

**COMPREHENSIVE TRANSPORTATION REVIEW**

# **PNBC RESIDENTIAL PUD**

**WASHINGTON, DC**

**August 21, 2017**

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## EXECUTIVE SUMMARY

The following report is a Comprehensive Transportation Review (CTR) for the PNBC Residential Consolidated Planned Unit Development (PUD). The report reviews the transportation aspects of the project's PUD application. The Zoning Commission Case Number is 17-08.

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 and potential mitigation measures are implemented.

### Proposed Project

The site is currently an 18-space surface parking lot and is generally bounded by Nannie Helen Burroughs Avenue, NE to the north, Fitch Place, NE to the south, and 50<sup>th</sup> Street, NE to the west. The site is a part of the Progressive National Baptist Convention (PNBC) campus, which includes the group's headquarters, an existing chapel, charter school, and dormitory. The PNBC development will consist of replacing the surface lot with approximately 100 mixed-income residential dwelling units, and approximately 48 below-grade parking spaces for residents. Approximately 35 of the 100 units will be reserved as affordable replacement units for the Lincoln Heights/Richardson Dwellings properties managed by the D.C. Housing Authority (DCHA).

The site is currently zoned Residential Apartment (RA-1), with the Applicant requesting a change in zoning to RA-2.

Vehicular and loading access for the project will be provided via the garage entry along 50<sup>th</sup> Street NE, with loading and trash operations taking place within the garage.

As part of the development, sections of the roadway network surrounding the site will be improved. The construction of the development will result in the new curb cuts serving the PNBC campus at Fitch Place, NE.

Pedestrian facilities along the perimeter of the project will be improved so that they meet or exceed DDOT and ADA standards. This includes the installation of sidewalks along 50<sup>th</sup>

Street, NE and Fitch Place, NE that meet or exceed width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as streetscaping, fencing, and plantings, to improve pedestrian circulation.

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

### Multi-Modal Impacts and Recommendations

#### *Transit*

The site is served by regional and local transit services via Metrobus and Metrorail. The site is 0.8 miles from the Benning Road Metrorail Station, with Metrobus stops located within walking distance of the site along Fitch Place, Nannie Helen Burroughs Avenue, and Division Avenue.

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

#### *Pedestrian*

The site is surrounded by a pedestrian network with adequate infrastructure present. Most roadways within a quarter-mile radius provide sidewalks and acceptable crosswalks and curb ramps, particularly along the primary walking routes. There are however, many residential streets to the south and west of the site which lack sidewalks, curb ramps, or crosswalks that meet DDOT and ADA standards.

As a result of the development, pedestrian facilities along the south and west perimeter of the site will be improved, including the installation of missing sidewalks that meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as a courtyard connecting to Fitch Place improve pedestrian circulation.

The development will generate minimal pedestrian trips and the improved facilities will be able to handle the new trips.

#### *Bicycle*

The site has excellent connectivity to existing on- and off-street bicycle facilities. The site is one block from the bicycle lane on 49<sup>th</sup> Street, 0.1 miles from the Marvin Gaye Trail, and two blocks from bicycle facilities along Nannie Helen Burroughs Avenue.



The development will provide short-term bicycle parking along the perimeter of the site and on-site secure long-term bicycle parking within the garage for residents of the development. The amount of bicycle parking provided meets zoning requirements.

The development will generate minimal bicycle trips and the proposed facilities to be built will be able to handle the new trips.

#### *Vehicular*

The site is accessible from regional roadways, such as the Anacostia Freeway (DC Route 295), several principal and minor arterials such as Nannie Helen Burroughs Avenue and Division Avenue, 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 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 the intersection of 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, NE in the vicinity of the site operates above capacity as a result of the buildout of the development.

After exploring options for mitigating impacts at this intersection, this report is recommending that a reallocation in green signal time of 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, NE can mitigate the impacts of the proposed 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 and mitigation measures are implemented.

The development will utilize a robust Transportation Demand Management (TDM) Plan that has numerous positive elements designed to curtail the demand of single-occupancy, private vehicles during peak period travel times. These include elements such as providing short-term and secure long-term bicycle spaces that meet zoning requirements and providing each unit's incoming residents with either a one-year bikeshare or carshare membership.



## INTRODUCTION

This report is a Comprehensive Transportation Review (CTR) of the PNBC Residential project. This report reviews the transportation aspects of the Consolidated Planned Unit Development (PUD) application. The site, shown in Figures Figure 1 and Figure 2, is located at Square 5194, Lot 0824 in the Lincoln Heights neighborhood in Northeast DC. This CTR is submitted into the Zoning Commission record for this case, as an evaluation of the transportation impacts of construction of the application. The Zoning Commission Order Number is 17-08.

### PURPOSE OF STUDY

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.

### PROJECT SUMMARY

The PNBC Residential PUD is a part of the overall Progressive National Baptist Convention (PNBC) campus. The development plan proposes approximately 100 mixed-income residential units with a 48 parking spaces in a below-grade parking garage. 35 of the 100 units will be reserved as replacement units for the Lincoln Heights/Richardson Dwellings properties managed by the DCHA.

## 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 as needed.
- 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.

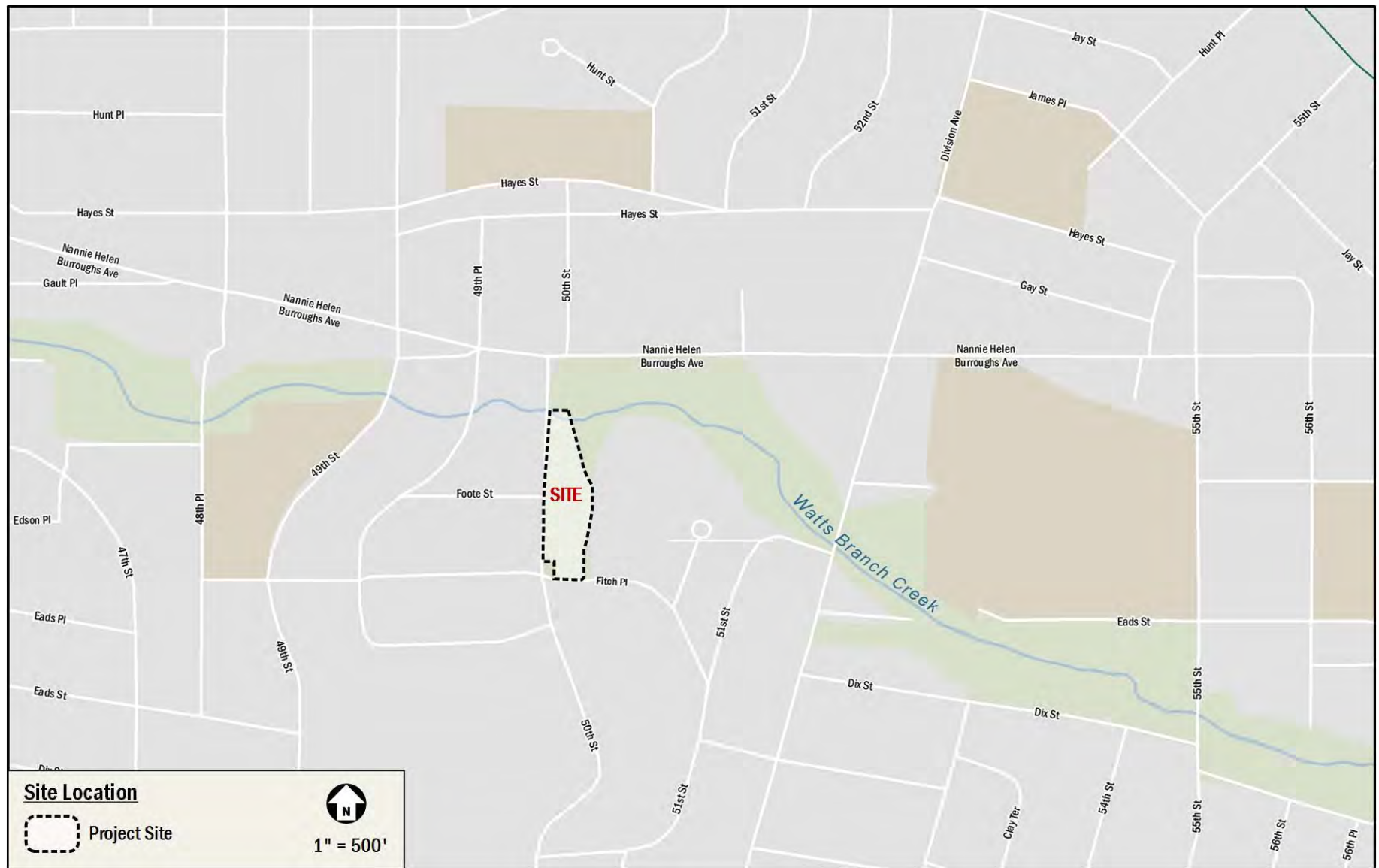


Figure 1: Site Location



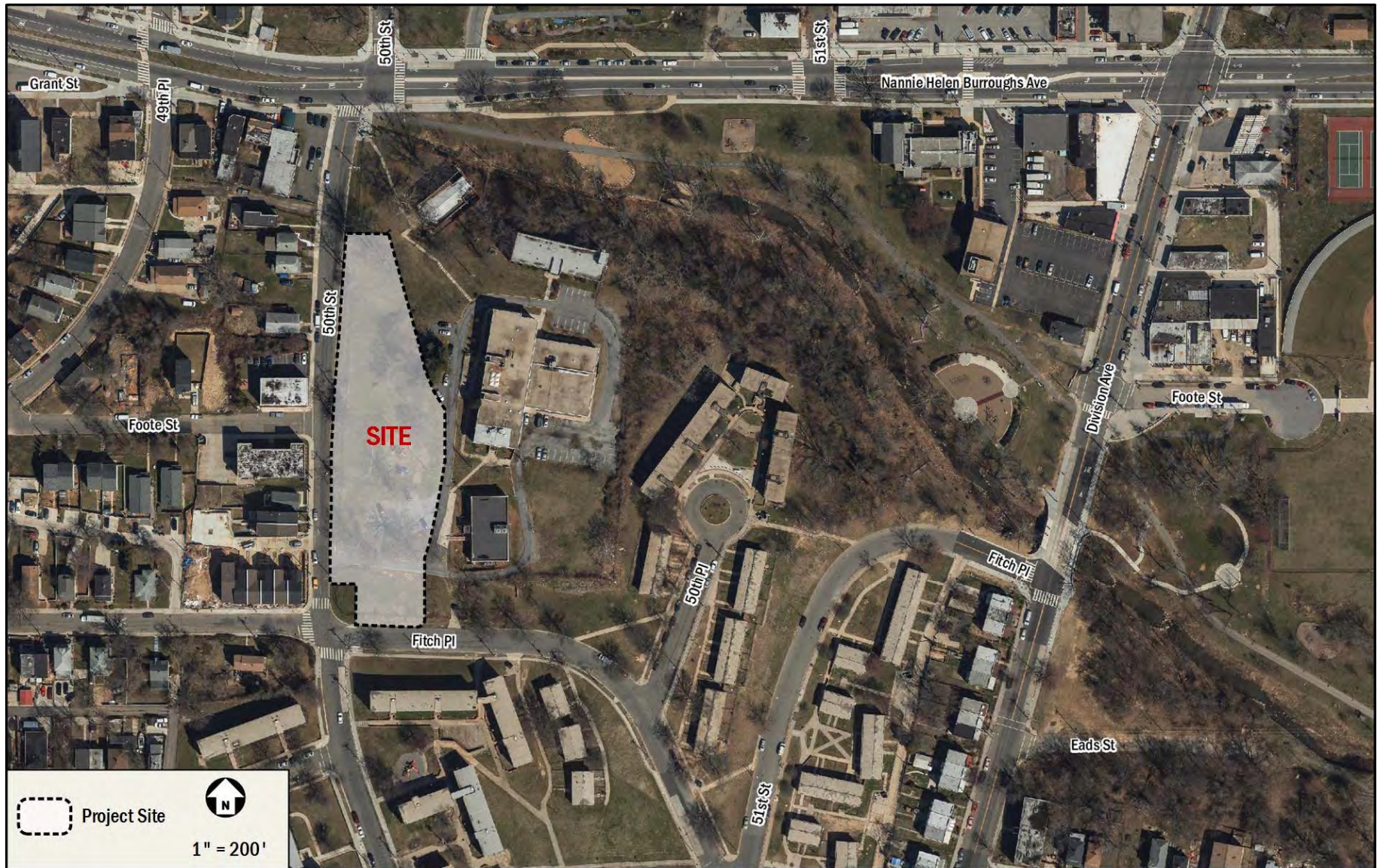


Figure 2: Site Aerial





## 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 of the proposed development to the rest of the District and surrounding areas.
- The site is served by public transportation with access to Metrorail and local Metrobus lines and Metrorail.
- There is bicycle infrastructure in the vicinity of the site, with connectivity to the Marvin Gaye Trail.
- Pedestrian conditions are generally good, particularly along anticipated major walking routes, however there are gaps in the pedestrian network, such as missing sidewalks, crosswalks and curb ramps.

### MAJOR TRANSPORTATION FEATURES

#### Overview of Regional Access

The PNBC Residential 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 regional roadways, such as the Anacostia Freeway (DC Route 295) and several principal and minor arterials such as Nannie Helen Burroughs Avenue and Division Avenue. These roadways create connectivity to the Capital Beltway (I-495) that surrounds Washington, DC and its inner suburbs, as well as providing connectivity to the District core.

The site is located 0.8 miles from the Benning Road Metrorail station, which is served by the Blue and Silver Lines and connects Prince George's County, Maryland, Fairfax County, Virginia, and the City of Alexandria, Virginia while providing access to the District core. In addition, the Blue and Silver Lines provide 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

There are a variety of local transportation options near the site that serve vehicular, transit, walking, and cycling trips, as shown on Figure 5. The site is served by a local vehicular network that includes several minor arterials and collector roads such as Nannie Helen Burroughs Avenue and Division Avenue. In addition, there is an existing network of connector and local roadways, such as 50<sup>th</sup> Street, 49<sup>th</sup> Street and Fitch Place, which 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 six bus routes that service the site. Adjacent to the site, there are bus stops along Nannie Helen Burroughs Avenue, Fitch Place, and Division Avenue. These bus routes connect the site to many areas of the District, including area Metrorail Stations. 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 several existing bicycle facilities near the site that connect to areas within the District. Residential low volume streets surrounding the site provide connectivity to the Marvin Gaye bicycle trail along Watts Branch, and facilities along 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue. 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, schools, and community amenities, provide adequate pedestrian facilities; however, there are some sidewalks and curb ramps that are missing or do not meet DDOT standards. A detailed review of existing and proposed pedestrian access and infrastructure is provided in a later section of this report.

Overall, the PNBC residential site is surrounded by a good local transportation network that allows for efficient transportation options via transit, bicycle, walking, or vehicular modes.



### Carsharing

Four carsharing 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 is one (1) car-share location with a total of two (2) vehicles within a quarter-mile of the site, shown in Table 1. Additional vehicles are available at the Benning Road Metrorail station, 0.8 miles from the site.

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 uses the Benning Neighborhood. This project location itself has a walk score of 71 (or “Very Walkable”), transit score of 72 (or “Excellent Transit”), and a bike score of 61 (or “Bikeable”). Figure 3 shows the

**Table 1: Summary of Carshare Locations**

Carshare Location	Number of Vehicles
<b>Zipcar</b>	
49th Street and Nannie Helen Burroughs Avenue, NE	2 vehicles
<b>Total</b>	<b>2 vehicles</b>



**Figure 3: Summary of Bike and Walk scores**

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

As shown in Figure 3, the site is situated in a neighborhood that encompasses good walk and bike scores due to its proximity to residential low volume roadways and a flat topography. Overall, the Benning neighborhood has extensive pedestrian, transit, and bike facilities, particularly in the direct vicinity of the site.

Overall, the neighborhood has excellent transit, adequate walk, and adequate bike scores. Additionally, other planned roadway improvements will help increase the walk and bike scores in the Lincoln Heights 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:



- 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 and bicycle improvements such as a new sidewalks, and new bicycle trails and bicycle lanes. 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 a 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.

#### *Far Northeast Livability Study*

DDOT developed the Livability Program to “Create Safe Passages, Sustainable Living, and Promote Prosperous Places”. The Far Northeast Livability Study was completed in 2011 and consisted of 12 neighborhoods east of the Anacostia River and

north of East Capitol Street in Ward 7. The PNBC Residential site is located in the study area. The needs identified in the study included:

- Reducing cut-through traffic for vehicles travelling to and from locations beyond the area.
- Pedestrian crossing safety particularly at intersections near libraries, community centers, churches, schools, senior housing, metro stations and bus stops.
- Filling gaps in bicycle network with links to schools and other public buildings, Metrorail stations, commercial and employment areas, parks and trail networks.
- Improving route connections by bicycle and bus within and around the Far Northeast and areas east of the Anacostia River.

Within the vicinity of the site area, top priority was given to traffic calming and bicycle accommodations along 49<sup>th</sup> Street. Improvements recommended along this stretch included the installation of choker islands and a raised intersection at 49<sup>th</sup> Street and Fitch Place, one block west of the site. This recommendation has been constructed at the time of field data collection.

#### **Planned Developments**

There are several potential development projects in the vicinity of the PNBC Residential site. For the purpose of this analysis and consistent with DDOT and industry standards, only approved developments expected to be completed prior to the planned development with an origin/destination within the study area were included. Of the background developments considered, one was ultimately included and is described below. Figure 6 shows the location of this development in relation to the proposed development.

#### *Deanwood Hills PUD*

The development will consist of an apartment building with 150 affordable units. This development lies within the study area, and is currently under construction. It is expected to be completed prior to the completion of PNBC Residential, and will thus be included in the analysis.



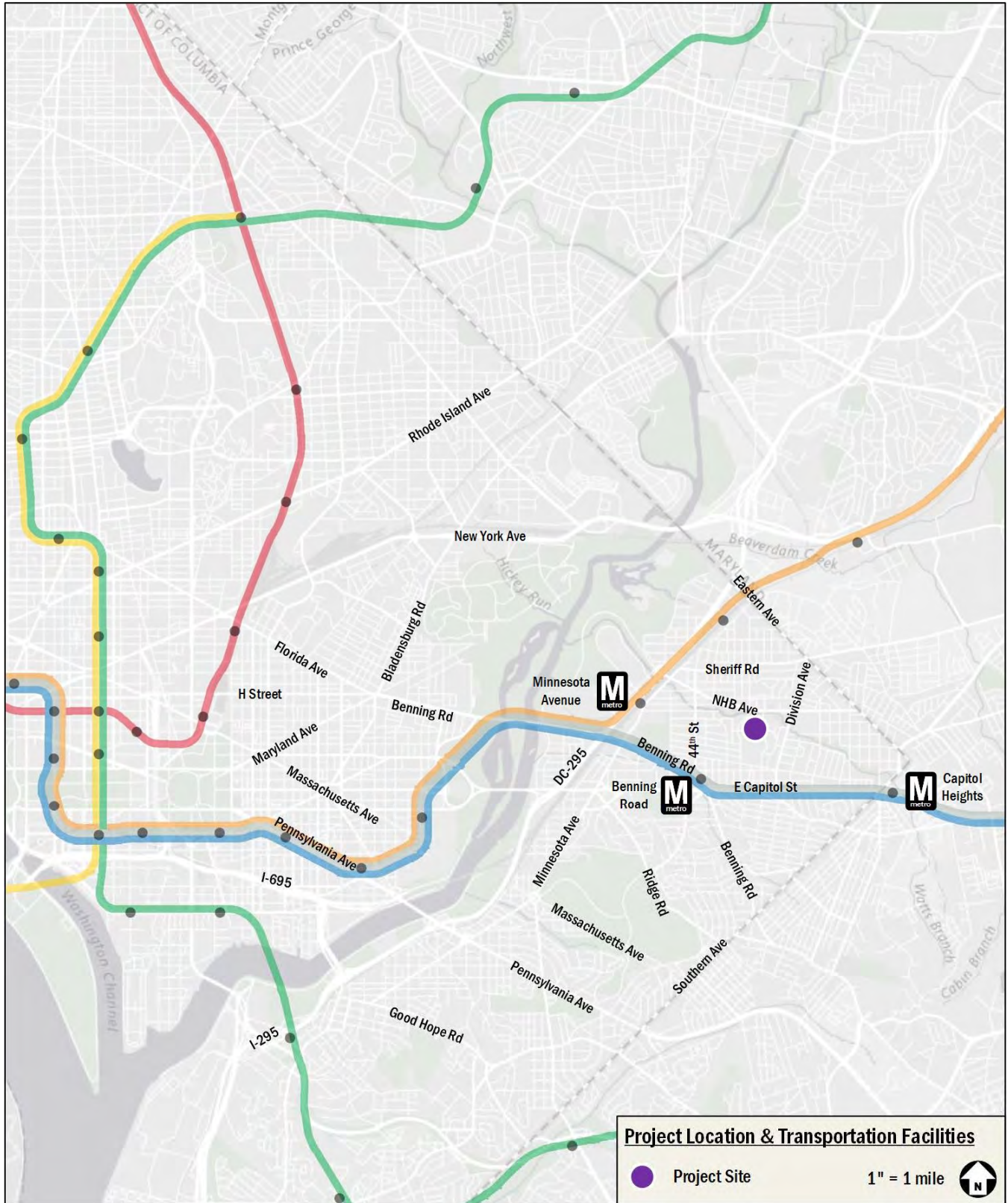


Figure 4: Major Regional Transportation Facilities

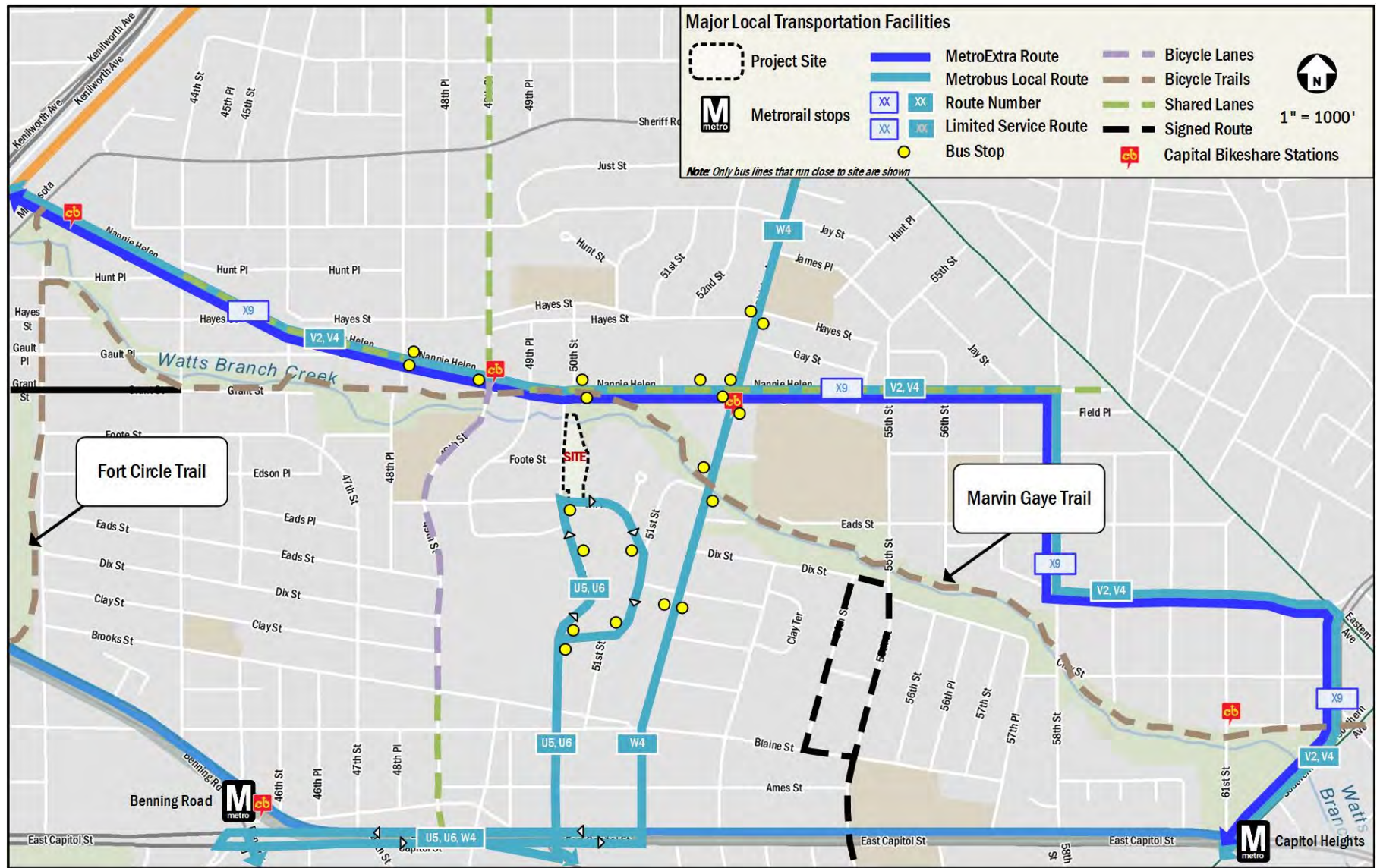


Figure 5: Major Local Transportation Facilities



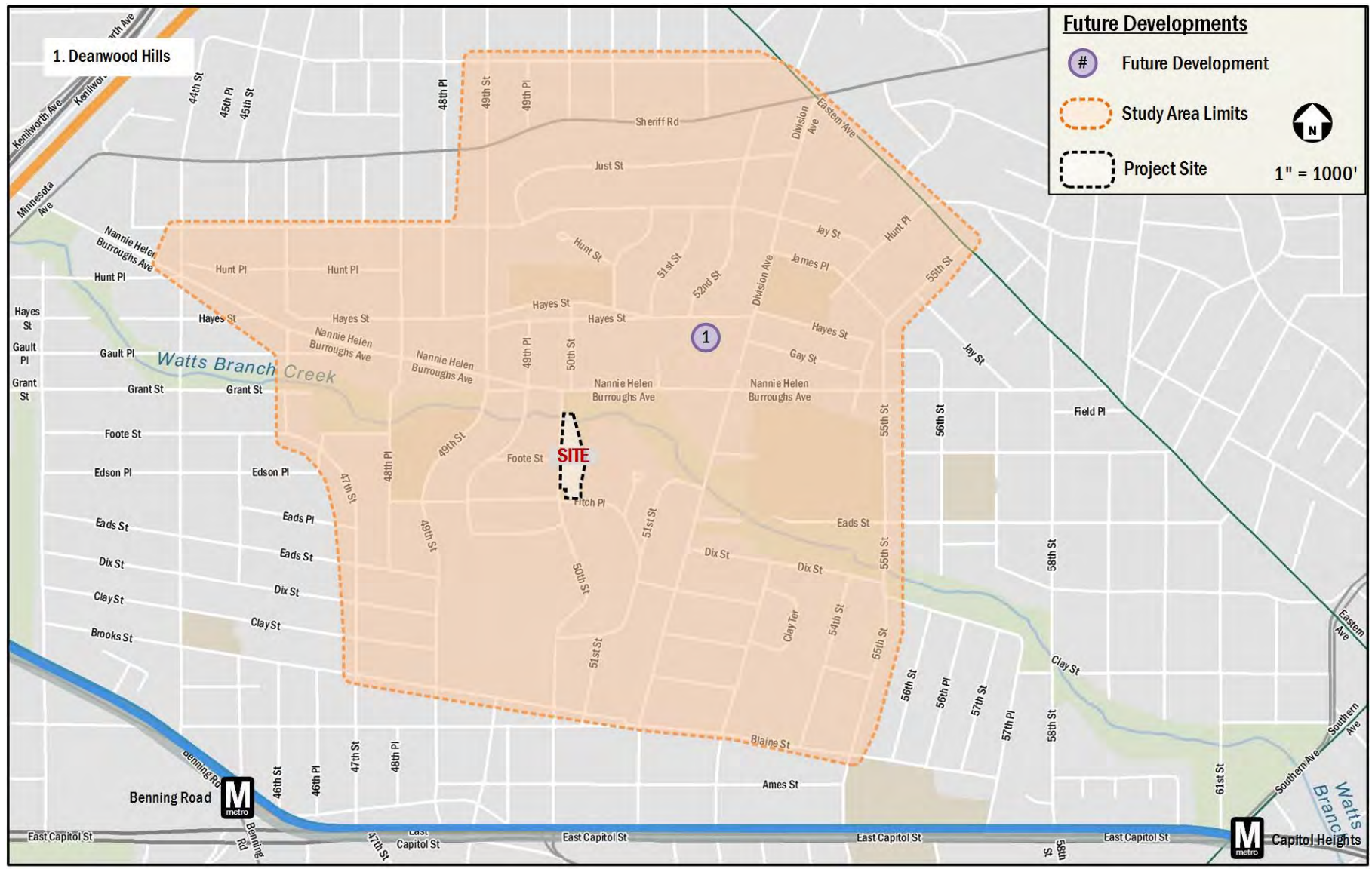


Figure 6: Planned Development Map



## PROJECT DESIGN

This section reviews the transportation components of the PNBC Residential 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 plan package that accompanied the Zoning Application, which includes illustrations of site circulation and layout.

The site is mostly undeveloped with an 18-space surface parking lot along the southeast portion of the site, and is bounded by Nannie Helen Burroughs Avenue, NE to the north, Fitch Place, NE to the south, and 50<sup>th</sup> Street, NE to the west. The site is a part of the overall Progressive National Baptist Convention (PNBC) campus, which includes the group's headquarters, an existing chapel, charter school, and dormitory. The PNBC development will consist of replacing the surface lot with approximately 100 mixed-income residential dwelling units, and approximately 48 below-grade parking spaces for residents. 35 of the 100 units will replace affordable units at the nearby Lincoln Heights/Richardson Dwellings complexes managed by the D.C. Housing Authority (DCHA).

Figure 7 shows an overview of the development program and site plan elements. Figure 8 shows more detailed aspects of parking and loading.

### SITE ACCESS AND CIRCULATION

#### **Pedestrian Access**

The variance in topography around the PNBC Residential site results in two pedestrian entrances which access separate floors of the development. The primary pedestrian access to the development is expected to occur along Fitch Place, accessing the residential lobby and leasing offices on the third floor. Auxiliary pedestrian access to the development is expected to occur along 50<sup>th</sup> Street servicing the secondary lobby on the first floor.

#### **Bicycle Access**

Bicycle access to the secure long-term bicycle parking in the below-grade parking garage will be from the garage entrance along 50<sup>th</sup> Street and via elevators connecting to passageways leading to the first floor lobby on 50<sup>th</sup> Street. The short-term bicycle racks will be placed around the perimeter of the site.

#### **Vehicular Access**

Vehicular access to the site will be provided by one proposed curb cut on 50<sup>th</sup> Street, which connects directly to the below-grade parking garage. An additional curb cut is proposed on Fitch Place to replace existing access for the PNBC campus driveway.

A circulation plan with vehicular and pedestrian routes is shown on Figure 9. Detailed truck-turning diagrams are available in the Technical Attachments.

### LOADING

Under Zoning Regulations, a residential development of more than 50 dwelling units is required provide a minimum of one (1) 12-foot wide, 30-foot long loading berth. The development will include one 12-foot wide, 38-foot long loading berth, with head-in/head-out loading maneuvers. The loading berth will primarily service moving trucks for residential uses and waste collection trucks for trash removal. It is expected that trash services will be accomplished with the utilization of rolling dumpsters to transfer waste from the trash room to the waste collection trucks in the loading berth.

The proposed development is expected to generate approximately four (4) truck trips per day. This includes three (3) general deliveries consisting of trash removal, mail, and parcel delivery and approximately one residential delivery, calculated based on an average unit turnover of 18 months with two deliveries per turnover (one move-in and one move-out). Figure 8 shows the location of the loading zone and trash removal services.

Based on the anticipated number of truck deliveries, the proposed loading facilities in the development should accommodate all loading delivery demand without detrimental impacts.

Truck routing to and from the site will be focused on designated primary truck routes, such as the Anacostia Freeway, Eastern Avenue, Benning Road, and East Capitol Street.

### PARKING

The parking provided by the PUD should accommodate all parking needs on-site. Zoning requirements for the residential component of the proposed development are one (1) space per three (3) dwelling units in excess of four (4) units, for a total of



32 spaces. The below-grade parking garage will contain approximately 48 total parking spaces for residents, at a ratio of 0.48 spaces per dwelling unit. This amount includes 4 handicap-accessible spaces. Given the supply of nearby on-street parking spaces and quality of transit access to the site via the adjacent Metrobus stops along Fitch Place and NHB Avenue, this amount of parking is sufficient to accommodate the projected parking demand for the project.

## BICYCLE AND PEDESTRIAN FACILITIES

### Bicycle Facilities

Based on ZR 2016 requirements, a residential apartment building is required to supply one (1) short-term bicycle parking space for every 20 dwelling units, therefore the site is required to supply six (6) short-term bicycle spaces. The project will meet this requirement by supplying approximately three (3) bicycle racks to accommodate 6 bicycles. These short-term spaces will include inverted U-racks placed along 50<sup>th</sup> Street near the building entrance. The Applicant will work with DDOT to select the exact location for the racks in public space.

Based on ZR 2016 requirements, a residential apartment building is required to supply one (1) long-term bicycle parking space for every three (3) dwelling units. After the first 50 bicycle parking spaces, the requirement decreases to one (1) long-term bicycle parking for every six (6) dwelling units. Therefore, the development is required to supply a total of 34 long-term bicycle parking spaces. The project is proposing to include a total of 34 secure long-term spaces for residents in the below-grade parking garage, meeting zoning requirements.

### Pedestrian Facilities

Pedestrian facilities will be improved around the site as part of the development. Under existing conditions, curb ramps around portions of the site do not meet DDOT and ADA standards and many sidewalks are narrow or non-existent. As part of the development, pedestrian facilities around the perimeter of the site will be improved to meet DDOT and ADA standards. This includes installation of missing sidewalks along portions of 50<sup>th</sup> Street and Fitch Place that will meet or exceed the width requirements, completion of the Foote Street and 50<sup>th</sup> Street crosswalk, installation of curb ramps with detectable warnings, and additional design elements such as streetscaping and a courtyard path from the second floor of the development connecting to Fitch Place to improve pedestrian circulation.

## 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 TDM plan for the PNBC development is based on the DDOT expectations for TDM programs. The Applicant proposes the following TDM measures:

- The Applicant will identify a TDM Leader (for planning, construction, and operations) at the building, who will act as a point of contact with DDOT/Zoning Enforcement with annual updates. The TDM Leader will work with residents 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 unbundle the cost of residential parking from the cost of lease or purchase of each unit.
- The Applicant will meet Zoning requirements to provide bicycle parking facilities at the proposed development. This includes 34 secure long-term parking spaces located on-site and a minimum of 6 short-term parking spaces around the perimeter of the site (in the form of 3 bicycle racks).
- The Applicant will offer each unit's incoming residents with either a one-year membership to Capital Bikeshare or a one-year membership to a Carsharing service. A proactive marketing strategy will be provided to ensure residents are aware of this benefit.
- The Applicant will provide a bicycle repair station to be located in the secure long-term bicycle storage room.
- The Applicant will provide an on-site business center to residents with access to copier, fax, and internet services.
- The Applicant will install a Transportation Information Center Display (electronic screen) within the residential lobbies containing information related to local transportation alternatives.



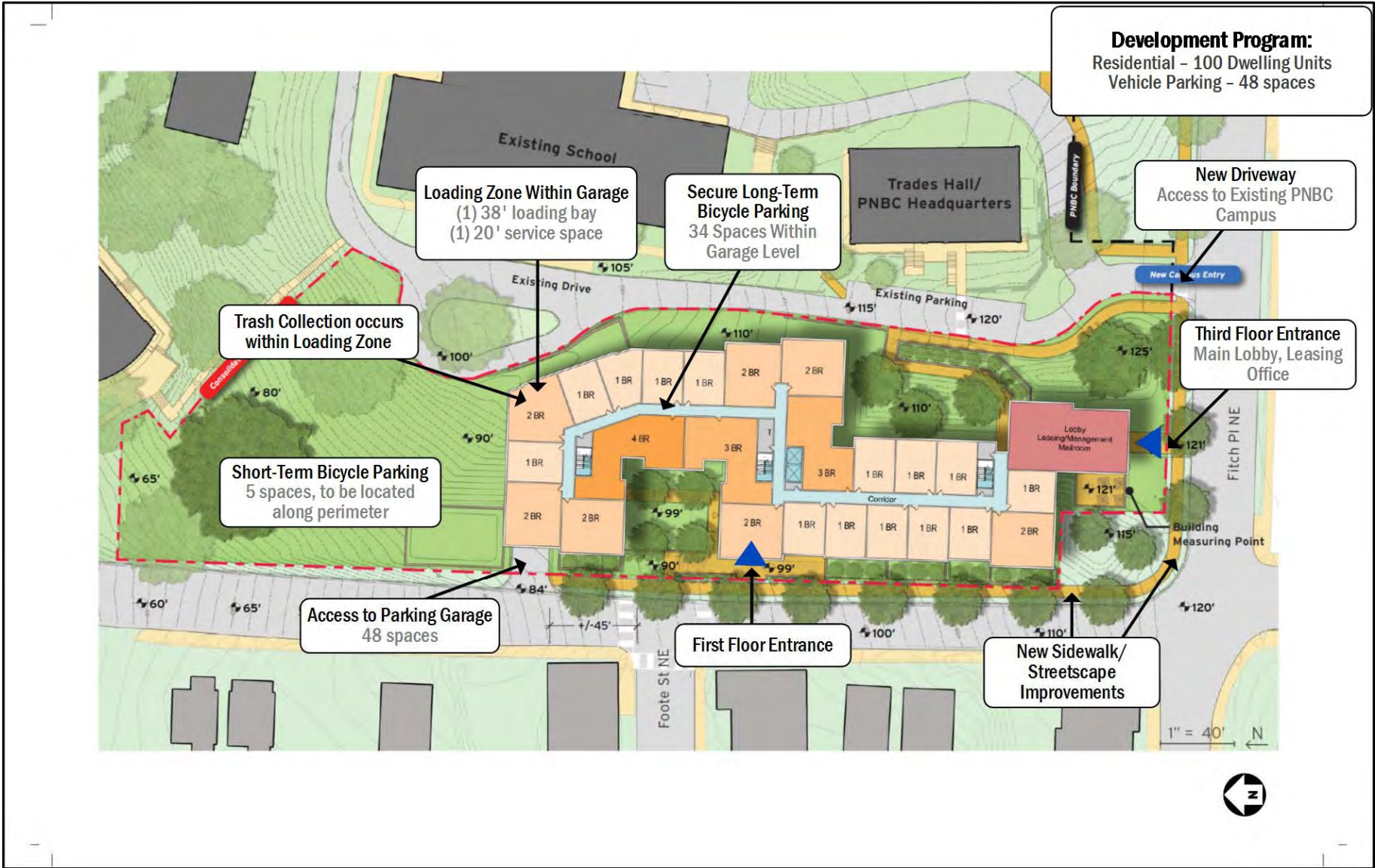


Figure 7: Site Plan

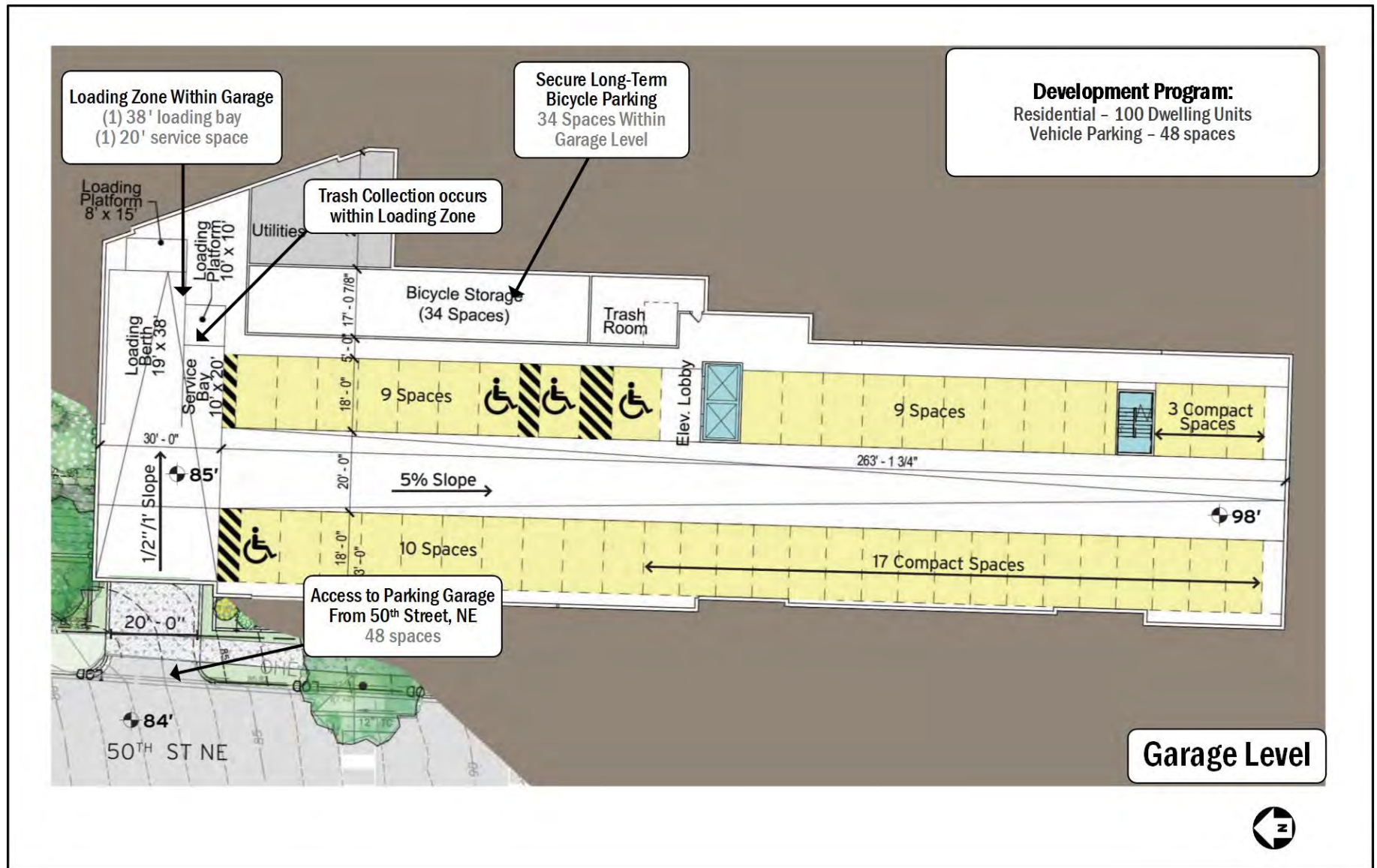


Figure 8: Garage and Loading Operations



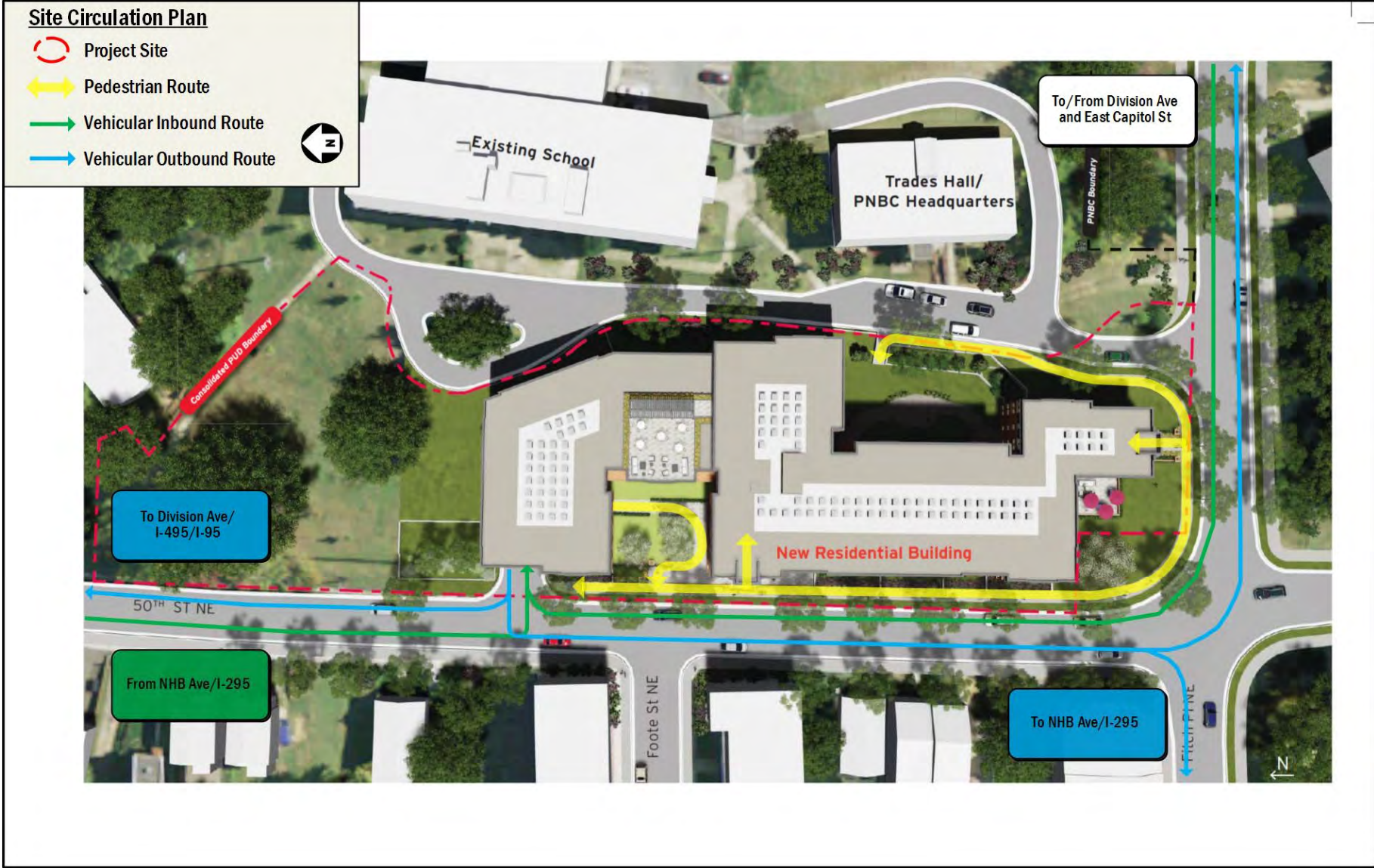


Figure 9: Circulation Plan



## TRIP GENERATION

This section outlines the transportation demand of the proposed PNBC Residential project. It summarizes the projected trip generation of the site by mode, which forms the basis for the chapters that follow. These assumptions were vetted and approved by DDOT as a part of the scoping process for the study.

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, as vetted and approved by DDOT.

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

The mode split assumptions are summarized in Table 2. A summary of the multimodal trip generation for the overall development is provided in Table 3 for both peak hours. The development is expected to generate 32 trips (6 in, 26 out) during the morning peak hour and 43 trips (28 in, 15 out) during the afternoon peak hour. Detailed calculations are included in the Technical Attachments.

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

Land Use	Mode			
	Drive	Transit	Bike	Walk
Residential	60%	35%	2%	3%

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

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto (Vehicles/Hour)	6	26	32	28	15	43
Transit (People/Hour)	4	17	21	19	10	29
Bike (People/Hour)	0	1	1	1	1	2
Walk (People/Hour)	0	2	2	2	0	2



## TRAFFIC OPERATIONS

This section provides a summary of an analysis of the existing and future roadway capacity surrounding the site. Included is an analysis of potential vehicular impacts of the PNBC Residential development 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. 2017 Existing Conditions
2. 2019 Future Conditions without the development (2019 Background)
3. 2019 Future Conditions with the development (2019 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:

- All but one of the study area intersections 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 arterial roads, such as the Nannie Helen Burroughs Avenue and its intersections with 49<sup>th</sup> Street and 50<sup>th</sup> Street.
- The addition of trips generated by background developments and inherent growth on the study area roadways slightly increase the levels of delay and queuing at all study area intersections.
- Queuing spillback was not observed during the pick-up and drop-off times at a charter school located within the PNBC site.

- At the intersection of Nannie Helen Burroughs Avenue and 49<sup>th</sup> Street, it was found that the reallocation of green time to the 49<sup>th</sup> Street approaches from the Nannie Helen Burroughs Avenue approaches would decrease delay to levels that were observed under Existing Conditions.

### 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 extensively 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 capacity 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. 2017 Existing Conditions
2. 2019 Future Conditions without the development (2019 Background)
3. 2019 Future Conditions with the development (2019 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 and agreed upon by DDOT for analysis:

1. 49<sup>th</sup> Street & Nannie Helen Burroughs Avenue, NE
2. 50<sup>th</sup> Street & Nannie Helen Burroughs Avenue, NE
3. 50<sup>th</sup> Street & Foote Street, NE
4. 50<sup>th</sup> Street & Fitch Place, NE
5. 50<sup>th</sup> Street & Site Driveway, NE
6. Fitch Place and Relocated PNBC Driveway, NE

Figure 10 shows a map of the study area intersections. Of note, Intersection 5 (existing PNBC driveway/new site driveway) will be relocated north of Foote Street during the construction of the development.

### 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 was collected on Wednesday, March 22, 2017 from 6:30 to 9:30 AM and 3:00 to 6:00 PM. The results of the traffic counts are included in the Technical Attachments. The existing peak hour traffic volumes are shown in Figure 12. For all intersections, the individual morning and afternoon peak hours were used. Typically afternoon peak hours are from 4:00 to 7:00 PM. However, in order to account for existing activity at the charter school within the PNBC site, the afternoon peak hour was shifted one hour earlier to capture pick-up behavior and its effect on the adjacent study intersections. Attention was brought to the potential of pick-up/drop-off queueing occurring at the existing PNBC campus driveway and 50<sup>th</sup> Street. During the traffic counts conducted at the study intersections, queue spillback was not observed in either the morning or afternoon peak hours.

#### *2019 Background Traffic Volumes (without the project)*

The traffic projections for the 2019 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, one development was included in the 2019 Background scenario: the Deanwood Hills PUD.

Existing studies were available for the Deanwood Hills PUD. Trip generation and distribution assumptions for the background development was based on its study and altered where necessary based on anticipated travel patterns. Mode split and trip generation assumptions for the background development are shown in 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 (MwCOG) currently adopted regional transportation model, comparing the difference between the year 2015 and 2020 model scenarios as vetted and agreed to by DDOT. 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 2019 Background traffic volumes. The traffic volumes for the 2019 Background conditions are shown on Figure 13.

#### *2019 Total Future Traffic Volumes (with the project)*

The 2019 Total Future traffic volumes consist of the 2019 Background volumes with the addition of the traffic volumes generated by the proposed development (site-generated trips). Thus, the 2019 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 location of the parking access.

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 development.

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 14 for outbound trips and on Figure 15 for inbound trips.

The traffic volumes for the 2019 Total Future conditions were calculated by adding the development-generated traffic volumes to the 2019 Background traffic volumes. Thus, the future condition with the proposed development scenario includes traffic generated by: existing volumes, background developments through the year 2019, inherent growth on the network, and the proposed development. The site-generated traffic volumes are shown on Figure 17 and the 2019 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 11. Of particular note is the

geometry at the intersection of Nannie Helen Burroughs Avenue and 50<sup>th</sup> Street. The presence of a concrete median between eastbound and westbound traffic presents a difficulty in vehicles making left or thru turns in the northbound, southbound, and westbound approaches. Signage is present along the northbound approach indicating traffic must make a northbound right, however vehicles were observed making left and thru movements and are recorded as such in the data collection.

#### *2019 Background 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, no background improvements were included in the 2019 Background conditions. Therefore, the lane configurations and traffic controls are based on those for the Existing Conditions as shown on Figure 11.

#### *2019 Future Geometry and Operations Assumptions*

The configurations and traffic controls for the 2019 Future conditions are based on those for the Existing and 2019 Background conditions with the relocation of the site driveway along 50<sup>th</sup> Street approximately 45 feet north of Foote Street and the relocation of the driveway of the PNBC headquarters and school to Fitch Place. Both driveways will be stop-controlled with free-flowing traffic along 50<sup>th</sup> Street and Fitch Place.

The lane configurations and traffic controls for the 2019 Future Conditions 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 *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, 2019 Background, and 2019 Future scenarios. The capacity analysis results are shown on Figure 19 for the morning peak hour and Figure 20 for the afternoon peak hour.

The study intersections generally operate at acceptable conditions during the morning and afternoon peak hours for the Existing, 2019 Background, and 2019 Future scenarios. However, one intersection approach operates above capacity during one or more peak hour:

- 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, NE  
During the morning peak period, the 49<sup>th</sup> Street approach operates above capacity during the existing, 2019 Background and 2019 Future scenarios. This can be attributed to the lane configuration of the northbound approach, with all three turning movements operating from one lane. As a consequence, vehicles turning left onto westbound Nannie Helen Burroughs Avenue must wait for a gap from southbound traffic in order to make the turn, delaying northbound thru and northbound right vehicles.

### 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 2000 calculations. HCM 2000 does not calculate queuing for all-way stops.

Table 7 shows the queuing results for the study area intersections. One of the study intersections exhibits one or more lane group that exceeds the given storage length during at least one peak hour in all of the study scenarios:

- 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, NE

### MITIGATION MEASURES

Based on DDOT standards, the proposed development is considered to have an impact at an intersection within the study area if any of the following conditions are met:

- The capacity analyses show a LOS E or F at an intersection or along an approach where one does not exist in the existing or background conditions;
- There is an increase in delay at any approach or overall intersection operating under LOS E or F of greater than 5 seconds when compared to the background scenario; or
- There is an increase in the 95<sup>th</sup> percentile queues 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 background scenario.

Following these guidelines, there are impacts to one intersection as a result of the development. Mitigation measures were tested at this intersection, with results shown on Table 6 and detailed *Synchro* reports included in the Technical Attachments. The following conclusions were made:

- 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, NE  
The northbound approach of 49<sup>th</sup> Street is projected to operate under LOS E during the morning peak period for 2019 Background and 2019 Future Conditions. The delay increases by more than 5 seconds when compared to the 2019 Background scenario, therefore mitigation measures were evaluated. Under existing conditions, the intersection operates as a signalized intersection with priority given to Nannie Helen Burroughs Avenue traffic. The primary factor



for a LOS E along the minor approach of 49th Street is the amount of vehicles making turning movements from a shared lane, with northbound left vehicles making a permitted turn and having to wait for a gap in southbound thru traffic in order to turn. Therefore, even minor increases to traffic along this approach results in poor level of service.

It was determined that this intersection approach can be improved by the reallocation of green time to the

concurrent northbound-southbound phase from the eastbound-westbound phase that have less capacity constraints. The signal timing adjustments decrease delay by 12 seconds, to the level which is observed under Existing Conditions, as shown in Table 6.

The proposed signal timing plans for this intersection can be found in the Technical Attachments.



**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
Deanwood Hills PUD	220 Residential (Rate)	150 du	15	62	77	60	33	93
	Non-Auto Reduction: 45%		-6	-28	-34	-26	-15	-41
	<b>Total Trips</b>		<b>9</b>	<b>34</b>	<b>43</b>	<b>34</b>	<b>18</b>	<b>52</b>
<b>Net Background Site Trips</b>			<b>9</b>	<b>34</b>	<b>43</b>	<b>34</b>	<b>18</b>	<b>52</b>

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

Road & Direction of Travel	Proposed Annual Growth Rate		Total Growth between 2017 and 2019	
	AM Peak	PM Peak	AM Peak	PM Peak
49 <sup>th</sup> Street, NE – Northbound	0.1%	1.0%	0.20%	2.01%
49 <sup>th</sup> Street, NE – Southbound	2.0%	1.5%	4.04%	3.02%
Nannie Helen Burroughs Avenue NE – Eastbound	0.5%	0.1%	1.00%	0.20%
Nannie Helen Burroughs Avenue NE – Westbound	0.5%	0.75%	1.00%	1.51%

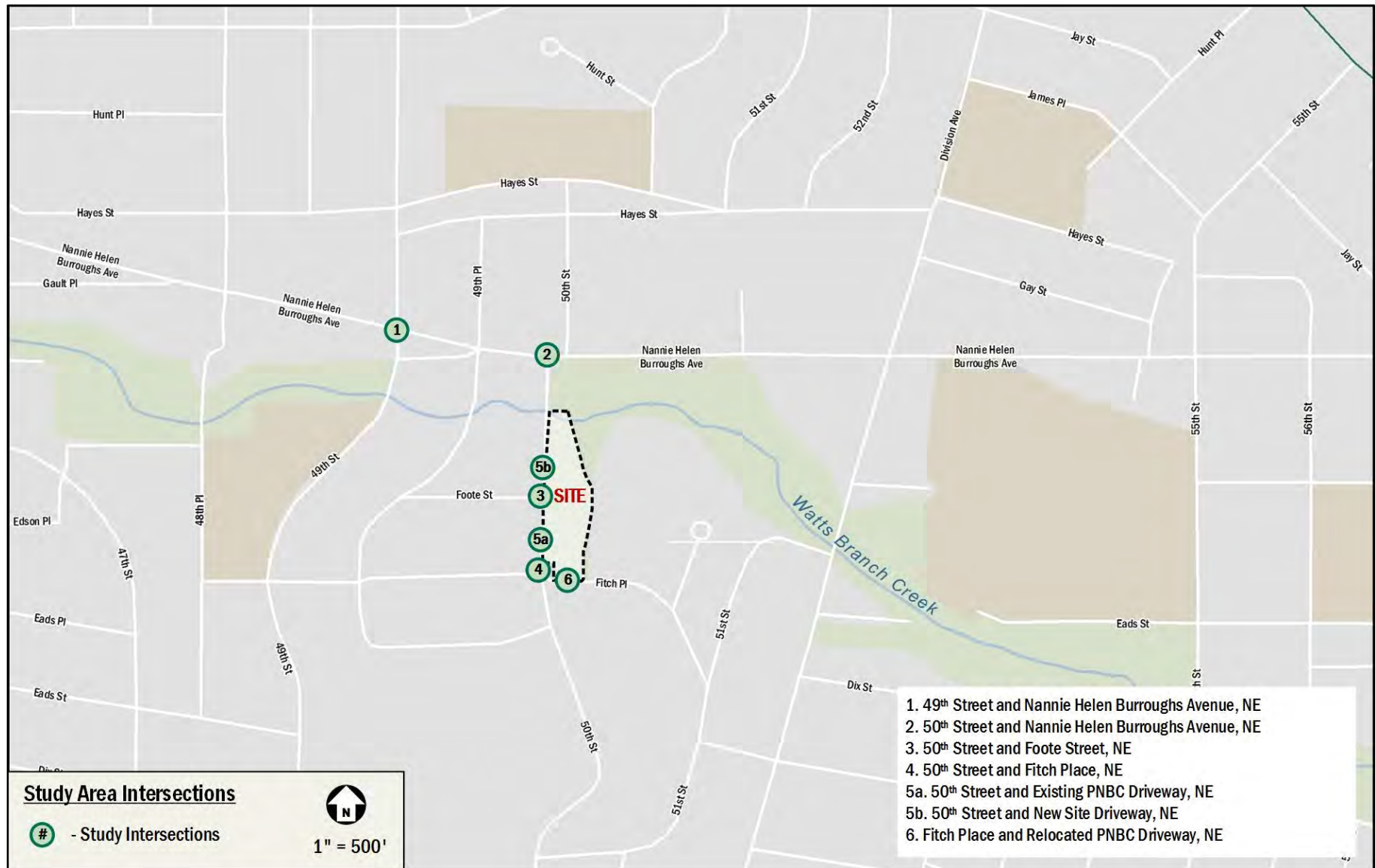


Figure 10: Study Area Intersections



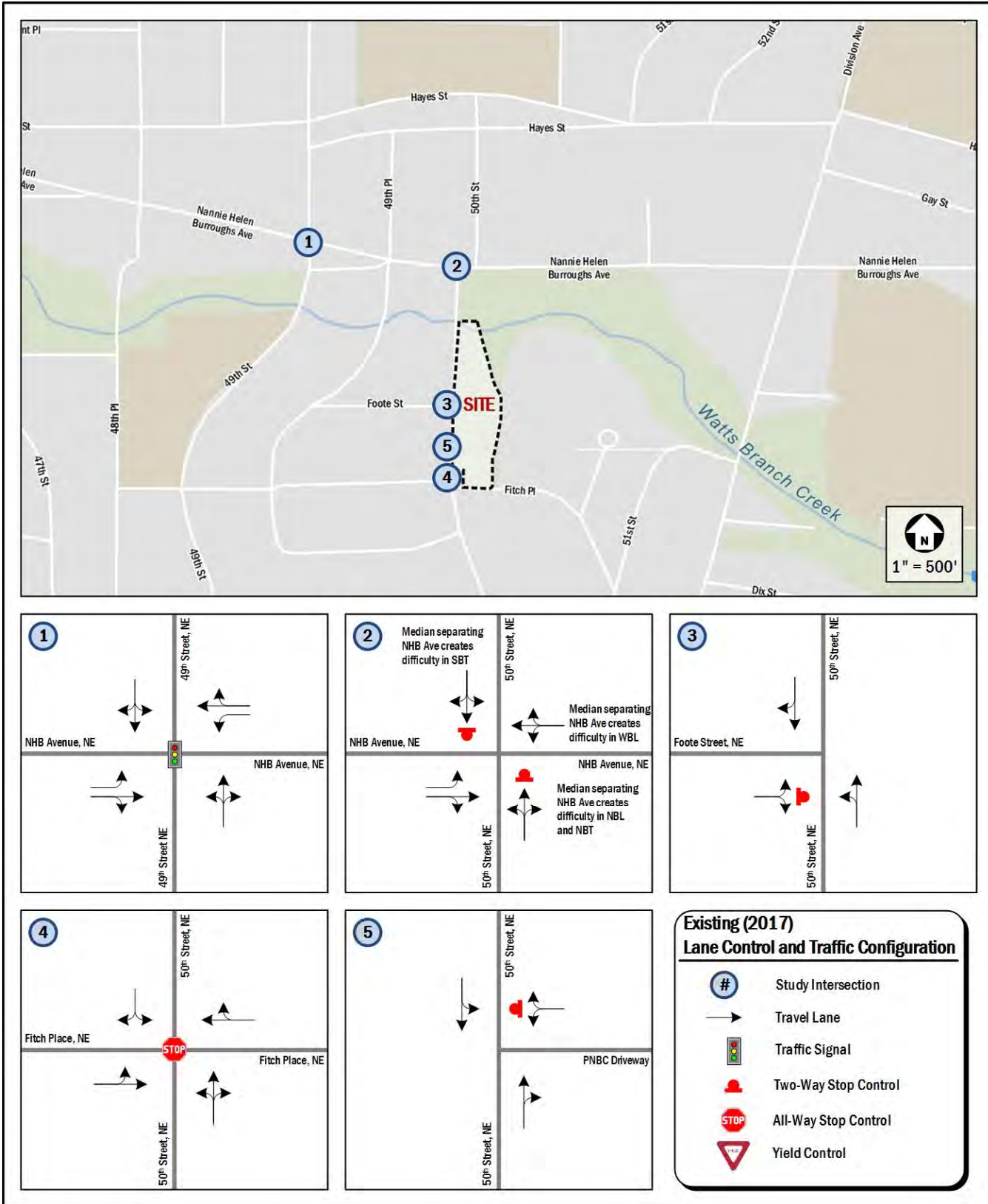
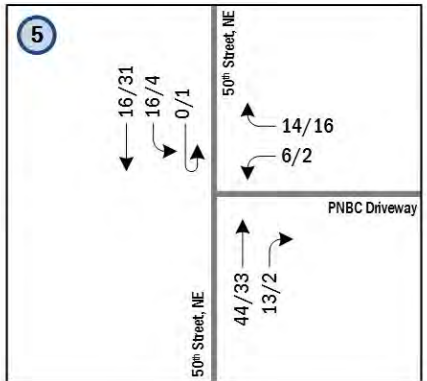
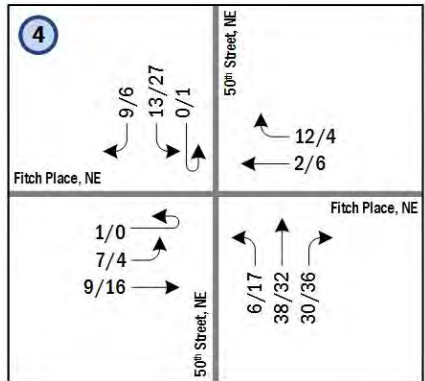
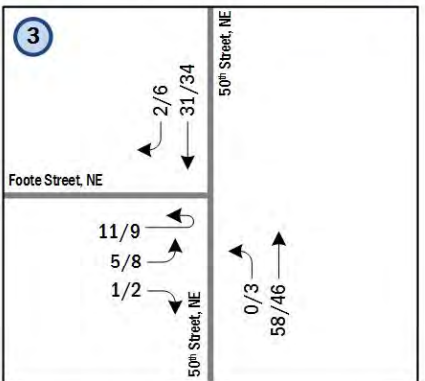
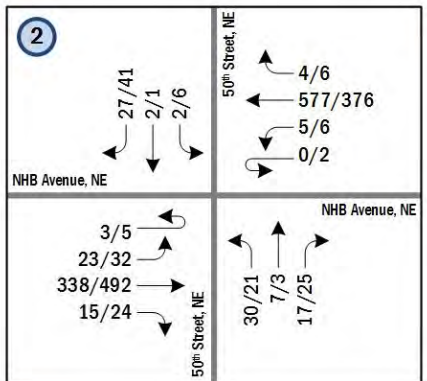
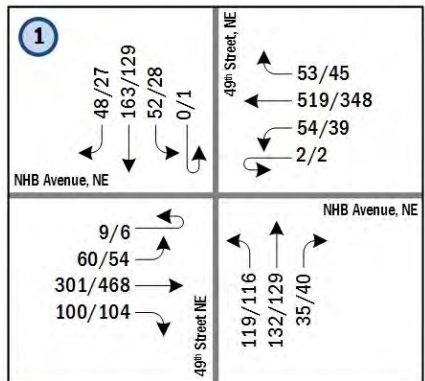
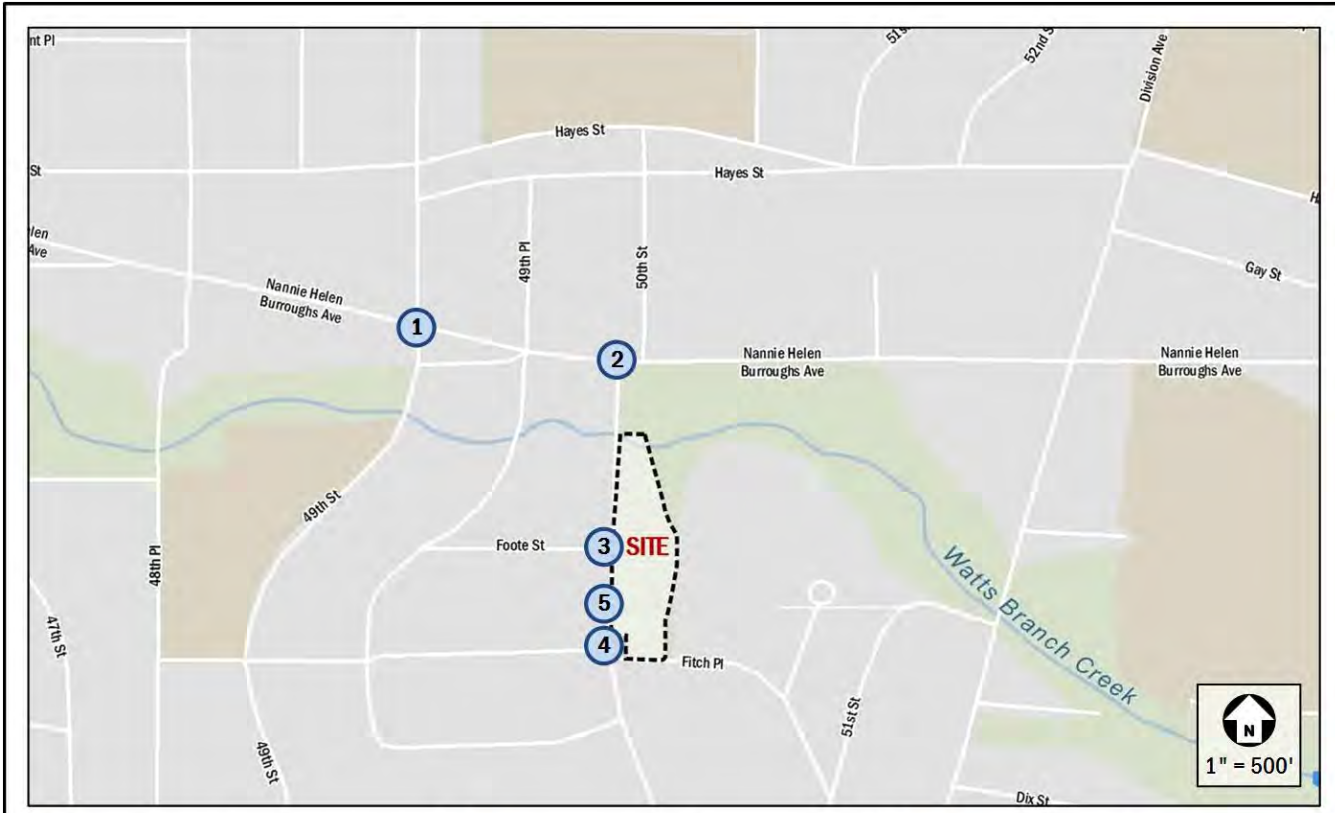


Figure 11: Existing Lane Configuration



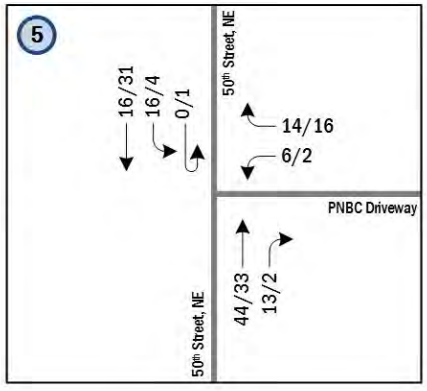
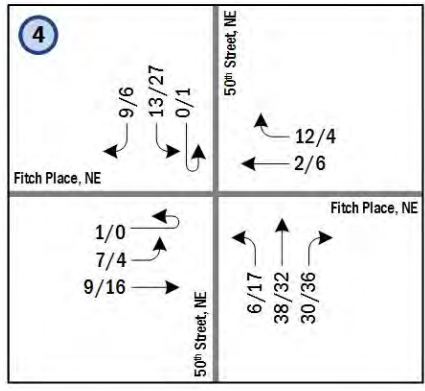
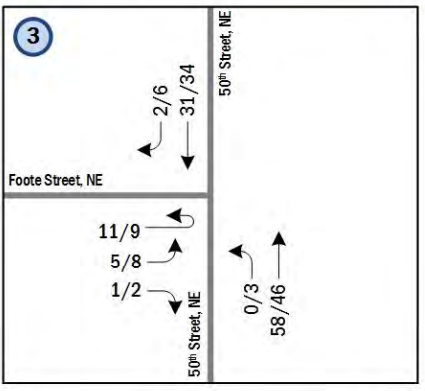
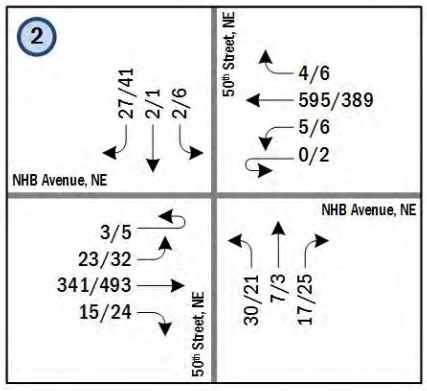
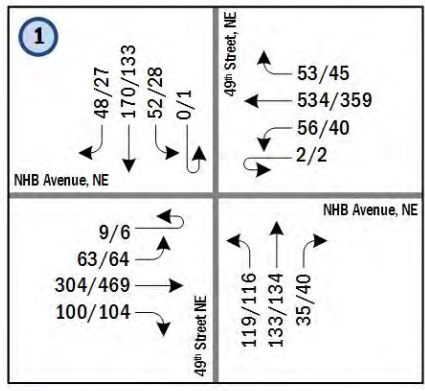
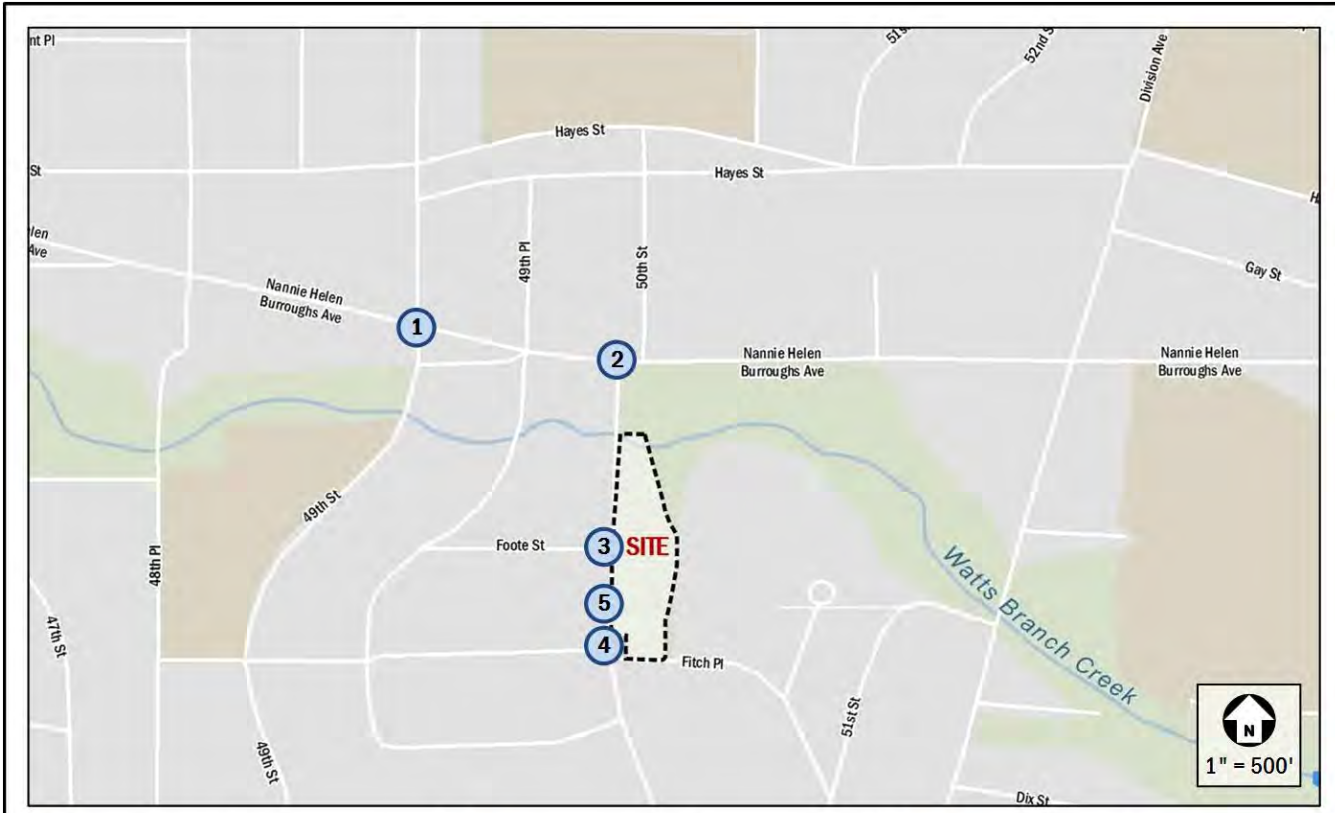
**Existing (2017)  
Peak Hour Traffic Volumes**

# Study Intersection  
→ Turning Movement

1234/5678 AM / PM Peak Hour Volume

Figure 12: Existing Peak Hour Traffic Volumes





**Future without Development (2019)  
Peak Hour Traffic Volumes**

# Study Intersection

→ Turning Movement

1234/5678 AM / PM Peak Hour Volume

Figure 13: 2019 Background Peak Hour Traffic Volumes

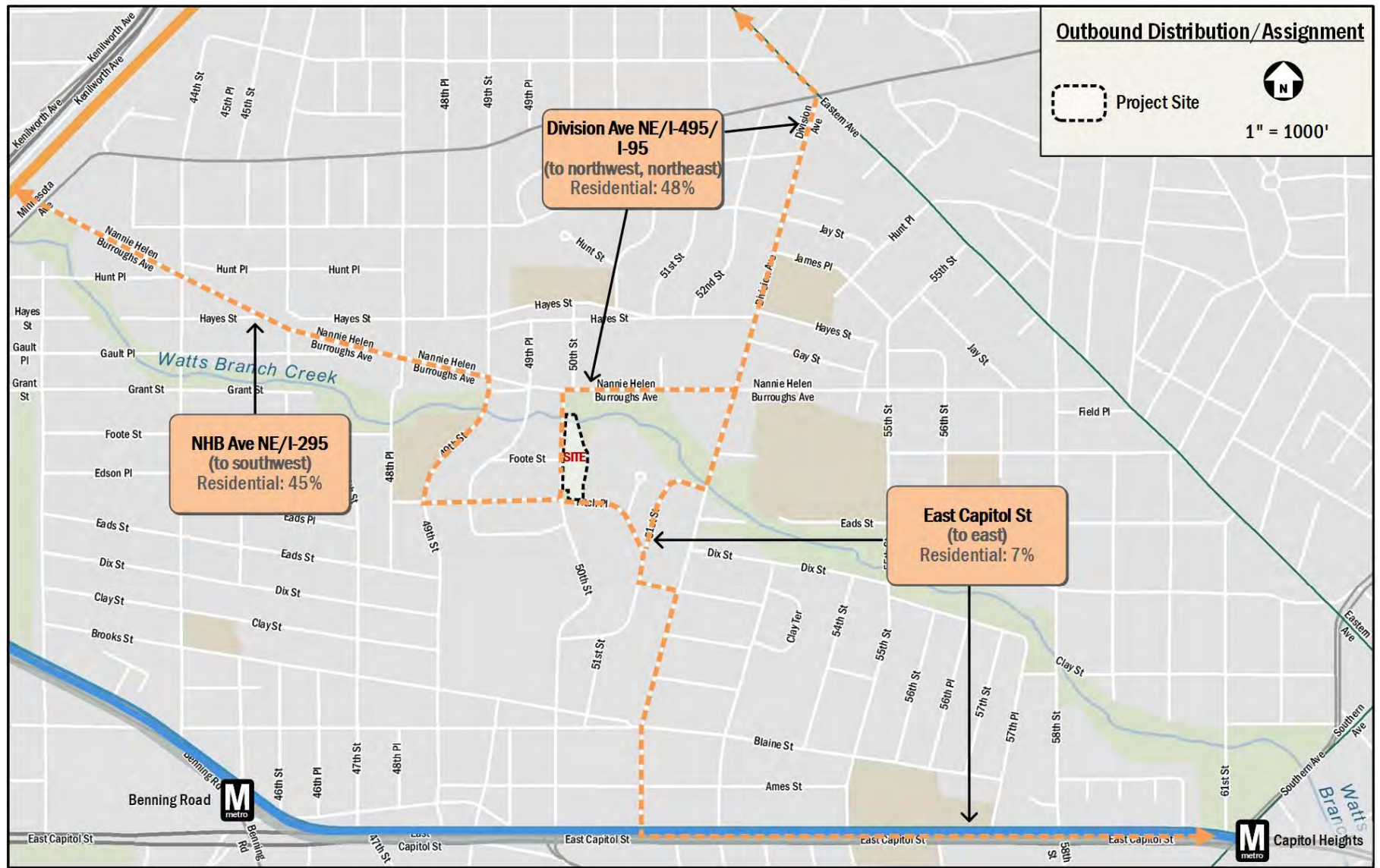


Figure 14: Outbound Trip Distribution and Routing





Figure 15: Inbound Trip Distribution and Routing

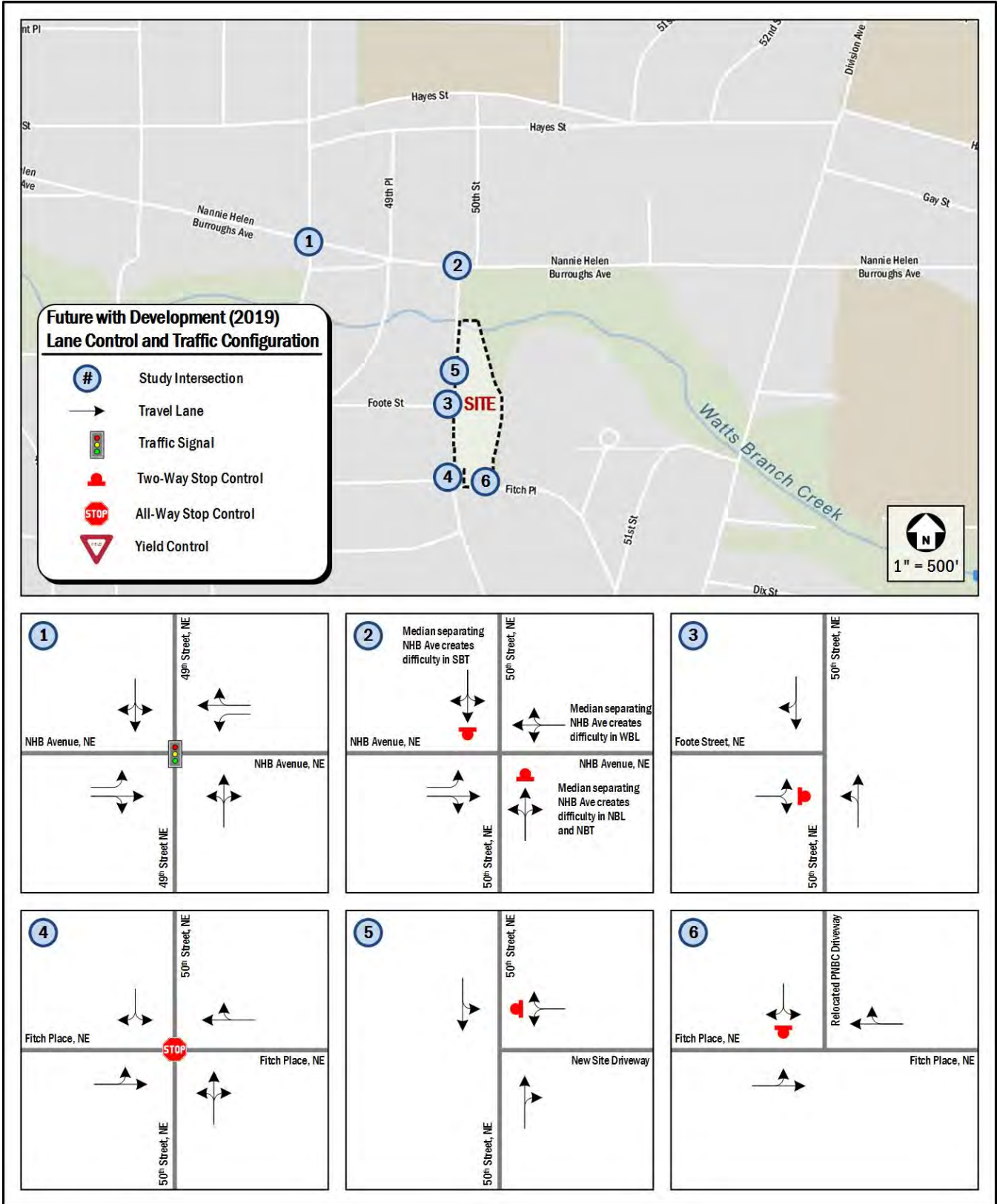


Figure 16: Future Land Configuration and Traffic Control

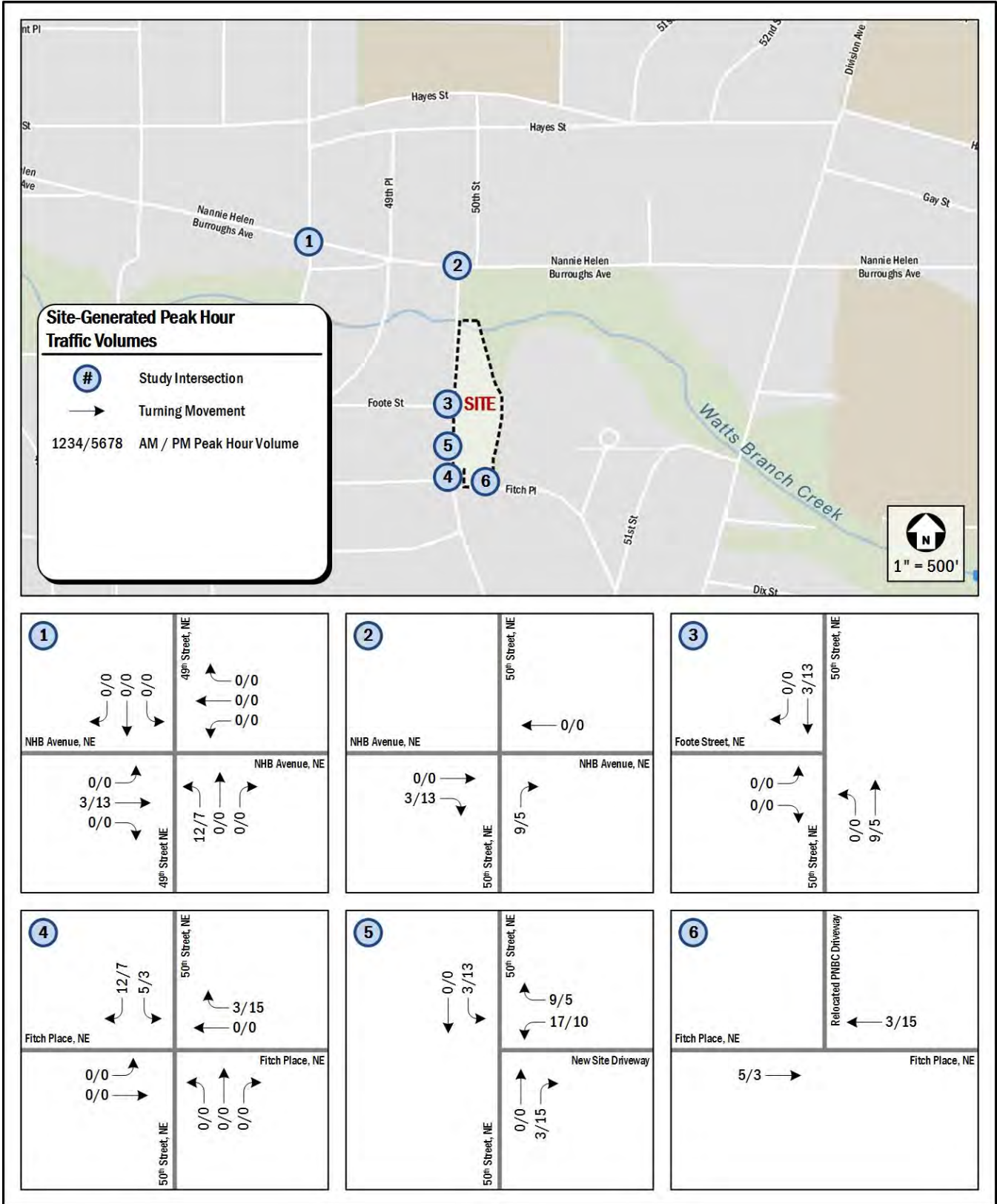


Figure 17: Site-Generated Peak Hour Traffic Volumes



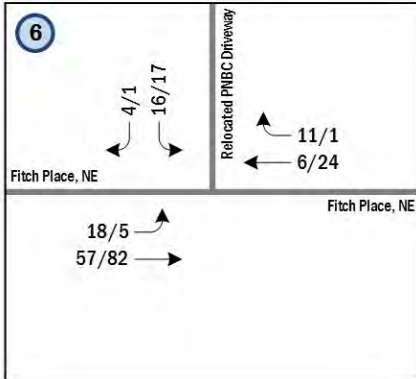
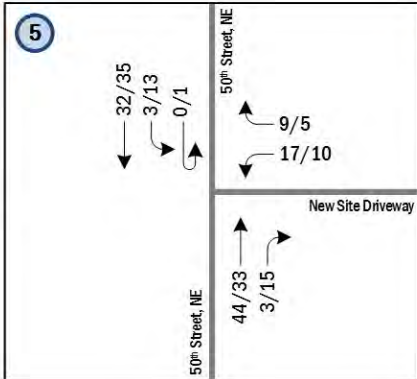
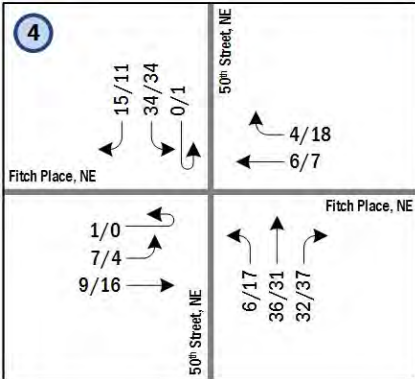
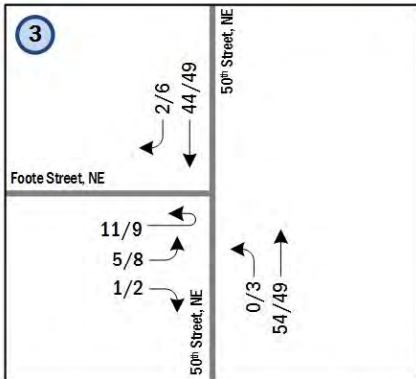
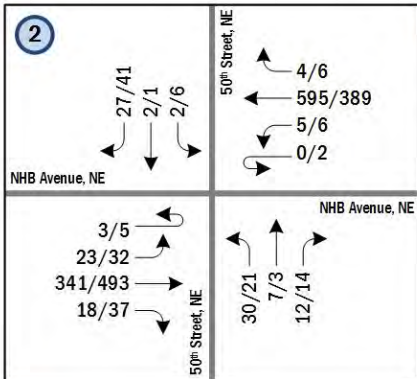
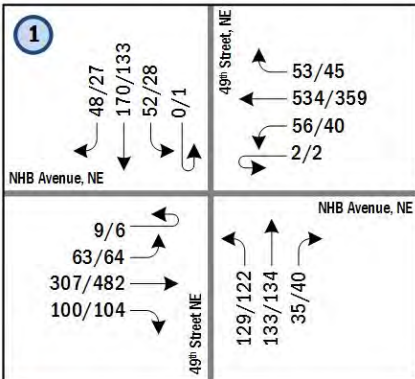
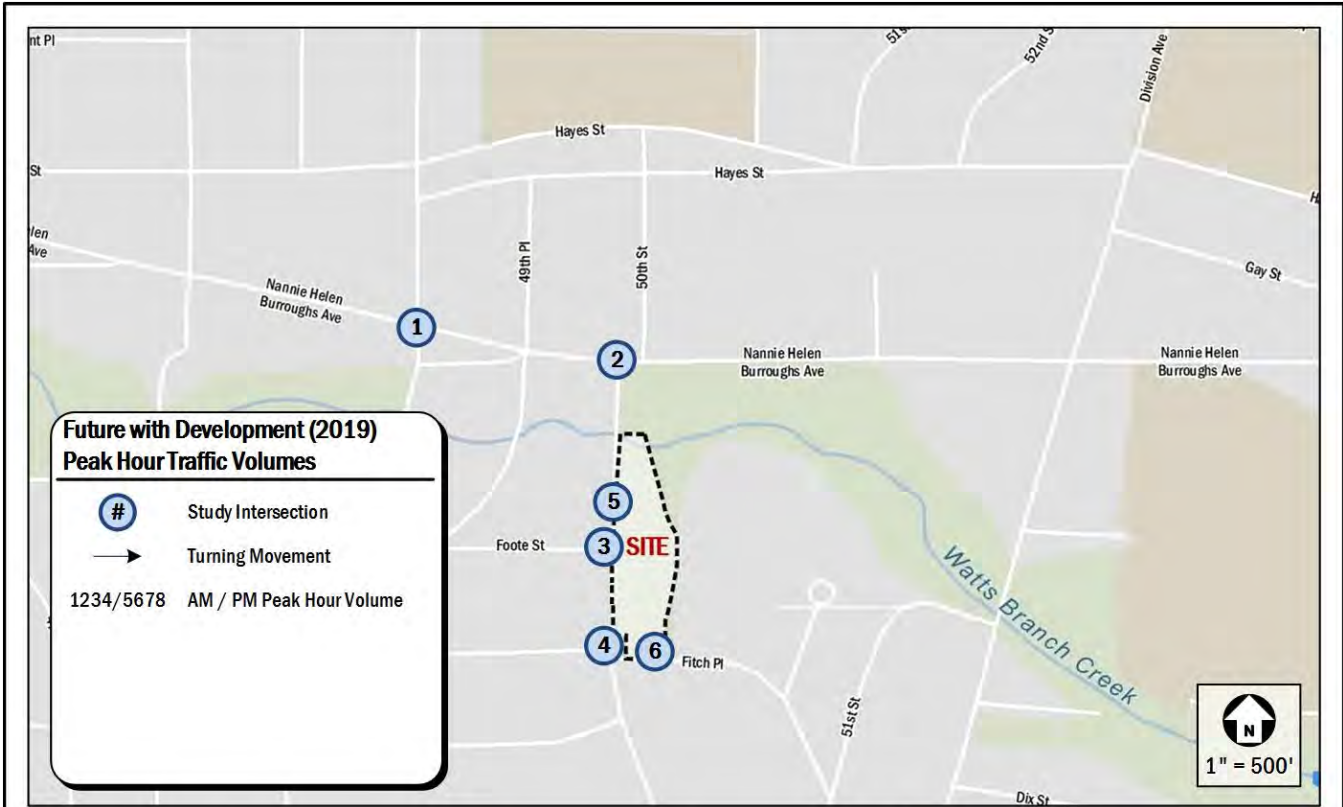


Figure 18: 2019 Future Peak Hour Traffic Volumes



**Table 6: LOS Results**

Intersection	Approach	Existing Conditions (2017)				Background Conditions (2019)				Total Future Conditions (2019)				Total Future Conditions, Mitigations (2019)	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
<b>49th Street and Nannie Helen Burroughs Avenue, NE</b>	<b>Overall</b>	<b>26.1</b>	<b>C</b>	<b>21.4</b>	<b>C</b>	<b>26.8</b>	<b>C</b>	<b>21.8</b>	<b>C</b>	<b>29.0</b>	<b>C</b>	<b>22.8</b>	<b>C</b>	<b>26.4</b>	<b>C</b>
	Eastbound	10.9	B	15.8	B	10.9	B	15.8	B	11.0	B	16.3	B	11.6	B
	Westbound	16.1	B	12.1	B	16.4	B	12.3	B	16.4	B	12.3	B	17.1	B
	Northbound	61.0	E	43.9	D	64.0	E	45.9	D	75.1	E	49.5	D	61.3	E
	Southbound	38.6	D	25.9	C	39.7	D	26.1	C	39.8	D	26.1	C	36.3	D
<b>50th Street and Nannie Helen Burroughs Avenue, NE</b>	Eastbound	0.5	A	0.5	A	0.5	A	0.5	A	0.5	A	0.5	A	--	--
	Westbound	0.1	A	0.2	A	0.1	A	0.2	A	0.1	A	0.2	A	--	--
	Northbound	26.3	D	26.2	D	27.0	D	25.6	D	28.0	D	29.0	D	--	--
	Southbound	14.4	B	14.9	B	14.7	B	14.8	B	14.6	B	14.7	B	--	--
<b>50th Street and Foote Street, NE</b>	Eastbound	9.0	A	9.1	A	9.0	A	9.1	A	9.0	A	9.2	A	--	--
	Northbound	0.0	A	0.5	A	0.0	A	0.5	A	0.0	A	0.5	A	--	--
	Southbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	--	--
<b>50th Street and Fitch Place, NE</b>	<b>Overall</b>	<b>7.3</b>	<b>A</b>	<b>7.4</b>	<b>A</b>	<b>7.3</b>	<b>A</b>	<b>7.4</b>	<b>A</b>	<b>7.4</b>	<b>A</b>	<b>7.4</b>	<b>A</b>	--	--
	Eastbound	7.8	A	7.5	A	7.8	A	7.5	A	7.8	A	7.5	A	--	--
	Westbound	6.7	A	7.2	A	6.7	A	7.2	A	7.1	A	7.0	A	--	--
	Northbound	7.3	A	7.5	A	7.3	A	7.5	A	7.4	A	7.5	A	--	--
	Southbound	7.2	A	7.4	A	7.2	A	7.4	A	7.4	A	7.4	A	--	--
<b>50th Street and Site Driveway, NE</b>	Westbound	9.0	A	8.6	A	9.0	A	8.6	A	9.0	A	9.0	A	--	--
	Northbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	--	--
	Southbound	3.8	A	0.0	A	3.8	A	0.8	A	0.7	A	2.0	A	--	--
<b>Relocated PNBC Driveway and Fitch Place, NE</b>	Eastbound	--	--	--	--	--	--	--	--	1.8	A	0.5	A	--	--
	Westbound	--	--	--	--	--	--	--	--	0.0	A	0.0	A	--	--
	Southbound	--	--	--	--	--	--	--	--	9.3	A	9.3	A	--	--



**Table 7: Queueing Results (in feet)**

Intersection	Lane Group	Storage Length (feet)	Existing Conditions (2017)				Background Conditions (2019)				Total Future Conditions (2019)			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %
<b>49th Street and Nannie Helen Burroughs Avenue, NE</b>	Eastbound Left	250	16	39	14	34	17	41	17	39	17	41	17	39
	Eastbound TR	535	109	175	195	317	110	176	196	318	111	178	203	330
	Westbound Left	175	16	m35	10	27	17	m36	10	27	17	m36	10	27
	Westbound TR	200	210	m303	116	179	216	m311	120	187	216	m311	120	187
	Northbound LTR	925	142	#296	141	#257	144	#300	145	#264	153	#317	150	#275
	Southbound LTR	315	128	#244	83	137	133	#253	85	140	133	#253	85	140
<b>50th Street and Nannie Helen Burroughs Avenue, NE</b>	Eastbound Left	115	--	2	--	3	--	2	--	3	--	2	--	3
	Eastbound TR	225	--	0	--	0	--	0	--	0	--	0	--	0
	Westbound TR	70	--	0	--	1	--	0	--	1	--	0	--	1
	Northbound Right	400	--	27	--	22	--	28	--	21	--	26	--	19
	Southbound Right	675	--	7	--	11	--	7	--	11	--	7	--	11
<b>50th Street and Foote Street, NE</b>	Eastbound LR	385	--	1	--	1	--	1	--	1	--	1	--	1
	Northbound LT	235	--	0	--	0	--	0	--	0	--	0	--	0
	Southbound TR	400	--	0	--	0	--	0	--	0	--	0	--	0
<b>50th Street and Fitch Place, NE*</b>	Eastbound LTR	585	--	--	--	--	--	--	--	--	--	--	--	--
	Westbound LTR	650	--	--	--	--	--	--	--	--	--	--	--	--
	Northbound LTR	1525	--	--	--	--	--	--	--	--	--	--	--	--
	Southbound LTR	235	--	--	--	--	--	--	--	--	--	--	--	--
<b>50th Street and Site Driveway, NE</b>	Westbound LR	150	--	2	--	2	--	2	--	2	--	3	--	1
	Northbound TR	50	--	0	--	0	--	0	--	0	--	0	--	0
	Southbound LT	585	--	1	--	0	--	1	--	0	--	0	--	1
<b>Fitch Place and Relocated PNBC Driveway, NE</b>	Eastbound LT	125	--	--	--	--	--	--	--	--	--	1	--	0
	Westbound TR	225	--	--	--	--	--	--	--	--	--	0	--	0
	Southbound LR	50	--	--	--	--	--	--	--	--	--	2	--	2

\*HCM 2000 does not report queueing for all-way stops



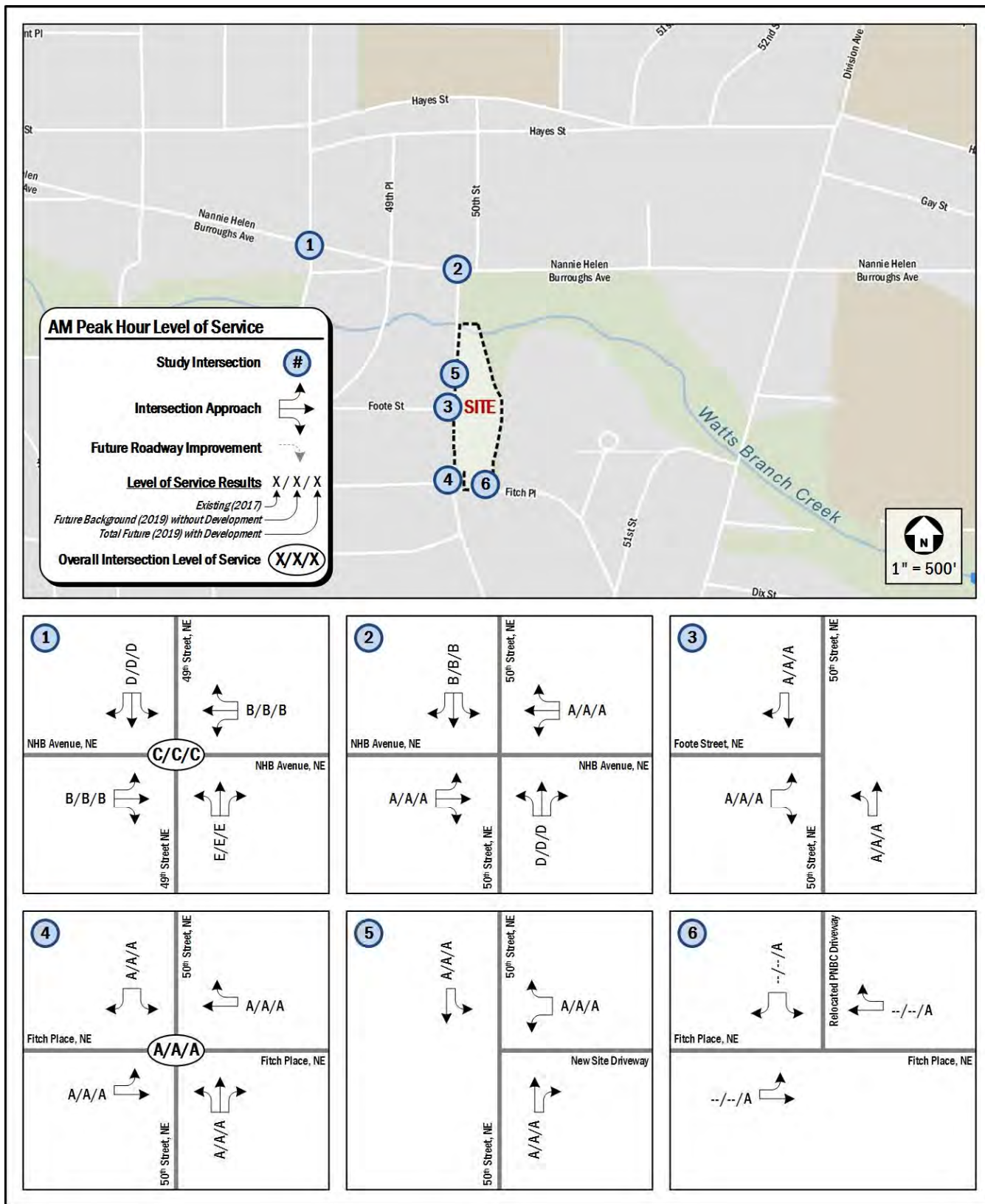


Figure 19: Morning Peak Hour Capacity Analysis Results

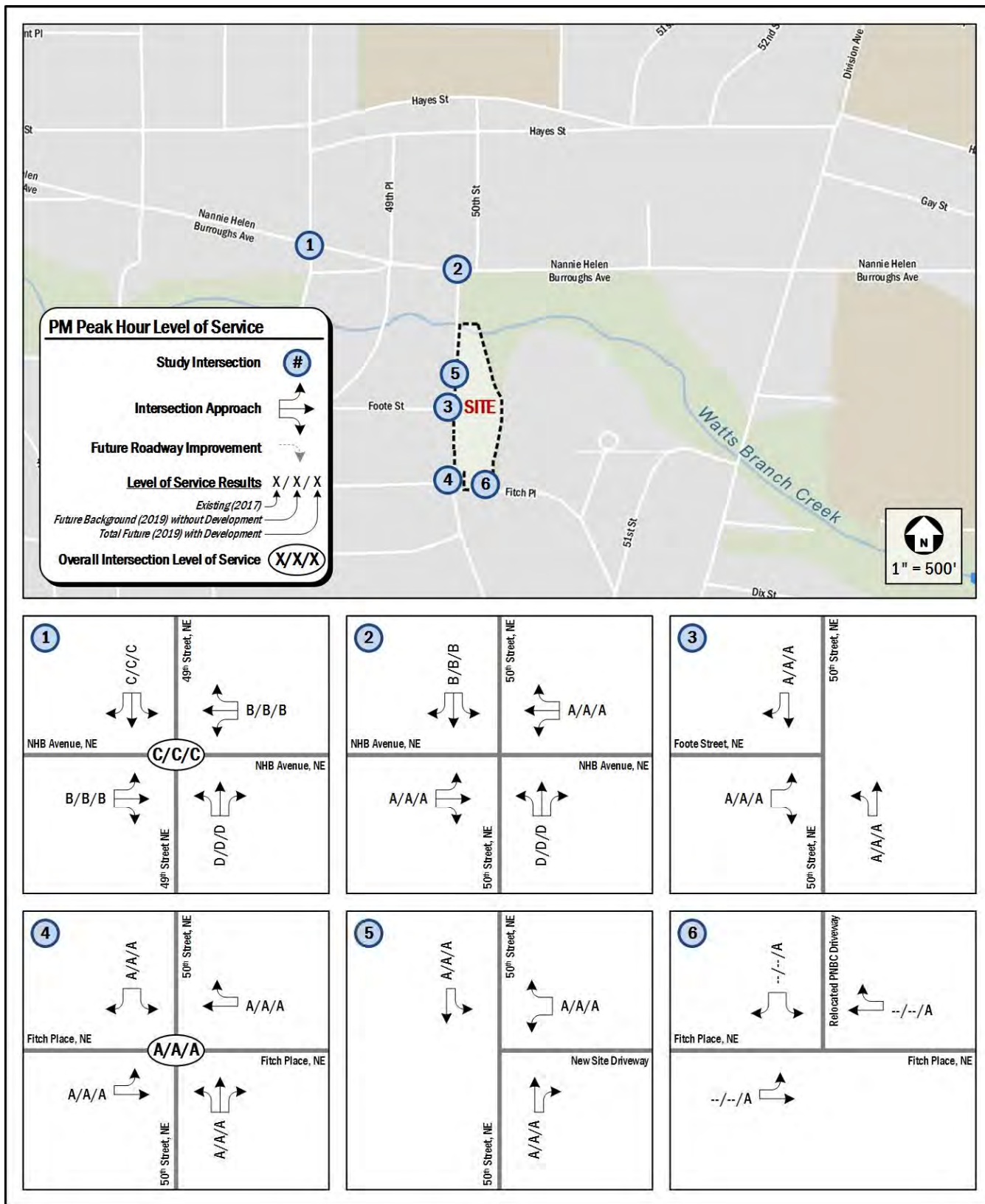


Figure 20: Afternoon Peak Hour Capacity Analysis Results



## 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 of the PNBC residential project.

The following conclusions are reached within this chapter:

- The development has adequate access to transit
- The development is located 0.8 miles from the Benning Road Metrorail station
- The development site is surrounded by six (6) 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 has access to 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 site is located approximately 0.8 miles from the Benning Road Metrorail station and is served by the Blue and Silver Lines, which provides direct connections to areas in the District, Maryland, and Virginia. The station is accessible from the site by foot via 50<sup>th</sup> Street and East Capitol Street or by Metrobus.

**Table 8: Metrobus Route Information**

Route Number	Route Name	Service Hours	Headway	Walking Distance to Nearest Bus Stop
U5, U6	Mayfair – Marshall Heights Line	Weekdays: 4:45 AM – 1:16 AM Weekends: 5:20 AM – 2:44 AM	Weekdays: 12–36 minutes Weekends: 17–32 minutes	<0.1 miles, 1 minute
V2, V4	Capitol Heights-Minnesota Avenue Line	Weekdays: 4:15 AM – 2:50 AM Weekends: 4:35 AM – 2:46 AM	Weekdays: 3–32 minutes Weekends: 15–40 minutes	<0.1 miles, 1 minute
W4	Deanwood-Alabama Avenue Line	Weekdays: 5:06 AM – 2:18 AM Weekends: 6:05 AM – 2:08 AM	Weekdays: 10–30 minutes Weekends: 16–36 minutes	0.3 miles, 6 minutes
X9	Benning Road-H Street Limited Line	Weekdays: 6:23 AM – 7:16 PM	Weekdays: 11–20 minutes	0.3 miles, 5 minutes

The Blue and Silver Lines connects the site to southern and western portals of the City of Alexandria, VA and Reston, VA respectively, extending through downtown Washington via Metro Center and L’Enfant Plaza, before ending in Largo Town Center to the east. Blue and Silver Line trains run every 8 minutes during the weekday morning and afternoon peak hours between 5:00 AM to 9:30 AM and 3:00 PM to 7:00 PM and approximately every 12 minutes during the weekday midday hours from 9:30 AM to 3:00 PM and every 12 to 20 minutes during the weekday off-peak periods and on weekends.

The site is also serviced by local Metrobus routes, providing the site with additional connectivity to the Deanwood, Minnesota Avenue, and Capitol Heights Metrorail Stations, in addition to the aforementioned Benning Road station, where transfers can be made to other bus routes and the Metrorail lines, providing connectivity to the downtown core and other areas of the District, Maryland, and Virginia. 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*. A detailed breakdown of individual bus stop amenities and conditions is included in the Technical Attachments.



## PROPOSED TRANSIT SERVICE

### MoveDC

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. *MoveDC* is a long-range plan that provides a vision for the future of DC's 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 complete by 2040. The plan hopes to achieve a transportation system for the District that includes:

- 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

No transit related improvements were outlined in the MoveDC plan that directly affect the proposed development.

### WMATA and DDOT Transit Studies

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 Benning Road station can currently accommodate future growth at all access points, in addition to the Capitol Heights, Deanwood, and Minnesota Avenue stations.

In 2014, WMATA and DDOT initiated the *Metrobus U-V Lines Study* to review capacity, reliability, and quality of service along the U and V lines. Relevant to this CTR, the U5, U6 Mayfair-Marshall Heights lines were evaluated, which directly serves the project site as a local circulator to the Benning Road and Minnesota Avenue Metro Stations. The study found that: (1) Headways along the U5, U6 lines did not meet the criteria of 15 minutes during peak periods and 30 minutes during other periods in both directions; (2) The U5 and U6 lines met the study targets for ridership, cost recovery from fares, and subsidy per passenger; (3) The lines suffered from on-time performance during the morning Peak (U5), afternoon Peak (U5, U6), and Sunday (U5, U6) periods when bus runs did not meet the 80% on-time threshold. Sunday service revealed the U5 route failing its on-time threshold from midday until the end of service; (4) The U5, U6 routes were found to include segments of narrow streets difficult to serve during snowy conditions; and (5) A general lack of amenities at bus stops along the route. Recommendations from this study included additional morning Peak period trips in order to meet the headway criteria, calibration of running time in order to meeting on-time performance criteria, and improvement of bus stop amenities, including information cases, trash receptacles, and bus stop shelters.

As a result of the study, additional trips have been added to meet the criteria of 15-minute headways during peak periods and 30 minutes during other periods in both directions (as seen in Table 8). Routing has been changed to eliminate narrow streets and to serve new developments along the route. The implementation of bus stop amenities is on-going.

WMATA has also 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 is at or below its capacity during peak periods of the day.

## SITE IMPACTS

### Transit Trip Generation

The PNBC Residential development is projected to generate 21 transit trips (4 inbound, 17 outbound) during the morning peak hour and 29 transit trips (19 inbound, 10 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 20253 and data shows that approximately 72 percent of transit riders used Metrobus and the remainder use Metrorail. That said, approximately 6 people will use Metrorail and 15 will use Metrobus during the morning peak hour; approximately 8 people will use Metrorail and 21 will use Metrobus during the afternoon peak hour.

Even though it is expected that the majority of new trips will be made via Metrobus and Metrorail, site-generated transit trips will not cause detrimental impacts to Metrobus or Metrorail service.

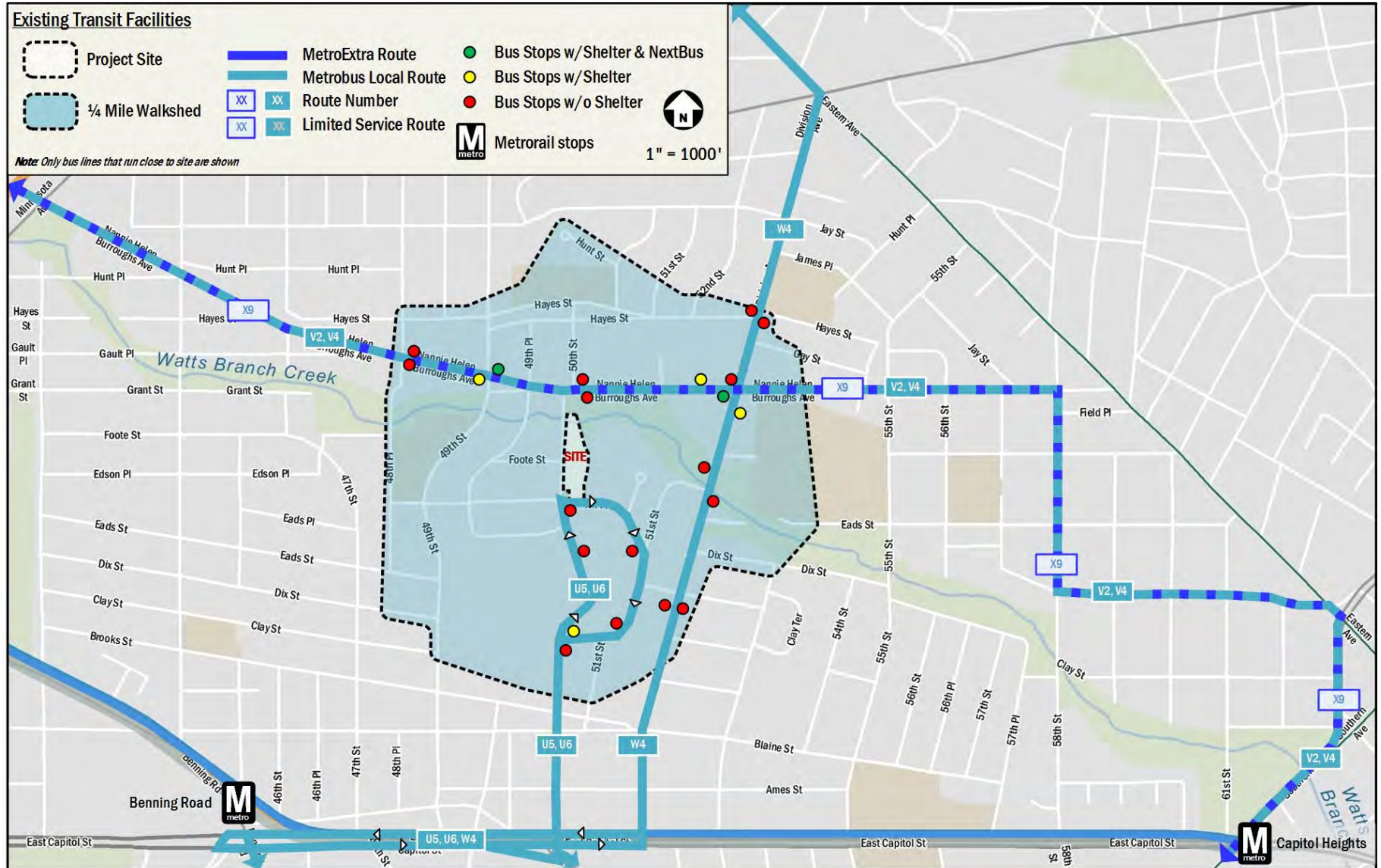


Figure 21: Existing Transit Service



## 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 the majority of primary routes to pedestrian destinations.
- The site is expected to generate a minimal amount of pedestrian trips; however, the pedestrian trips generated by walking to and from transit stops will be more substantial, particularly bus stops within a five minute walk.

### 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 generally accessible to transit options such as bus stops directly adjacent to the site along Fitch Place, Nannie Helen Burroughs Avenue, and Division Avenue. There are some 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, and incomplete or insufficient crossings at busy intersections. 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 few 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 9.

Within the area shown, the majority of roadways are considered residential with a low to moderate density, with a portion of Nannie Helen Burroughs Avenue considered commercial. Although most of the sidewalks surrounding the site do not comply with DDOT standards, this is more a consequence of insufficient sidewalk and buffer widths than sidewalks of poor quality. All primary pedestrian destinations are accessible via routes with sidewalks, some of which met DDOT standards. Additionally, the Marvin Gaye Trail provides an alternate walking environment for east-west travel.

ADA standards require that curb ramps be provided wherever an accessible route crosses a curb and must have a detectable warning. Additionally, curb ramps shared between two crosswalks are not desired. As shown in Figure 23, under existing conditions crosswalks and curb ramps with detectable warnings are generally absent adjacent to the site; however, this is generally due to a lack of detectable warning surfaces rather than a lack of curb ramp itself.

### Pedestrian Infrastructure Improvements

As a result of the development, pedestrian facilities around the perimeter of the site will be improved to meet DDOT and ADA standards. This includes the installation or reconstruction of sidewalks along 50<sup>th</sup> Street, Fitch Place, and the relocated PNBC driveway that will meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as a courtyard connecting to Fitch Place to improve pedestrian

Table 9: 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



circulation. The inclusion of plantings, fencing, and streetscaping will result in improvements over existing conditions. The expected pedestrian infrastructure is shown in Figure 24.

## SITE IMPACTS

### **Pedestrian Trip Generation**

The PNBC Residential development is expected to generate 2 walking trips (0 inbound, 2 outbound) during the morning peak hour and 2 walking trips (2 inbound, 0 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;
- 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, including bus stops within a five minute walk.

The pedestrian network, following site-related improvements, will have the capacity to absorb the newly generated trips from the site.



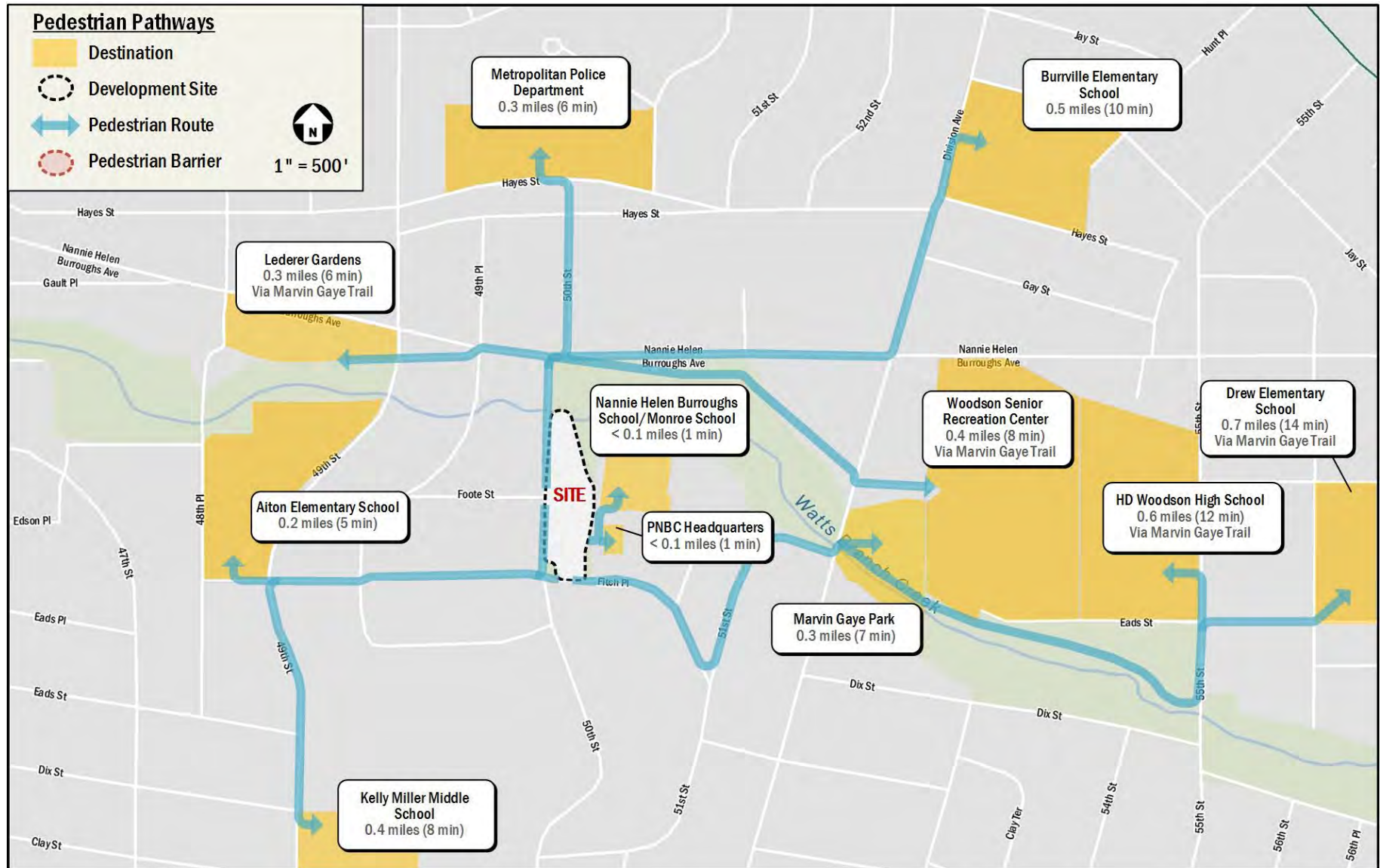


Figure 22: Pedestrian Pathways

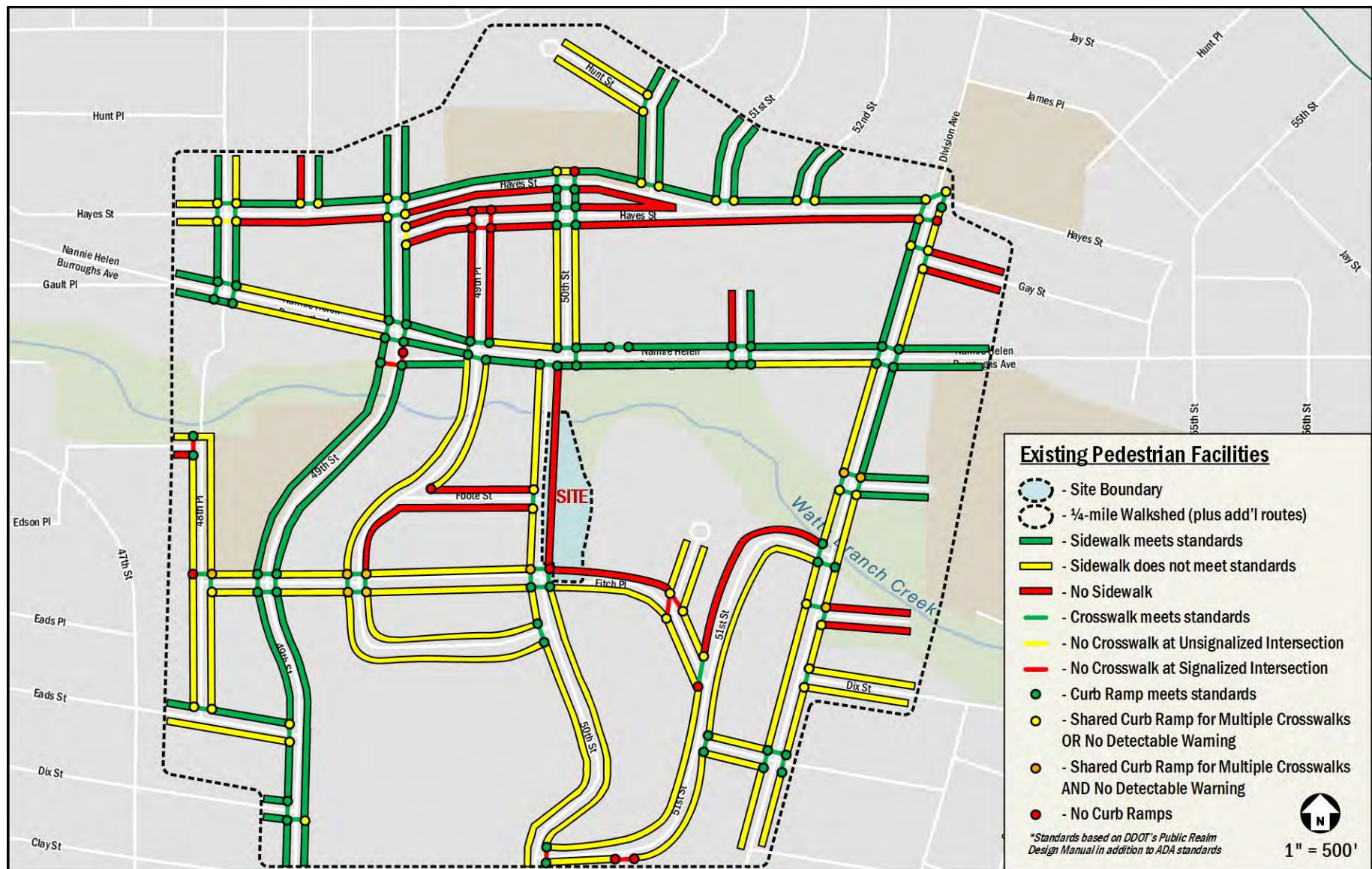


Figure 23: Existing Pedestrian Infrastructure



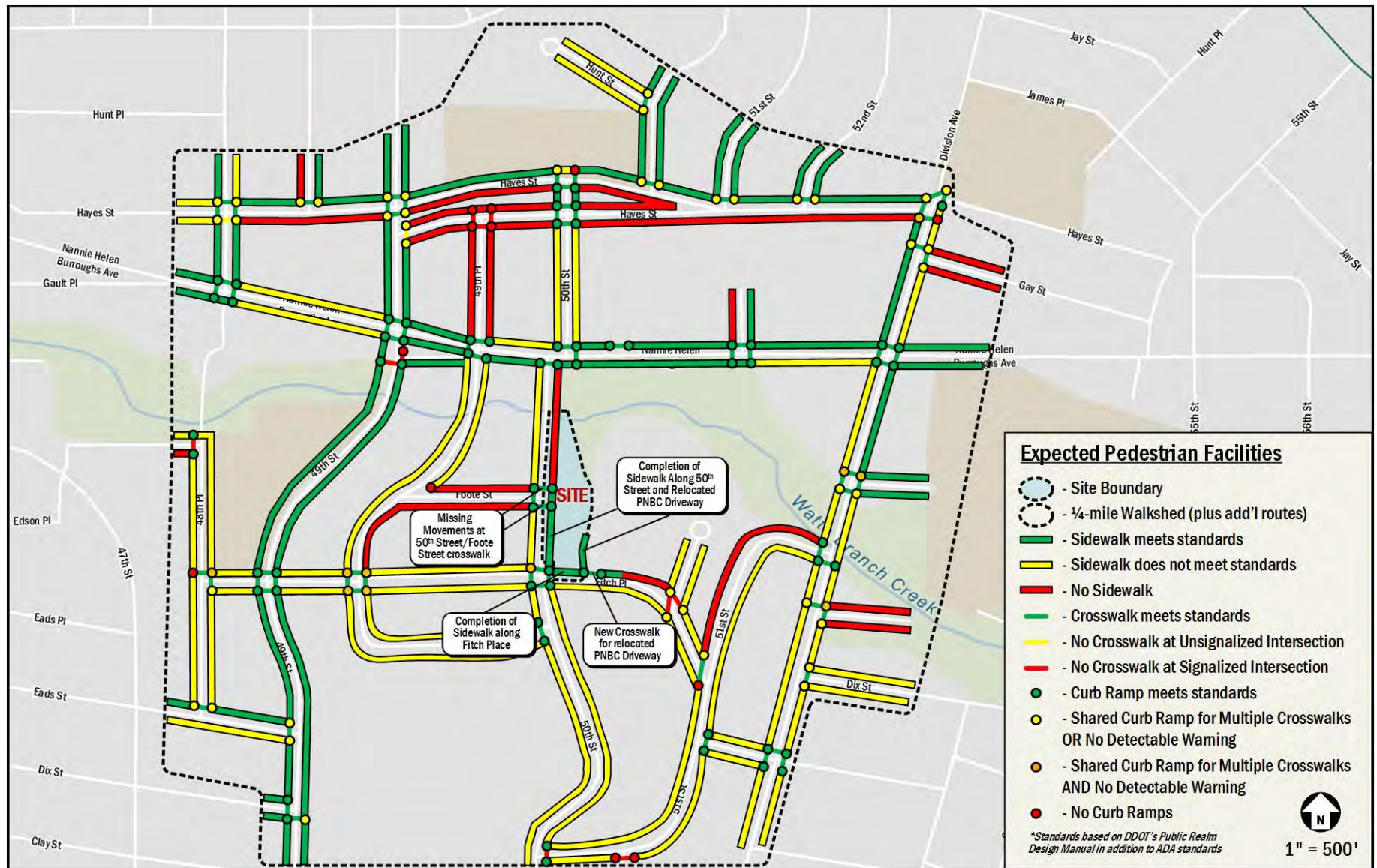


Figure 24: Expected Pedestrian Infrastructure



## 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 Marvin Gaye Trail and 49<sup>th</sup> Street Bicycle Lanes.
- 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 secure bicycle parking on site for residents of the development.
- The development will include short-term bicycle racks along the perimeter of the site.

### EXISTING BICYCLE FACILITIES

The site has excellent connectivity to existing on- and off-street bicycle facilities. Residential low volume streets surrounding the site provide connectivity to existing bicycle facilities near the site. The Marvin Gaye Trail is approximately 0.1 miles from the site via 50<sup>th</sup> Street, NE, providing connections to the Fort Circle Trail to the west and the Maryland State Line at Southern Avenue to the east. 49<sup>th</sup> Street, NE provides a north-south link to and from the site, utilizing a series of shared lanes and bicycle lanes from East Capitol Street to Minnesota Avenue, adjacent to the Deanwood Metrorail Station. Supplementary east-west connectivity is achieved via shared lanes and bicycle lanes along Nannie Helen Burroughs Avenue from 44<sup>th</sup> Street, NE to the Maryland State Line at Southern Avenue. The site is located approximately two blocks the facilities on Nannie Helen Burroughs Avenue and 49<sup>th</sup> Street, NE.

These bicycle facilities provide the site with connectivity to areas within the District, Maryland and Virginia. Figure 25 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.

### PROPOSED BICYCLE FACILITIES

#### MoveDC

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 no tier 1 additions planned for 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 are two tier 2 additions that will positively affect bicycle connectivity to and from the site. A 1.4 mile bicycle lane along 49<sup>th</sup> Street, NE between Minnesota Avenue and East Capitol Street is planned, replacing the current shared lane system in place for this portion. Additionally, a 1 mile bicycle lane along Division Avenue between Eastern Avenue and Sheriff Road is planned, which will greatly improve the north-south 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.

### **Capital Bikeshare**

The Capital Bikeshare program provides additional cycling options for residents, employees, and patrons of the planned development. The Bikeshare program has placed over 400 Bikeshare stations across Washington, DC, Arlington, and Alexandria, VA, Montgomery County, MD, and most recently Fairfax County, VA, with over 3,500 bicycles provided. Capital Bikeshare currently has two existing Capital Bikeshare stations with 22 available bicycle docks within a quarter-mile biking distance of the site at the intersection Nannie Helen Burroughs Avenue and 49<sup>th</sup> Street, and at the intersection of Division Avenue and Foote Street. Figure 25 illustrates the existing Capital Bikeshare facilities in the area.

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

The project will include approximately 3 short-term bicycle racks for 6 bicycles at street level along the perimeter of the site on 50<sup>th</sup> Street and Fitch Place near the primary pedestrian access points. These short-term spaces will include inverted U-racks placed in a high-visibility area. The Applicant is coordinating with DDOT to locate these racks in public space.

The project will also include secure long-term bicycle parking. The plans identify a total of approximately 34 long-term spaces in the below-grade parking garage for residents of the proposed development, which meets current ZR16 regulations. As part of the development's TDM plan, an onsite bicycle repair station will be provided in the long-term bicycle storage room.

## **SITE IMPACTS**

### **Bicycle Trip Generation**

The PNBC Residential development is expected to generate 1 bicycle trip (0 inbound, 1 outbound) during the morning peak hour and 2 bicycle trips (1 inbound, 1 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.

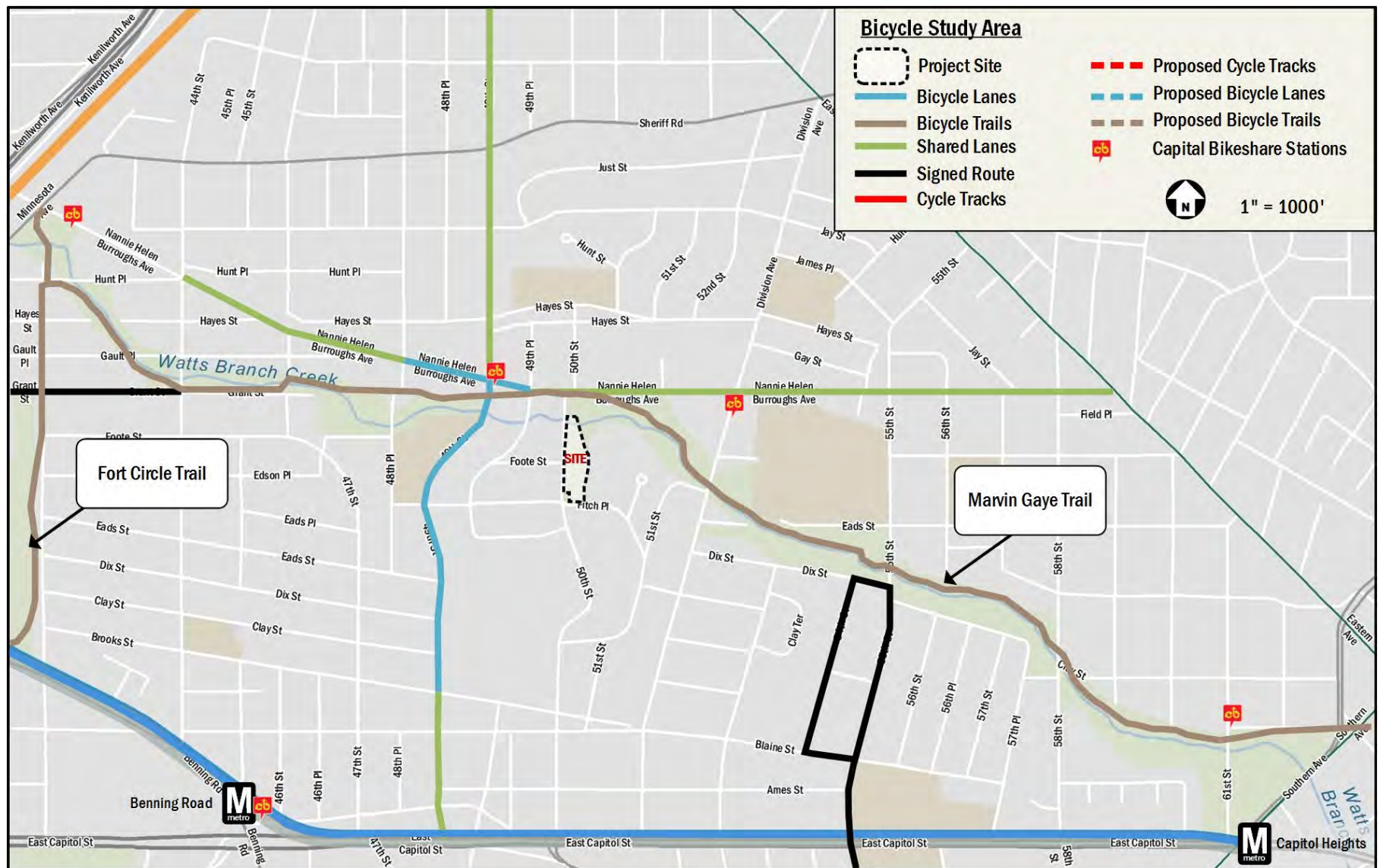


Figure 25: Existing Bicycle Facilities



## 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 10.

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. None of the intersections in this study area meet this criterion (as shown in Table 10 and detailed in Table 11). The PNBC Residential development should be developed in a

manner to help alleviate, or at minimum not add to, the conflicts at this intersection.

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.

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 11 contains a breakdown of crash types reported for the four study intersections with crash data.

**Table 10: Intersection Crash Rates**

Intersection	Total Crashes	Ped Crashes	Bike Crashes	Rate per MEV*
1. 49th Street and Nannie Helen Burroughs Avenue, NE	16	1	1	0.71
2. 50th Street and Nannie Helen Burroughs Avenue, NE	10	0	0	0.67
3. 50th Street and Foote Street, NE	1	0	0	0.65
4. 50th Street and Fitch Place, NE	1	0	0	0.51
5. 50th Street and Site Driveway, NE <sup>^</sup>	--	--	--	--

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

<sup>^</sup> - Crash Data Unavailable

**Table 11: 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
49th Street and Nannie Helen Burroughs Avenue, NE	0.71	0 0%	0 0%	1 6%	2 13%	1 6%	1 6%	0 0%	2 13%	1 6%	0 0%	3 19%	0 0%	0 0%	5 31%	16
50th Street and Nannie Helen Burroughs Avenue, NE	0.67	3 30%	2 20%	1 10%	1 10%	1 10%	0 0%	0 0%	1 10%	0 0%	0 0%	0 0%	0 0%	0 0%	1 10%	10
50th Street and Foote Street, NE	0.65	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1 100%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1
50th Street and Fitch Place, NE	0.51	0 0%	0 0%	0 0%	0 0%	0 0%	1 100%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1



## SUMMARY AND CONCLUSIONS

This report is a Comprehensive Transportation Review (CTR) for the PNBC Residential Consolidated Planned Unit Development (PUD). The report reviews the transportation aspects of the project's PUD application. The Zoning Commission Case Number is 17-08. This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network assuming that all planned site design elements and potential mitigation measures are implemented.

### Proposed Project

The site is currently an 18-space surface parking lot and is generally bounded by Nannie Helen Burroughs Avenue, NE to the north, Fitch Place, NE to the south, and 50<sup>th</sup> Street, NE to the west. The site is a part of the Progressive National Baptist Convention (PNBC) campus, which includes the group's headquarters, an existing chapel, charter school, and dormitory. The PNBC development will consist of replacing the surface lot with approximately 100 mixed-income residential dwelling units, and approximately 48 below-grade parking spaces for residents. Approximately 35 of the 100 units will be reserved as affordable replacement units for the Lincoln Heights/Richardson Dwellings properties managed by the D.C. Housing Authority (DCHA).

The site is currently zoned Residential Apartment (RA-1), with the Applicant requesting a change in zoning to RA-2.

Vehicular and loading access for the project will be provided via the garage entry along 50<sup>th</sup> Street, NE, with loading and trash operations taking place within the garage.

As part of the development, sections of the roadway network surrounding the site will be improved. The construction of the development will result in the new curb cuts serving the PNBC campus at Fitch Place, NE.

Pedestrian facilities along the perimeter of the project will be improved so that they meet or exceed DDOT and ADA standards. This includes the installation of sidewalks along 50<sup>th</sup> Street, NE and Fitch Place, NE that meet or exceed width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as streetscaping, fencing, and plantings, to improve pedestrian circulation.

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

### Multi-Modal Impacts and Recommendations

#### *Transit*

The site is served by regional and local transit services via Metrobus and Metrorail. The site is 0.8 miles from the Benning Road Metrorail Station, with Metrobus stops located within walking distance of the site along Fitch Place, Nannie Helen Burroughs Avenue, and Division Avenue.

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

#### *Pedestrian*

The site is surrounded by a pedestrian network with adequate infrastructure present. Most roadways within a quarter-mile radius provide sidewalks and acceptable crosswalks and curb ramps, particularly along the primary walking routes. There are however, many residential streets to the south and west of the site which lack sidewalks, curb ramps, or crosswalks that meet DDOT and ADA standards.

As a result of the development, pedestrian facilities along the south and west perimeter of the site will be improved, including the installation of missing sidewalks that meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as a courtyard connecting to Fitch Place improve pedestrian circulation.

The development will generate minimal pedestrian trips and the improved facilities will be able to handle the new trips.

#### *Bicycle*

The site has excellent connectivity to existing on- and off-street bicycle facilities. The site is one block from the bicycle lane on 49<sup>th</sup> Street, 0.1 miles from the Marvin Gaye Trail, and two blocks from bicycle facilities along Nannie Helen Burroughs Avenue.

The development will provide short-term bicycle parking along the perimeter of the site and on-site secure long-term bicycle parking within the garage for residents of the development.





The amount of bicycle parking provided meets zoning requirements.

The development will generate minimal bicycle trips and the proposed facilities to be built will be able to handle the new trips.

#### *Vehicular*

The site is accessible from regional roadways, such as the Anacostia Freeway (DC Route 295), several principal and minor arterials such as Nannie Helen Burroughs Avenue and Division Avenue, 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 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 the intersection of 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, NE in the vicinity of the site operates above capacity as a result of the buildout of the development.

After exploring options for mitigating impacts at this intersection, this report is recommending that a reallocation in green signal time of 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, NE can mitigate the impacts of the proposed 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 and mitigation measures are implemented.

The development will utilize a robust Transportation Demand Management (TDM) Plan that has numerous positive elements designed to curtail the demand of single-occupancy, private vehicles during peak period travel times. These include elements such as providing short-term and secure long-term bicycle spaces that meet zoning requirements and providing each unit's incoming residents with either a one-year bikeshare or carshare membership.