commercial districts including Woodley Park, Adams Morgan, U Street NW, NoMa, H Street NE, Barracks Row, Anacostia Waterfront, and Historic Anacostia. The line would also have direct connections to all five Metrorail lines and serve Gallaudet University and the National Zoo. Additionally, Florida Avenue was identified as a corridor in need of a Metro Express route by the *Transit Future System Plan* report.



**Table 9: Transit Stop Requirements**

Feature	Basic Stop	Enhanced Service Bus Stop	Transit Center
Bus Stop Sign	Yes	Yes	Yes
ADA 5'x8' Landing Pad - at a minimum, a clear, unobstructed, paved boarding area that is 8 feet deep (perpendicular to the curb) by 5 feet wide (parallel to the curb) and compliant with the ADA Accessibility Guidelines (ADAAG)	Yes	Yes	Yes
Sidewalk - connected by a paved sidewalk that is at least 4 feet wide	Yes	Yes	Yes
Lighting - adequate lighting either from street lights, lights from an adjacent business, or shelter lighting (particularly stops that are served in the evenings)	Evening Service	Yes	Yes
Seating	Trip Generator Based	Yes	Yes
Information Case - detailed schedule information on services	Yes	Yes	Yes
Trash Receptacle - trash receptacle (particularly at locations that are close to fast food establishments and convenient stores)	Site Specific	Yes	Yes
Shelter(s) - shelter with interior seating if there are 50 or more boardings per day (including transfers)	1 (50+ boardings/day)	1	2+
System Map	Contingent on Shelter	Yes	Yes
Real-time Display (LED + Audio)	Optional	Yes	Yes
Interactive Phone System On-Site - real time bus arrival information through an interactive phone and push button audio system	No	No	Yes
Expanded Boarding & Alighting Area (Rear-door Access)	No	Site Specific	Yes
Bus Bay (Pull Off)	No	Site Specific	Yes

Additionally, WMATA and local transportation agencies in the District, Maryland, and Virginia have been reviewing Metrobus lines and system wide facilities for service improvements since 2007. In direct relation to this development, routes 90, 92, 93, and X3 were studied.

WMATA and DDOT published the *90-92-93 Metrobus U Street-Garfield Line Study* in March 2011. At the time of the report (2011), the 90s line had one of highest ridership of any Metrobus line at almost 14,700 daily riders. The report cites the need for improved customer experience, updating services and operating plans, improved reliability and travel times, and reducing passenger crowding. As possible solutions the report proposes a new Metro Express limited-stop service, increased supervision and bus operator training, traffic operation enhancements, improved bus facilities, consolidation and relocation of bus stops, and improved safety and security. In March 2016, the 93 line was discontinued due to low ridership, and additional trips were reallocated to the 90 and 92 lines. As of this report the recommendations outlined in the WMATA report for the potential Metro Express 99 Line have not been enacted.

WMATA and DDOT published the *X1-X2-X3 Metrobus Benning Road/H Street Line Study* in January 2010. At the time of the report (2010) the “X” line had one of the highest ridership of any Metrobus line at almost 14,000 daily riders. Overcrowding, delays, and other reliability issues prompted WMATA and DDOT to explore potential improvements. The report lists service recommendations such as increased frequency, the addition of articulated buses, and the creation of the X9 Metro Express route. Additionally, improved scheduling, increased supervision, improved bus stop facilities, better customer information, improved safety measures, and prioritized signals are proposed as potential recommendations. Specifically related to the proposed development, the X3 was recommended to be eliminated by the WMATA report to help cover the cost of operating the proposed X9 Metro Express route. As of this report, the X3 has not been eliminated.

#### SITE-GENERATED TRANSIT IMPACTS

The proposed development is projected to generate 90 transit trips (44 inbound, 46 outbound) during the morning peak hour and 107 transit trips (59 inbound, 48 outbound) during the afternoon peak hour.



US Census data was used to determine the distribution of those taking Metrorail and those taking Metrobus. The site lies in TAZ 10273 which was primarily industrial when the Census was taken. As such, data aggregated from the adjacent TAZs show that approximately 69 percent of transit riders used Metrorail and the remainder use Metrobus. That said, approximately 62 people will use Metrorail and 28 will use Metrobus during the morning peak hour; approximately 74 people will use Metrorail and 33 will use Metrobus during the afternoon peak hour.

WMATA studied capacity of Metrorail stations in its *Station Access & Capacity Study (2008)*. The study analyzed the 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 fare card gates. For both analyses, vertical transportation and fare card gates, volume-to-capacity ratios were calculated for existing data (from 2005) and projections for the year 2030. According to the study, the NoMa-Gallaudet U station can currently accommodate future growth at all access points, being one.

Additionally, the *New York Avenue – Florida Avenue – Gallaudet University Station Access Improvement Study* report was published in June 2010. The purpose of the Study was to (1) identify access needs and deficiencies; (2) define ways to enhance accessibility for pedestrians and bicyclists; (3) improve the pedestrian environment; and (4) improve the connectivity and flow of Metrobuses, shuttle buses, and private automobiles at the station. The report recommended improvements to pedestrian infrastructure and bicycle facilities, increased safety through the use of staff, lighting and cameras, improved wayfinding, and repairs to the rail overpass on Florida Avenue. The majority of recommendations were deferred to the *NoMa Neighborhood Access Study and Transportation Management Plan*.

WMATA studied capacity along Metrobus routes. DC's *Transit Future System Plan (2010)* lists the bus routes with the highest load factor (a ratio of passenger volume to bus capacity). A load factor is considered unacceptable if it is over 1.2 during peak periods or over 1.0 during off-peak or weekend periods. According to this study Metrobus routes that travel near the site operate at a load factor that greatly exceeds its capacity during peak periods of the day. As it is expected that the majority of new trips will be made via the Metrorail, and the

improvements to Metrobus service discussed above, site-generated transit trips will not cause detrimental impacts to Metrobus or Metrorail service.

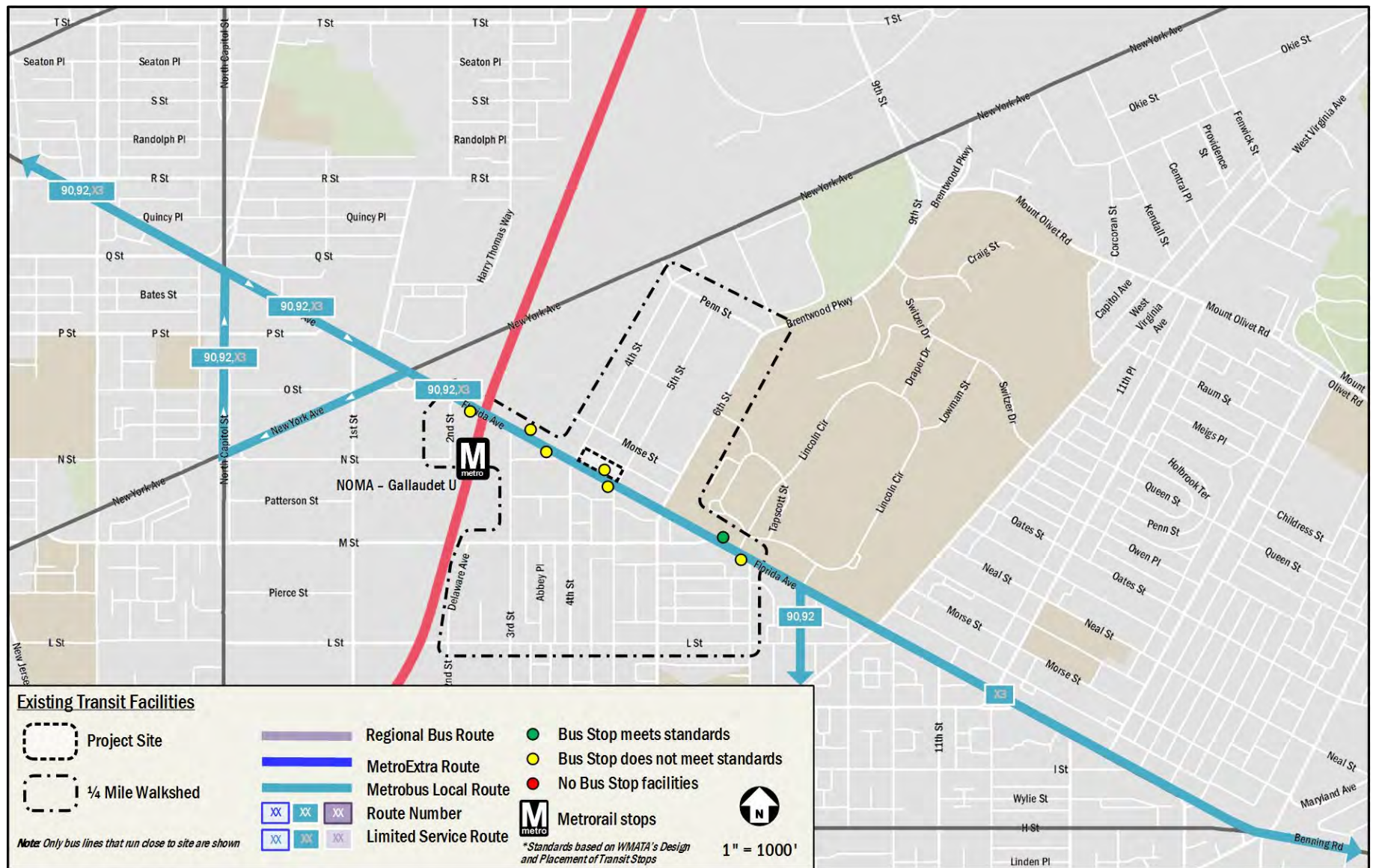


Figure 21: Existing Transit Service



## PEDESTRIAN FACILITIES

This section summarizes the existing and future pedestrian access to the site and reviews walking routes to and from the site.

The following conclusions are reached within this chapter:

- The existing pedestrian infrastructure surrounding the site provides an adequate walking environment. There are some gaps in the system, but there are sidewalks along all primary routes to pedestrian destinations.
- The site is expected to generate a manageable amount of pedestrian trips; however, the pedestrian trips generated by walking to and from transit will be more substantial, particularly along Florida Avenue.

### PEDESTRIAN STUDY AREA

Facilities within a quarter-mile of the site were evaluated as well as routes to nearby transit facilities and prominent retail and neighborhood destinations. The site is easily accessible to transit options such as bus stops along Florida Avenue and the NoMa-Gallaudet U Metro Station. There are some existing barriers and areas of concern within the study area that negatively impact the quality of and attractiveness of the walking environment. This includes roadway conditions that reduce the quality of walking conditions, narrow or nonexistent sidewalks, incomplete or insufficient crossings at busy intersections, and the rail tracks that limits connectivity to the west. Figure 22 shows suggested pedestrian pathways, walking time and distances, and barriers and areas of concern.

### PEDESTRIAN INFRASTRUCTURE

This section outlines the existing and proposed pedestrian infrastructure within the pedestrian study area.

#### Existing Conditions

A review of pedestrian facilities surrounding the proposed development shows that most facilities meet DDOT standards

and provide a quality walking environment. Figure 23 shows a detailed inventory of the existing pedestrian infrastructure surrounding the site. 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 widths and requirements for the District are shown below in Table 10.

Within the area shown, roadways in the southern portion of the study area are considered residential with a low to moderate density, while the northern portion of the study area covering the Florida Avenue Market is considered commercial (non-Downtown) and thus require wider sidewalks. Most of the sidewalks surrounding the site to the south comply with DDOT standards; however to the north there are areas which have inadequate sidewalks or no sidewalks at all, with insufficient or no buffer. All primary pedestrian destinations are accessible via routes with sidewalks, most of which met DDOT standards.

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 Figure 23, under existing conditions crosswalks and curb ramps are mostly present near the site.

#### Pedestrian Infrastructure Improvements

As a result of the development, pedestrian facilities along the perimeter of the site will be improved, for example by removing four curb cuts, two on Florida Avenue and two on 4<sup>th</sup> Street. The development will improve sidewalks adjacent to the site such that they meet or exceed DDOT requirements and provide an improved pedestrian environment. A landscape and open space plan as included in the PUD submission is shown on Figure 24.

As a result of the other planned developments and roadway improvements in the area, it is expected that pedestrian infrastructure bordering developments will be improved to meet DDOT and ADA standards. As such, Figure 25 shows the

**Table 10: 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



expected detailed inventory of future pedestrian infrastructure surrounding the site.

## SITE IMPACTS

This section summarizes the impacts of the development on the overall pedestrian operations in the vicinity of the site.

### **Pedestrian Trip Generation**

The 400 Florida Avenue NE development is expected to generate 32 walking trips (14 inbound, 18 outbound) during the morning peak hour and 40 walking trips (23 inbound, 17 outbound) during the afternoon peak hour. The origins and destinations of these trips are likely to be:

- Employment opportunities where residents can walk to work;
- Employees and patrons of the development;
- Retail locations outside of the site; and
- Neighborhood destinations such as schools, libraries, and parks in the vicinity of the site.

In addition to these trips, the transit trips generated by the site will also generate pedestrian demand between the site and nearby transit stops.

Currently the existing pedestrian network has the capacity to absorb the newly generated trips from the site. The planned sidewalk and pedestrian landscape improvements on Florida Avenue, 4<sup>th</sup> Street, and 5<sup>th</sup> Street will further improve and expand the pedestrian network in the vicinity of the site.



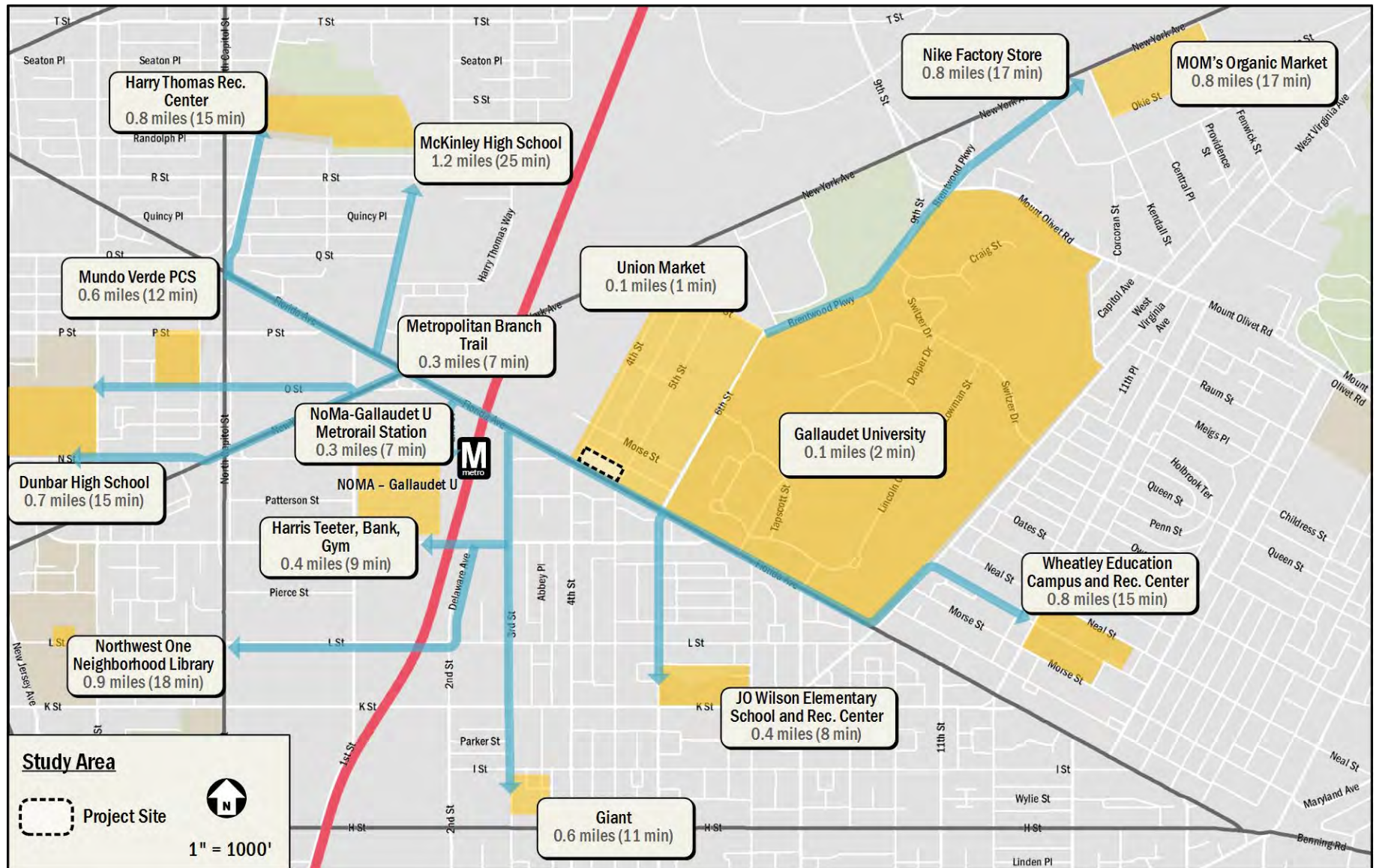


Figure 22: Pedestrian Pathways



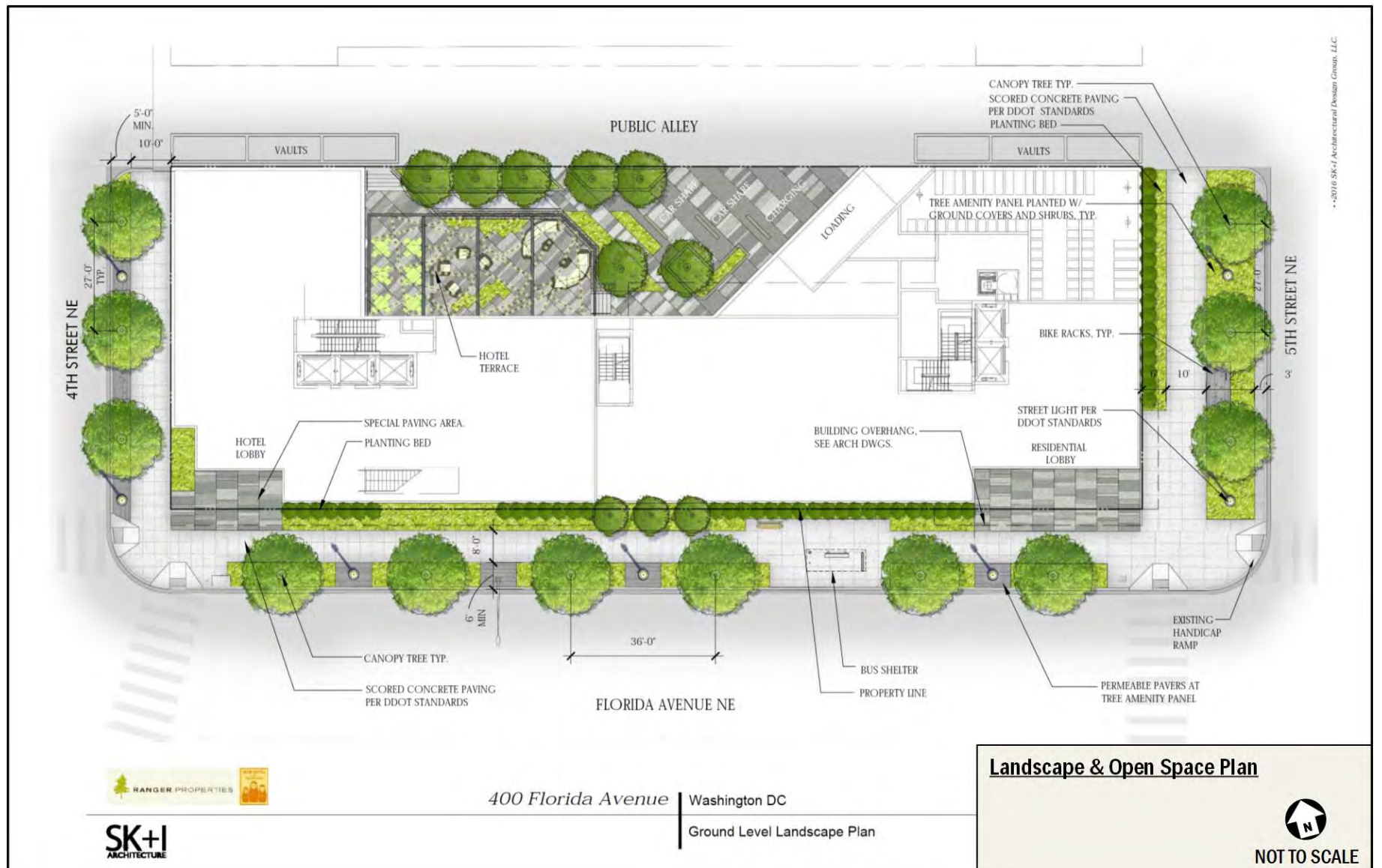


Figure 24: Proposed Landscape & Open Space Plan

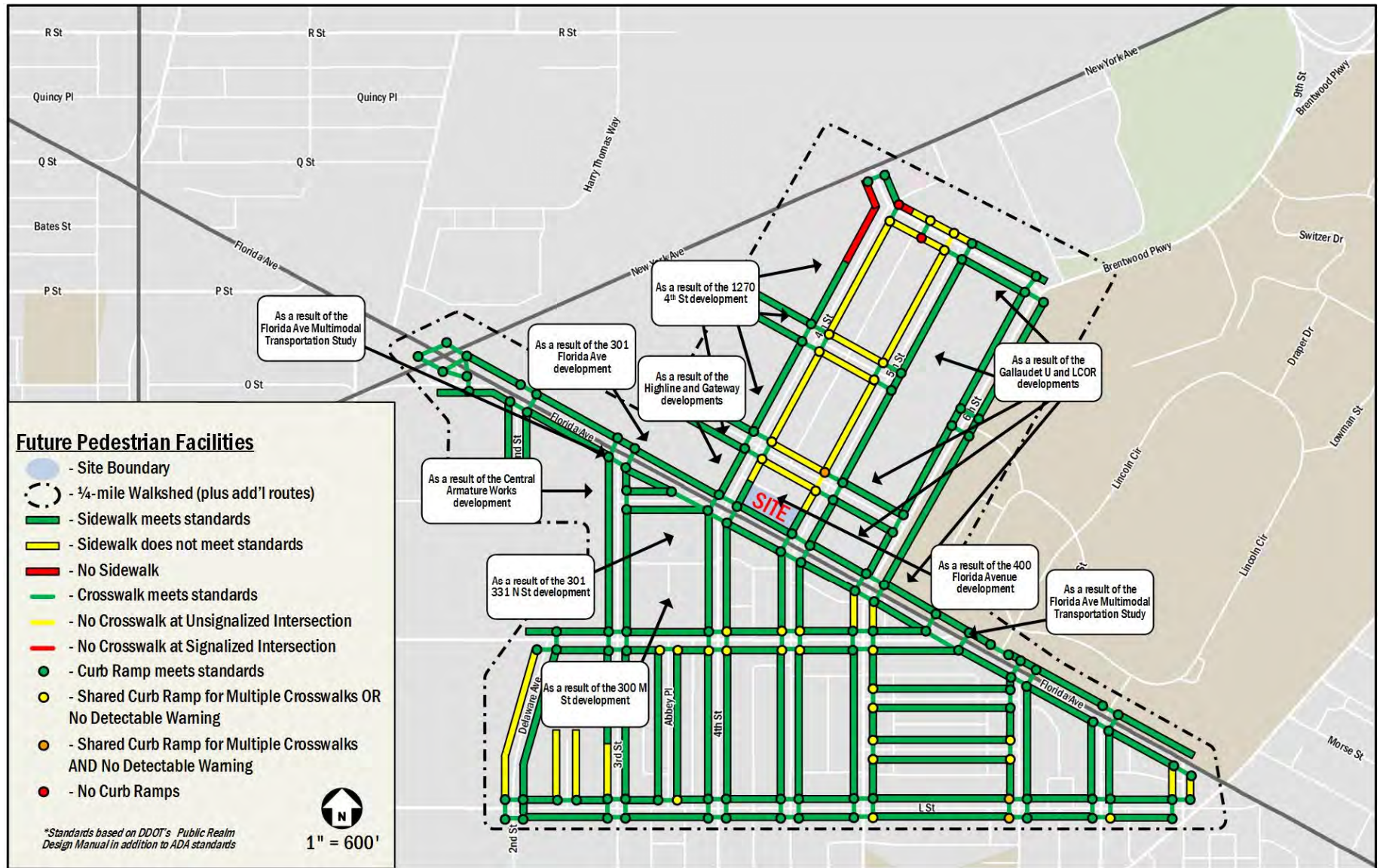


Figure 25: Expected Future Pedestrian Infrastructure



## BICYCLE FACILITIES

This section summarizes existing and future bicycle access, reviews the quality of cycling routes to and from the site, and presents recommendations.

The following conclusions are reached within this chapter:

- The site has access to several on- and off-street bicycle facilities including the Metropolitan Branch Trail.
- The site is not expected to generate a significant amount of bicycle trips, therefore all site-generated bike trips can be accommodated on existing infrastructure.
- The development will include at-grade secure bicycle parking on site for residents and employees of the development as well as other users of Union Market and the surrounding area that are interested in securely storing their bicycles.
- The development will include short-term bicycle racks along the perimeter of the site.

### EXISTING BICYCLE FACILITIES

The site is well connected to existing on- and off-street bicycle facilities. East-west connectivity is provided via bike lanes along M Street, K Street, Q Street, R Street, and I Street. North-south connectivity will be primarily provided via the Metropolitan Branch Trail, which is located extremely close to the site. Figure 26 illustrates the existing bicycle facilities in the area.

Under existing conditions there is no short-term bicycle parking located around the perimeter of the site.

In addition to personal bicycles, the Capital Bikeshare program provides additional cycling options for residents, employees, and patrons of the planned development. The Bikeshare program has placed over 350 Bikeshare stations across Washington DC, Arlington, and Alexandria, VA, and most recently Montgomery County, MD, with over 3,000 bicycles provided. Within a quarter-mile of the site, there are three Bikeshare stations that house a total of 85 bikes. Figure 26 illustrates the existing Capital Bikeshare facilities in the area.

### PROPOSED BICYCLE FACILITIES

The MoveDC plan outlines several bicycle improvements in the vicinity of the site. These improvements are broken up into four tiers that rank the priority for implementation. The four tiers are broken down as follows:

#### ▪ Tier 1

Investments should be considered as part of DDOT's 6-year Transportation Improvement Program (TIP) and annual work program development, if they are not already included. Some projects may be able to move directly into construction, while others become high priorities for advancement through the Project Development Process.

There are a couple tier 1 additions that will positively affect bicycle connectivity to and from the site. A cycle track extending from Thomas Circle NW to Florida Avenue NE along M Street, and a trail from Kirby Street NW to the Maryland/District boundary along New York Avenue are planned. These facilities will greatly improve the bicycle connectivity near the site.

#### ▪ Tier 2

Investments within this tier are not high priorities in the early years of MoveDC implementation. These investments could begin moving through the Project Development Process if there are compelling reasons for their advancement.

There is one tier 2 addition that will positively affect bicycle connectivity to and from the site. A cycle track extending from T Street NE to Florida Avenue NE along 6<sup>th</sup> Street is planned. This facility will greatly improve the bicycle connectivity near the site.

#### ▪ Tier 3

Investments within this tier are not priorities for DDOT-led advancement in the early years of MoveDC's implementation. They could move forward earlier under circumstances, such as real estate development initiatives and non-DDOT partnerships providing the opportunity for non-District-led completion of specific funding.

#### ▪ Tier 4

Generally, investments within this tier are not priorities for DDOT-led advancement and are lower priority for project development in the early years of implementation.



Due to the timeline of the proposed development, this report will focus on the Tier 1 and Tier 2 recommendations within the vicinity of the site.

Although these projects are discussed in the MoveDC plan, they are not currently funded nor included in DDOT's Transportation Improvement Plan thus they will not be assumed as complete for this analysis.

As previously discussed earlier in the report, there are planned bicycle infrastructure improvements along M Street, 4<sup>th</sup> Street, and 6<sup>th</sup> Street near the site. Along M Street, the existing two-way cycle track will be extended to 4<sup>th</sup> Street from Delaware Avenue, with Shared Lane Markings from 4<sup>th</sup> Street to Florida Avenue. Along 4<sup>th</sup> Street, a two-way cycle track will replace the one-way southbound bike lane that is there under existing conditions in between Florida Avenue and M Street. Along 6<sup>th</sup> Street, a two-way cycle track will replace the existing one-way northbound and southbound bike lanes between K Street NE and Florida Avenue NE. This will be in conjunction with the planned improvements laid forth in the *Florida Avenue Multimodal Transportation Study*. Detailed plans for each of these planned bicycle infrastructure improvements are included in the Technical Appendix. All of these planned improvement are planned to be completed before the proposed development opens.

## SITE IMPACTS

This section summarizes the impacts of the development on the overall bicycle operations surrounding the site and develops recommendations for connectivity improvements.

### **Bicycle Trip Generation**

The 400 Florida Avenue NE development is expected to generate 20 bicycle trip (8 inbound, 12 outbound) during the morning peak hour and 24 bicycle trips (15 inbound, 9 outbound) during the afternoon peak hour. Although bicycling will be an important mode for getting to and from the site, with significant facilities located on site and existing and planned routes to and from the site, the impacts from bicycling will be relatively less than impacts to other modes.

### **On-Site Bicycle Elements**

The project will include 16 short-term bicycle spaces at street level along the perimeter of the site on 4<sup>th</sup> Street, Florida Avenue, and 5<sup>th</sup> Street. These short-term spaces will include inverted U-racks placed in high-visibility areas. The Applicant is

working in conjunction with DDOT in selecting location for the racks in public space.

The project will also include secure long-term bicycle parking. The plans identify a total of 106 long-term spaces in the proposed development in two separate spaces located on the ground floor. The first storage and maintenance space will house a 60 long-term bicycle spaces for residents of the proposed development. The second storage and maintenance space will house 46 long-term bicycle spaces and a shower/changing area for public use, which will cater to employees of the development as well as to people unrelated to the development that wish to store their bicycles securely.

The 106 secure long-term bicycle parking spaces will exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*.

As discussed previously, the site will have access to planned bicycle facilities on 4<sup>th</sup> Street and 6<sup>th</sup> Street.

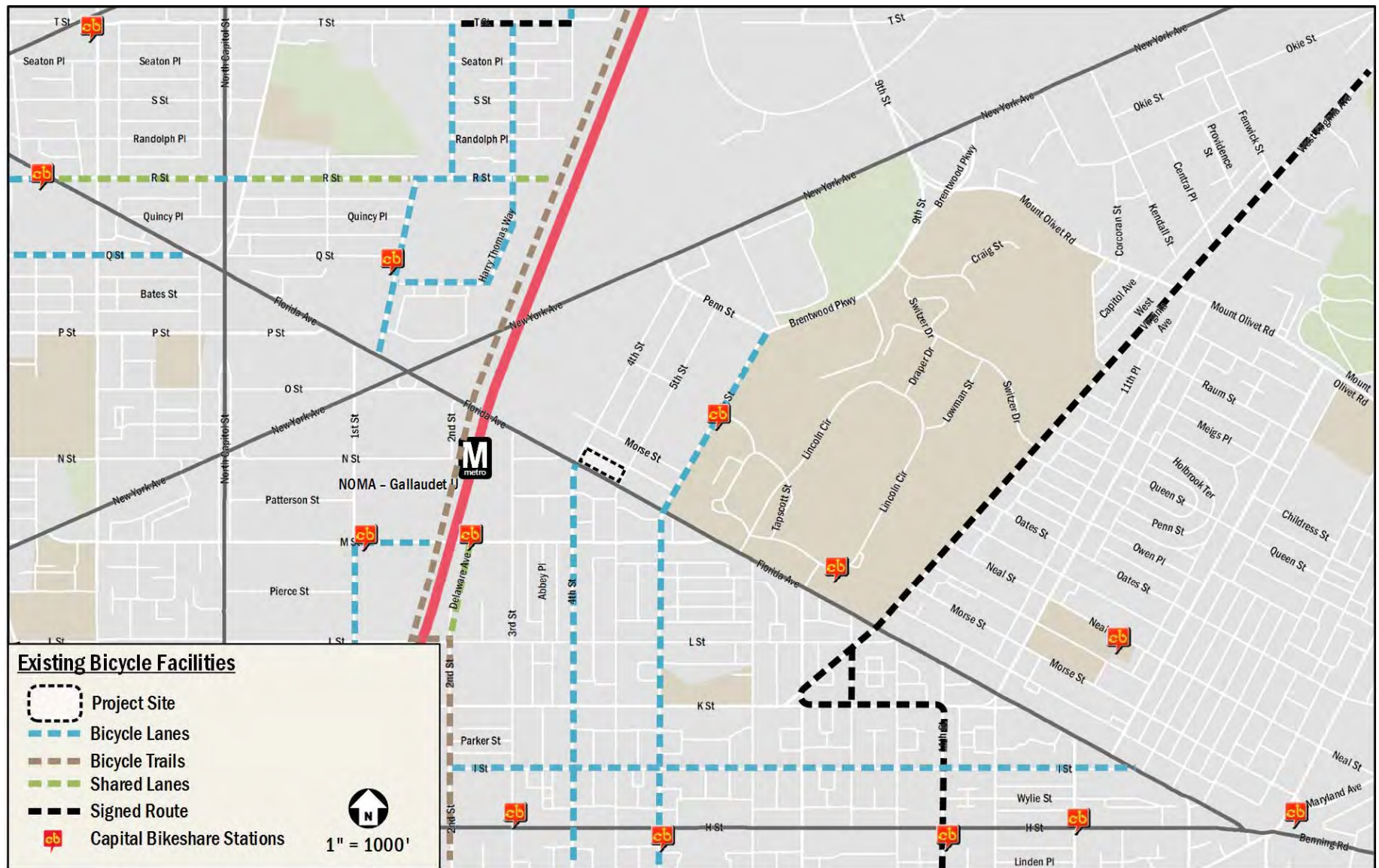


Figure 26: Existing Bicycle Facilities



## CRASH DATA ANALYSIS

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

### SUMMARY OF AVAILABLE CRASH DATA

A crash analysis was performed to determine if there was an abnormally high crash rate at any study area intersection. DDOT provided the last three years of intersection crash data, from 2013 to 2015 for the study area. This data was reviewed and analyzed to determine the crash rate at each location. For intersections, the crash rate is measured in crash per million-entering vehicles (MEV). The crash rates per intersections are shown in Table 11.

According to the Institute of Transportation Engineers' *Transportation Impact Analysis for Site Development*, a crash rate of 1.0 or higher is an indication that further study is required. Five intersections in this study area meet this criterion (as shown in red in Table 11 and detailed in Table 12). The 400 Florida Avenue NE development should be developed in a manner to help alleviate, or at minimum not add to, the conflicts at these intersections.

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 deficiencies. Additionally, the crash data does not provide detailed location information. In

some cases, the crashes were located near the intersections and not necessarily within the intersection.

For these seven 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 possible causes. Table 12 contains a breakdown of crash types reported for the five intersections with a crash rate over 1.0 per MEV.

### POTENTIAL IMPACTS

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

- 3<sup>rd</sup> Street & Florida Avenue NE

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 2.13 crashes per MEV. The majority of crashes at this intersection were rear-ended and side-swiped vehicles. This report defers to the *Florida Avenue Multimodal Transportation Study*, which examined safety along the Florida Avenue corridor between New York Avenue and H Street. It is expected that the more in depth crash analyses along the corridor associated with DDOT's study will result in improved safety at this intersection, and thus decrease the number of crashes. It should be noted that crash data provided by DDOT does not contain the level of detail to determine the

**Table 11: Intersection Crash Rates**

Intersection	Total Crashes	Ped Crashes	Bike Crashes	Rate per MEV*
Florida Avenue & 3rd Street NE	41	0	1	<b>2.13</b>
Florida Avenue & 4th Street NE	16	2	0	0.66
Florida Avenue & 5th Street NE	29	2	1	<b>1.31</b>
Florida Avenue & 6th Street NE	23	0	0	0.63
M Street & 4th Street NE	11	1	0	<b>1.28</b>
M Street & 5th Street NE	7	0	0	<b>1.33</b>
Morse Street & 4th Street NE	42	2	1	<b>6.80</b>
Morse Street & 5th Street NE	8	0	0	<b>1.62</b>
Neal Place & 4th Street NE	23	1	0	<b>5.07</b>
Morse Street & 6th Street NE	4	0	0	0.23
Penn Street & 4th Street NE	1	0	0	0.13
Brentwood Parkway/6th Street & Penn Street NE	14	0	0	0.68

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





impact that the confined lanes created by the Florida Avenue underpass have on the crash rate.

- 5<sup>th</sup> Street & Florida Avenue NE

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.31 crashes per MEV. The majority of crashes at this intersection were rear-ended, right-angle, and side-swiped vehicles. High number of rear-end crashes are more typical at signalized intersections. The elevated right-angle crashes might be as a result of the angled parking on 5<sup>th</sup> Street.

The safety concerns at this intersection are primarily due to the existing lane configurations and operations. The site-generated traffic at this intersection is minimal and not expected to degrade the safety; thus no improvements are recommended as part of the PUD.

This report defers to the *Florida Avenue Multimodal Transportation Study*, which examined safety along the Florida Avenue corridor between New York Avenue and H Street. It is expected that the more in depth crash analyses along the corridor associated with DDOT's study will result in improved safety at this intersection, and thus decrease the number of crashes.

- M Street & 4<sup>th</sup> Street NE

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.28 crashes per MEV. The majority of crashes at this intersection were side-swiped vehicles. Elevated side-swiped crashes could be the result of on-street parking on both sides of the northern, eastern, and southern legs of the intersection. Side-swipe crashes can often occur when a parked vehicle attempts to merger into the travel lane. Overall, the distribution of crash types at this intersection does not lead to a likely safety issue at the intersection.

It should be noted that this intersections is planned to be improved by DDOT as part of the M Street, NE Cycle Track plan. It is expected that the planned intersection improvements will address the safety concerns that currently exist at this intersection.

- M Street & 5<sup>th</sup> Street NE

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.33 crashes per MEV. The majority of crashes at this intersection were side-

swiped or backing vehicles. Elevated side-swiped crashes could be the result of on-street parking on both sides of the all legs of the intersection. Side-swipe crashes can often occur when a parked vehicle attempts to merger into the travel lane. Elevated backing crashes are most likely the result of the abundant amount of on-street parking at the intersection. Overall, the distribution of crash types at this intersection does not lead to a likely safety issue at the intersection.

The safety concerns at this intersection are primarily due to the existing lane configurations and operations. The site-generated traffic at this intersection is minimal and not expected to degrade the safety; thus no improvements are recommended as part of the PUD.

It should be noted that this intersections is planned to be improved by DDOT as part of the M Street, NE Cycle Track plan. It is expected that the planned intersection improvements will address the safety concerns that currently exist at this intersection.

- Morse Street & 4<sup>th</sup> Street NE

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 6.80 crasher per MEV over the course of the 3-year study period. The majority of crashes at this intersection were side-swiped vehicles, followed by backing crashes, and the parked crashes.

The high crash rate is partially due to the relatively low vehicular traffic observed at this intersection. The high crash rate is also likely due to general operations of 4<sup>th</sup> Street and the intersection itself. 4<sup>th</sup> Street is wide enough to facilitate two-way traffic however it is restricted to one-way southbound traffic. Signage in regards to the one-way nature of the roadway is infrequent and can be confusing. In addition, the prevalence of truck traffic and implementation of back-in parking creates additional obstacles along the roadway. All of these operational elements likely combine to achieve the resulting crash rate.

This intersection suffers from the same operational issues as Neal Place & 4<sup>th</sup> Street, discussed below, and will therefore benefit from the same planned site improvements.



The majority of these operational issues are expected to be improved as part of the 1270 4<sup>th</sup> Street (Z.C. Case No. 14-07) PUD. 4<sup>th</sup> Street will be converted to a two-way circulation and more signage will be implemented to eliminate confusion. The streetscape will create better definition and organization within the roadway and the west side of 4<sup>th</sup> Street will eliminate back-in parking in favor of parallel parking. An additional advantage is the decrease in truck traffic as a result of the new development. Although crash data is not organized by vehicle type, trucks generally have less visibility and thus have a higher risk of crashes. Overall the improvements will encourage slower speeds along 4<sup>th</sup> Street and all the new design elements will likely reduce the number of crashes.

In addition to the site improvements listed above, Morse Street & 4<sup>th</sup> Street NE will be converted from 2-way stop-controlled to 4-way stop controlled which will further reduce the confusion at this intersection and result in slower vehicular speeds.

▪ Morse Street & 5<sup>th</sup> Street NE

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.62 crashes per MEV over the course of the 3-year study period. The majority of crashes at this intersection are either side-swiped or backing crashes.

Similarly to the intersection of Morse Street & 4<sup>th</sup> Street, the high crash rate is also likely due to general operations of 5<sup>th</sup> Street and the intersection itself. 5<sup>th</sup> Street is wide enough to facilitate two-way traffic however it is restricted to one-way northbound traffic. Signage in regards to the one-way nature of the roadway is infrequent and can be confusing. In addition, the prevalence of truck traffic and implementation of back-in parking creates additional obstacles along the roadway. All of these operational elements likely combine to achieve the resulting crash rate.

The majority of these operational issues are expected to be improved as part of future developments along 5<sup>th</sup> Street and Morse Street. 5<sup>th</sup> Street will be converted to a two-way circulation and more signage will be implemented to eliminate confusion. Improved streetscape will create better definition and organization within the roadway and

back-in parking will be eliminated along the west side of 5<sup>th</sup> Street in favor of parallel parking. An additional advantage is the decrease in truck traffic as a result of the new development. Although crash data is not organized by vehicle type, trucks generally have less visibility and thus have a higher risk of crashes. Overall the improvements will encourage slower speeds along 5<sup>th</sup> Street and all the new design elements will likely reduce the number of crashes. As such, this report does not recommend mitigation measures at this intersection.

▪ Neal Place & 4<sup>th</sup> Street NE

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.10 crashes per MEV over the course of the 3-year study period. The majority of crashes at this intersection are either side swipes or backing crashes. The high crash rate is partially due to the relatively low vehicular traffic observed at this intersection. The high crash rate is also likely due to general operations of 4<sup>th</sup> Street and the intersection itself. 4<sup>th</sup> Street is wide enough to facilitate two-way traffic however it is restricted to one-way southbound traffic. Signage in regards to the one-way nature of the roadway is infrequent and can be confusing. In addition, the prevalence of truck traffic and implementation of back-in parking creates additional obstacles along the roadway. All of these operational elements likely combine to achieve the resulting crash rate.

The majority of these operational issues are expected to be improved as part of the 1270 4<sup>th</sup> Street (Z.C. Case No. 14-07) PUD. 4<sup>th</sup> Street will be converted to a two-way circulation and more signage will be implemented to eliminate confusion. The streetscape will create better definition and organization within the roadway and the west side of 4<sup>th</sup> Street will eliminate back-in parking in favor of parallel parking. An additional advantage is the decrease in truck traffic as a result of the new development. Although crash data is not organized by vehicle type, trucks generally have less visibility and thus have a higher risk of crashes. Overall the improvements will encourage slower speeds along 4<sup>th</sup> Street and all the new design elements will likely reduce the number of crashes. As such, this report does not recommend mitigation measures at this intersection.



**Table 12: Crash Type Breakdown**

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
Florida Avenue & 3rd Street NE	<b>2.13</b>	0 0%	2 5%	1 2%	13 32%	22 54%	1 2%	0 0%	0 0%	0 0%	0 0%	1 2%	0 0%	0 0%	1 2%	<b>41</b>
Florida Avenue & 5th Street NE	<b>1.31</b>	5 17%	0 0%	1 3%	6 21%	4 14%	3 10%	2 7%	1 3%	0 0%	1 3%	2 7%	0 0%	0 0%	4 14%	<b>29</b>
M Street & 4th Street NE	<b>1.28</b>	1 9%	1 9%	0 0%	1 9%	3 27%	0 0%	1 9%	1 9%	0 0%	1 9%	1 9%	0 0%	0 0%	1 9%	<b>11</b>
M Street & 5th Street NE	<b>1.33</b>	0 0%	0 0%	0 0%	0 0%	3 43%	0 0%	1 14%	0 0%	0 0%	0 0%	2 29%	0 0%	0 0%	1 14%	<b>7</b>
Morse Street & 4th Street NE	<b>6.80</b>	2 5%	1 2%	1 2%	3 7%	11 26%	0 0%	8 19%	1 2%	1 2%	2 5%	10 24%	0 0%	0 0%	2 5%	<b>42</b>
Morse Street & 5th Street NE	<b>1.62</b>	1 13%	0 0%	0 0%	0 0%	3 38%	1 13%	0 0%	0 0%	0 0%	0 0%	3 38%	0 0%	0 0%	0 0%	<b>8</b>
Neal Place & 4th Street NE	<b>5.07</b>	0 0%	1 4%	0 0%	2 9%	6 26%	0 0%	5 22%	0 0%	1 4%	0 0%	7 30%	0 0%	0 0%	1 4%	<b>23</b>



## SUMMARY AND CONCLUSIONS

This report presents the findings of a Comprehensive Transportation Review (CTR) for the 400 Florida Avenue NE development. The purpose of this study is to evaluate whether the project will generate a detrimental impact to the surrounding transportation network. This evaluation is based on a technical comparison of the existing conditions, background conditions, and future conditions. This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network assuming that all planned site design elements are implemented.

The 400 Florida Avenue NE site is currently occupied by a vacant lot, a two-story carry-out restaurant, and one vacant two-story structure. The site is generally bound by a public alley to the north, 5<sup>th</sup> Street to the east, Florida Avenue to the south, and 4<sup>th</sup> Street to the west. The resulting development will be a mixed-use development consisting of 110 residential dwelling units and 164 hotel rooms.

As part of the development, sections of the roadway network surrounding the site will be improved. Pedestrian facilities along the perimeter of the project on 4<sup>th</sup> Street, 5<sup>th</sup> Street, and Florida Avenue will be improved so that they meet or exceed DDOT and ADA standards. This includes sidewalks that meet or exceed width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as room for outdoor seating.

Vehicular and loading access for the project will be provided primarily via 4<sup>th</sup> Street and 5<sup>th</sup> Street. Those in turn provide access to the alley that connects to the loading bay, the service and delivery space, as well as the two car share spaces and one electric vehicles charging station. The development will be supplied by a total of 50 off-site parking spaces in the planned 1270 4<sup>th</sup> Street development (Z.C 14-07), which will be accessed from a public alley off of Morse Street and is less than 0.1 miles from the proposed development.

The development will supply long-term bicycle parking within the development and short-term bicycle parking around the perimeter of the site.

### Multi-Modal Impacts and Recommendations

#### *Transit*

The site is served by regional and local transit services such as Metrorail and Metrobus. The site is 0.3 miles from the NoMa-Gallaudet U Metrorail Station portal at 2<sup>nd</sup> Street and N Street, and many Metrobus stops are located within a block of the site along Florida Avenue.

Although the development will be generating new transit trips, existing facilities have enough capacity to handle the new trips.

#### *Pedestrian*

The site is surrounded by a well-connected pedestrian network. Most roadways within a quarter-mile radius provide sidewalks and acceptable crosswalks and curb ramps, particularly along the primary walking routes. There are some pedestrian barriers surrounding the site such as limited connectivity due to the rail tracks to the west.

As a result of the development pedestrian facilities along the perimeter of the site will be improved, for example by removing four curb cuts, two on Florida Avenue and two on 4<sup>th</sup> Street. The development will improve sidewalks adjacent to the site such that they meet or exceed DDOT requirements and provide an improved pedestrian environment.

#### *Bicycle*

The site is very well served by existing bicycle infrastructure. The site is just blocks away from trails and bike lanes, such as the Metropolitan Branch Trail to the west and bike lanes along 4<sup>th</sup> Street and 6<sup>th</sup> Street which run near the proposed development.

The development will provide short-term bicycle parking along the perimeter of the site and on-site secure long-term bicycle parking for residents and employees of the development. Additional long-term secure bicycle parking will be provided for people unrelated to the development that wish to store their bicycles securely.

#### *Vehicular*

The site is well-connected to regional roadways such as I-395 and US-50, principal and minor arterials such as Florida Avenue and 6<sup>th</sup> Street, and an existing network of collector and local roadways.

In order to determine impacts that the proposed development will have on the transportation network, this report projects

future conditions with and without the development of the site and performs analyses of intersection delays and queues.

These are compared to the acceptable levels of delay set by DDOT standards as well as existing queues to determine if the site will negatively impact the study area. The analysis concluded that no intersections would require mitigation as a result of buildout of the development.

#### *Summary and Recommendations*

This report concludes that the proposed development will not have a detrimental impact to the surrounding transportation network assuming that all planned site design elements are implemented.

The PUD has several positive elements contained within its design that minimize potential transportation impacts, including:

- The site's close proximity to Metrorail.
- The inclusion of secure long-term bicycle parking spaces within the development that exceed zoning requirements.
- The inclusion of secure long-term bicycle spaces within the development that are being made available to people unrelated to the development.
- The installation of short-term bicycle parking spaces around the perimeter of each parcel that meet or exceed zoning and DDOT requirements.
- The creation of wide pedestrian paths which will meet or exceed DDOT and ADA requirements.
- The inclusion of one (1) electric vehicle charging and two (2) carshare parking spaces.
- A robust Parking Management plan that reduces impact of the need to provide parking off-site for the development.
- A robust Transportation Demand Management (TDM) plan that reduces the demand of single-occupancy, private vehicles during peak period travel times or shifts single-occupancy vehicular demand to off-peak periods.