

**COMPREHENSIVE TRANSPORTATION REVIEW**

# **THE STRAND RESIDENCES PUD**

**WASHINGTON, DC**

**October 2, 2017**



**ZONING COMMISSION**  
District of Columbia  
CASE NO.17-10  
EXHIBIT NO.26A

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## EXECUTIVE SUMMARY

The following report is a Comprehensive Transportation Review (CTR) for the Strand Residences Planned Unit Development (PUD). The report reviews the transportation aspects of the project's PUD application. The Zoning Commission Case Number is 17-10.

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

### Proposed Project

The Strand Residences site (the "Site") is located at 5119-5123 and 5127 Nannie Helen Burroughs (NHB) Avenue NE and is generally bounded by NHB Avenue NE to the north, a church parking lot to the south and west, and Division Avenue NE to the east. The Site is adjacent to the Strand Theater, a historical landmark that is currently vacant. The Site will include a six-story building consisting of 86 residential units and approximately 1,400 square feet of ground-floor retail facing NHB Avenue NE.

The Site is currently zoned low-density Mixed-Use (MU-3). The Applicant requests a change in zoning to medium-density Mixed-Use (MU-5A) consistent with the Comprehensive Plan's Future Land Use for this area and allows a greater height and floor area ratio (FAR) for which the PUD is seeking.

Vehicular and loading access for the project will be provided from the reconfigured alley accessible from Division Avenue. Loading and trash operations will take place within the loading dock, adjacent to the garage and accessible by the alley. As part of the development, the existing alley will be relocated to the southern edge of the project site, replacing a development located at 612 Division Avenue NE.

Pedestrian facilities along the perimeter of the project will be improved so that they meet or exceed DDOT and ADA standards.

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 1.1 miles from the Benning Road Metrorail Station, with Metrobus stops located within walking distance of the site along Fitch Place, NHB Avenue, and Division Avenue.

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

#### *Pedestrian*

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

As a result of the development, pedestrian facilities along the north and east perimeter of the site will be improved, including the installation of sidewalks that meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as an alarm to warn pedestrians when vehicles are exiting the alley.

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 adjacent to shared lanes along NHB Avenue, 0.1 miles from the Marvin Gaye Trail, and four blocks from bicycle lanes along 49<sup>th</sup> Street.

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 existing facilities will be able to handle these new trips.

#### *Vehicular*

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, and an existing network of collector and local roadways.

In order to determine impacts that the proposed development will have on the transportation network, this report projects future conditions with and without the proposed development 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 Nannie Helen Burroughs Avenue and Division Avenue, NE needs mitigation as a result of the proposed development.

After exploring options for mitigating impacts at this intersection, this report is recommending that one improvement be considered for implementation. The analyses contained in the report demonstrate that a reallocation in green signal time of Division Avenue and Nannie Helen Burroughs Avenue, NE can reduce delay to levels seen in existing conditions. This report recommends that DDOT review and consider this change. If DDOT were to explore this idea further, this report recommends that the Applicant support their efforts and coordinate possible implementation.

#### *Summary and Recommendations*

This report concludes that the Strand Residences development **will not** have a detrimental impact to the surrounding transportation network, as long as the project implements the recommendations as follows:

- All planned site design elements and mitigation measures are implemented.
- Implement a robust Transportation Demand Management (TDM) plan to curtail the demand of single-occupancy, private vehicles during peak period travel times. These include elements such as bicycle parking and carshare/bikeshare packages for new residents.
- Implement a loading management plan for residential loading uses, as detailed in this report.



## INTRODUCTION

This report is a Comprehensive Transportation Review (CTR) of the Strand Residences project. This report reviews the transportation aspects of the Planned Unit Development (PUD) application. The Site, shown in Figure 1 and Figure 2, is located at Square 5196, Lots 0019, 0037, and 0805 in the Lincoln Heights neighborhood in Northeast DC. The Site is currently zoned low-density Mixed-Use (MU-3), with the Applicant requesting a change in zoning to medium-density Mixed-Use (MU-5A). This CTR will be submitted into the Zoning Commission record for this case, as an evaluation of the transportation impacts of the proposed development. The Zoning Commission Case Number is 17-10.

### 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 Strand Residences PUD will redevelop three parcels adjacent to the Strand Theater. The development plan proposes a six-story building with approximately 86 residential units and 1,400 square feet of ground-floor retail. A total of 20 parking spaces will be provided, with two (2) surface spaces and 18 spaces in a ground-level parking garage. Twenty-eight

(28) of the 86 units will be replacements for the Lincoln Heights and Richardson Dwellings properties managed by DCHA, in accordance with the District's New Communities Initiative (NCI), a program "designed to revitalize severely distressed subsidized housing and redevelopment communities plagued with concentrated poverty, high crime, and economic segregation." The Lincoln Heights neighborhood is one of four communities within the District designated for NCI.

### 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.



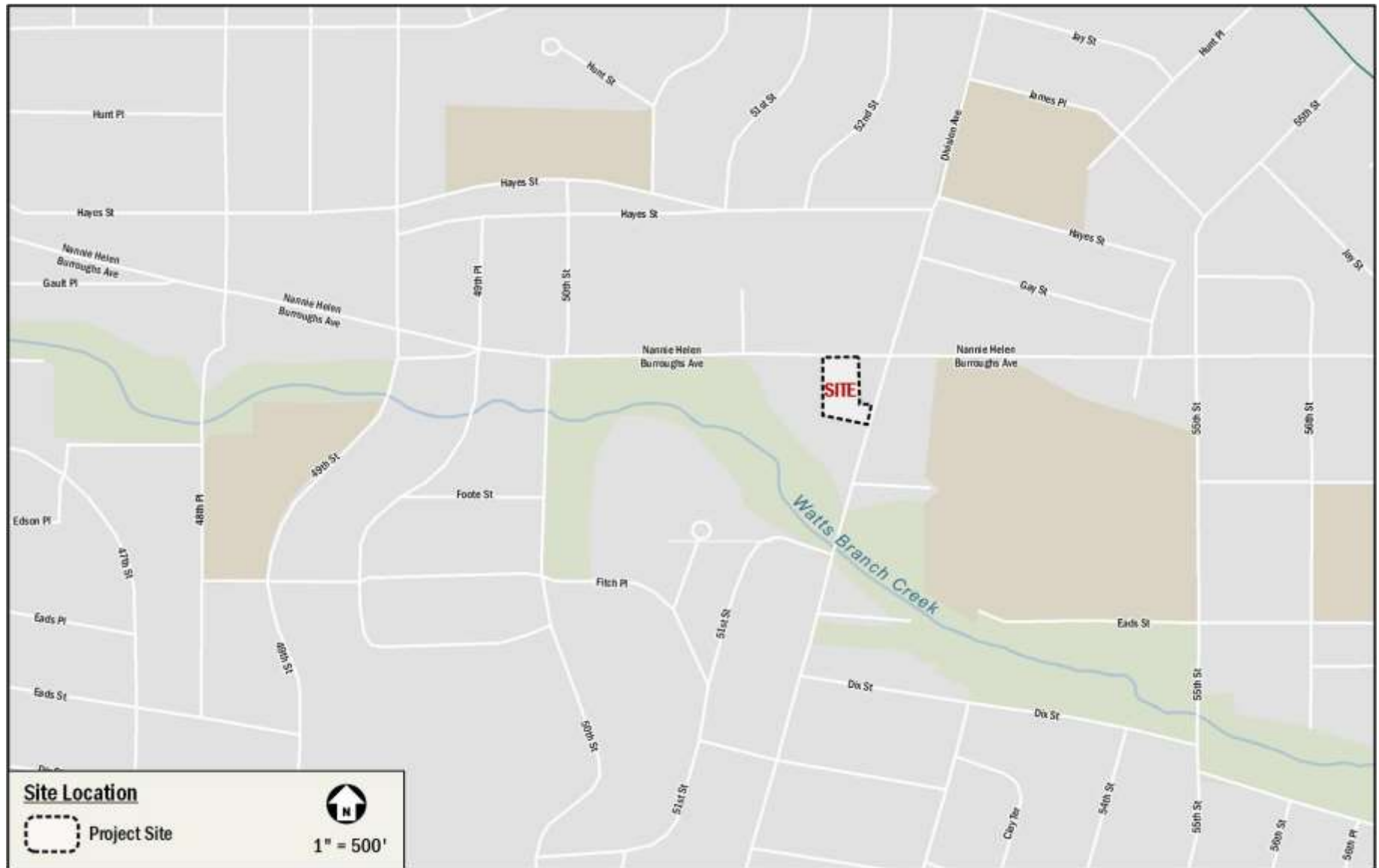


Figure 1: Site Location



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 northeast and northwest of the Site, such as missing sidewalks, crosswalks and curb ramps.

### MAJOR TRANSPORTATION FEATURES

#### Overview of Regional Access

As shown in Figure 3, the Strand Residences Site has ample access to regional vehicular and transit based transportation options, 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 1.1 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. The Site is also approximately 1.2 miles from the Deanwood Metrorail station, serving the Orange line and providing eastbound connections to New Carrollton—a

transfer point for MARC and Amtrak services. In addition, the Blue and Orange 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 4. The Site is directly 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, these roads connect with regional thoroughfares, such as Minnesota Avenue and East Capitol Street.

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 4, there are six (6) bus routes that service the Site. Adjacent to the Site, there are four (4) bus stops along Nannie Helen Burroughs Avenue and Division Avenue, with an additional two (2) stops along Fitch Place, south of the Site. 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. Additionally, other planned





roadway improvements will help increase the walkability and bikeability in the Lincoln Heights neighborhood.

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

### Carsharing

Three carsharing companies provide service in the District: Zipcar, Maven, and Car2Go. All three services are private companies that provide registered users access to a variety of automobiles. Of these, Zipcar 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, 1.1 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.

### 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 new bicycle lanes along 49<sup>th</sup> Street and Division Avenue, adjacent to the Site. These recommendations would create additional multi-modal capacity and connectivity to the proposed development and are discussed further in the Bicycle Facilities section.

##### *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

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>



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 Strand Residences 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 pedestrian refuges and removal of parking spaces at 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, four (4) blocks west of the Site. This recommendation had not been implemented at the time of field data collection.

#### *Lincoln Heights/Richardson Dwellings New Communities Revitalization Small Area Plan*

Part of the New Communities initiative to revitalize and reinvest into blighted communities, this Small Area Plan aims to redevelop the Lincoln Heights neighborhood, with the focal point located at the intersection of Nannie Helen Burroughs Avenue and Division Avenue, NE. The redevelopment plan will consist of:

- Demolition of the Lincoln Heights public housing complex, to be replaced with over 1,400 units of mixed-income housing
- 30,000 square feet of retail/commercial space and community facilities

- Integrating the Lincoln Heights and Richardson Dwellings public housing properties within the larger community, rather than leaving them isolated

The Strand Residences PUD will contribute directly to the plan’s goals, with 28 units reserved as replacement units for Lincoln Heights/Richardson Dwellings and all 86 units reserved for 60% of median family income (MFI).

#### **Planned Developments**

There are several potential development projects in the vicinity of the Strand Residences 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 (1) was ultimately included and is described below. Figure 5 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 Strand Residences, and will thus be included in the analysis.

Another potential project is the PNBC Residential PUD, located a few blocks to the southwest. 100 mixed-income units are proposed. Although the development is within the study area, it is not approved and will not be included in the analysis.

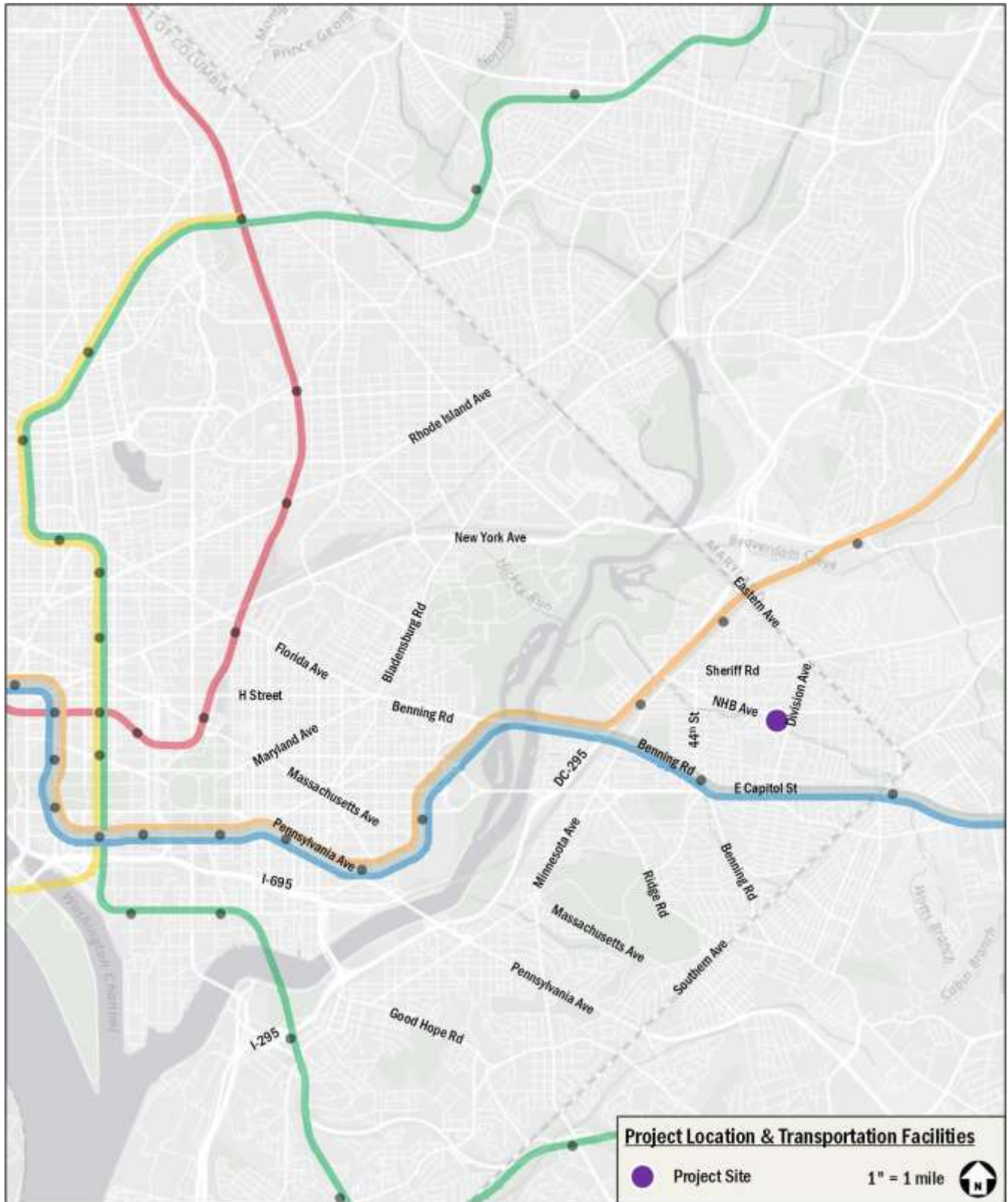


Figure 3: Major Regional Transportation Facilities

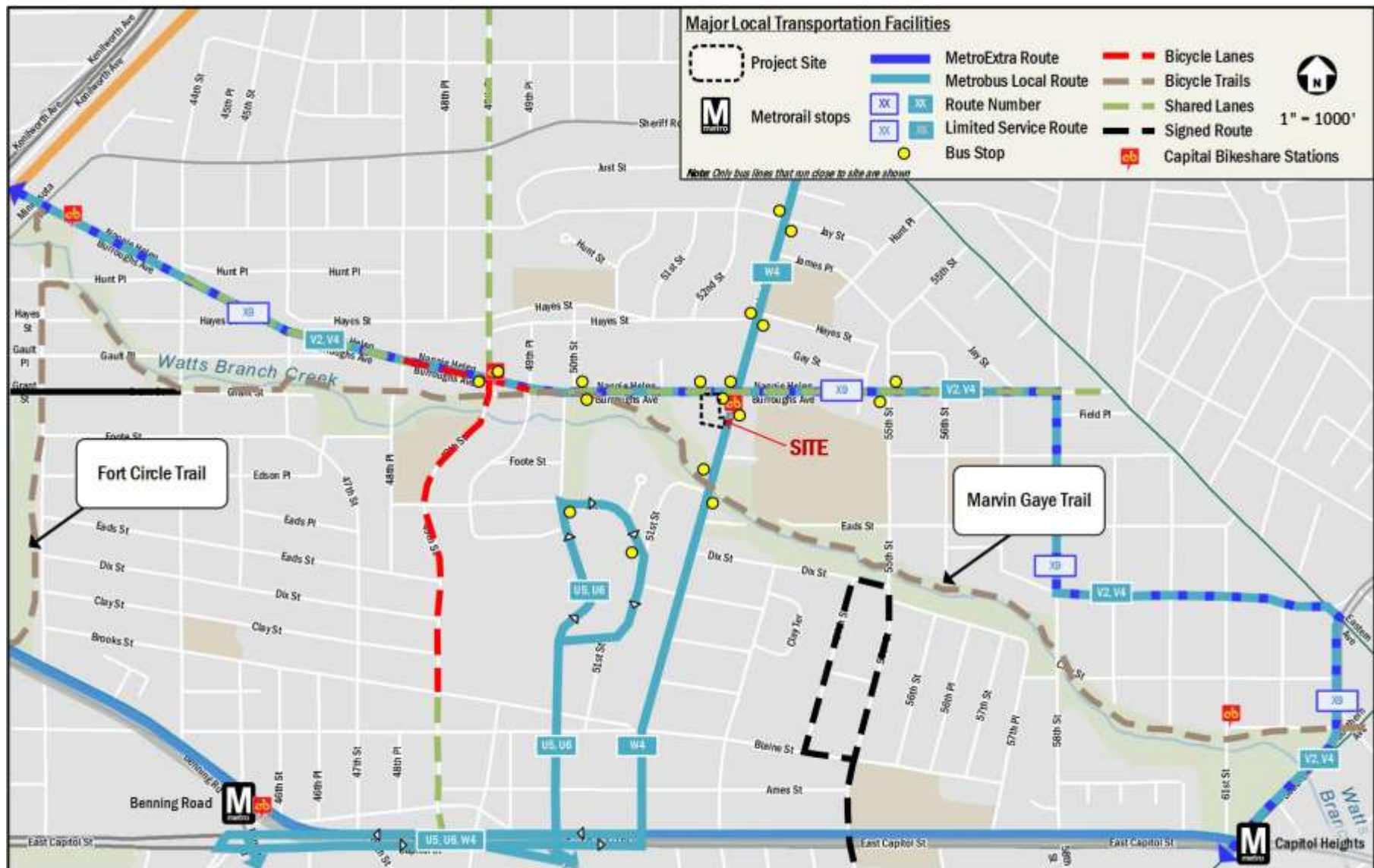


Figure 4: Major Local Transportation Facilities



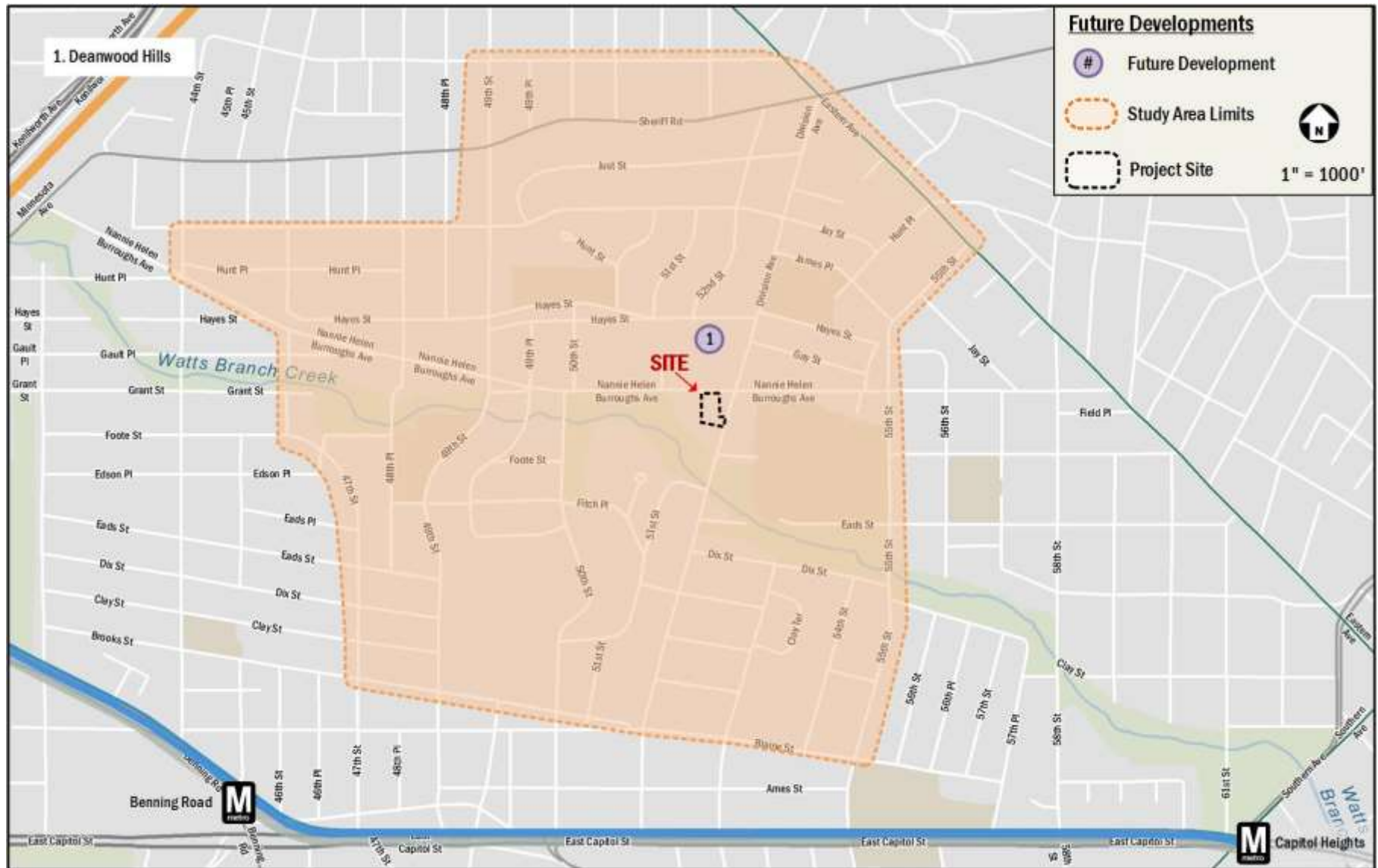


Figure 5: Planned Development Map





## PROJECT DESIGN

This section reviews the transportation components of the Strand Residences development, including the proposed Site plan and access points. It includes descriptions of the proposed development'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 currently occupied by a single-story building at 5119-5123 NHB Avenue, a vacant two-story building at 5127 NHB Avenue, and a building housing a restaurant at 612 Division Avenue. The development will improve the three parcels to create a six-story mixed-use building immediately west of the historic Strand Theater, with frontage along NHB Avenue and the public alley to the south. In utilizing the Division Avenue parcel, the current alley connecting to Division Avenue will be shifted south in the space occupied by 612 Division Avenue, allowing for parking and loading access to the development.

The Strand Residences development will consist of 86 affordable residential dwelling units, approximately 1,400 square feet of ground-floor retail, and 20 parking spaces (2 surface and 18 ground-level garage) for residents and retail customers/employees. Twenty-eight (28) of the 86 units will replace affordable units at nearby residence complexes managed by the D.C. Housing Authority.

Figure 6 shows an overview of the development program and site plan elements.

### SITE ACCESS AND CIRCULATION

#### **Pedestrian Access**

The primary pedestrian entrances for the residential and retail components will be along Nannie Helen Burroughs Avenue, NE, adjacent to the Strand Theater. Auxiliary pedestrian access to the development is available through use of the garage entrance from the relocated alley.

#### **Bicycle Access**

Bicycle access to the secure long-term bicycle parking in the ground-level parking garage will be from the garage entrance via Division Avenue and the relocated alley. Thirty-one (31) long-term secure bicycle spaces will be provided in a dedicated storage room. Additionally, passageways leading to the

elevators connecting to the residential levels are available for bicyclists who wish to store their bikes in their units. Short-term spaces in the form of bicycle racks will be along the Site frontage.

#### **Vehicular Access**

Vehicular access to the development will be provided by one proposed curb cut on Division Avenue, which will replace the curb cut to the existing alley. The existing curb cut will be removed with the new curb cut placed approximately 40 feet south. This new curb cut will provide access to a new 15-foot wide alley with a public access easement. This new alley will provide access to the parking and loading facilities. The relocation of the alley will also continue to provide access to a parking lot for patrons at the Sargent Memorial Presbyterian Church, located immediately south of the Site.

The loading zone will be adjacent to the parking garage, with vehicular backing maneuvers expected into the loading area. Trash pick-up is expected to occur in the loading zone.

Truck routing to and from the Site will be focused on designated primary truck routes, such as the Anacostia Freeway, Eastern Avenue, and Benning Road, to access Nannie Helen Burroughs Avenue.

A circulation plan with vehicular and pedestrian routes is shown on Figure 7. 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. Relief is being requested for the 30-foot long loading berth as required by zoning. A 12-foot wide, 20-foot long delivery space with back-in/head-out loading maneuvers is proposed. The delivery space will primarily service waste collection trucks for trash removal. Trash services will be accomplished with the utilization of rolling dumpsters to transfer waste from the trash room to the waste collection trucks. Residential loading operations will take place within the delivery space.

A loading management plan was developed to minimize any impacts from loading activities related to the development, with the following elements:



- A loading manager will be designated by the building management. The manager will coordinate with residents to schedule deliveries and will be on duty during delivery hours.
- Residents will be required to schedule move-in and move-outs with the loading manager through leasing regulations.
- The dock manager will coordinate with trash pick-up to help move loading expeditiously between their storage area inside the building and the curb beside the loading area to minimize the time trash trucks need to use the loading area.
- Trucks using the loading area will not be allowed to idle and must follow all District guidelines for heavy vehicle operation including but not limited to DCMR 20 – Chapter 9, Section 900 (Engine Idling), the regulations set forth in DDOT’s Freight Management and Commercial Vehicle Operations document, and the primary access routes listed in the DDOT Truck and Bus Route System.
- The loading manager will be responsible for disseminating DDOT’s Freight Management and Commercial Vehicle Operations document to drivers as needed to encourage compliance with District laws and DDOT’s truck routes. The dock manager will also post these documents in a prominent location within the service area.

The proposed development is expected to generate approximately six (6) loading trips per day. This includes three (3) general deliveries consisting of trash removal, mail, and parcel delivery, approximately one (1) residential delivery, calculated based on an average unit turnover of 18 months with two deliveries per turnover (one move-in and one move-out), and two (2) retail deliveries. Figure 6 shows the location of the loading zone and trash removal services.

Based on the expected truck deliveries and the loading facilities provided, this report concludes that the loading plan for the Site is adequate.

## PARKING

The parking provided by the PUD should accommodate all parking needs on-site. Based on ZR16 requirements for the proposed MU-5A zone, the residential portion of the building is required to provide one (1) space per three (3) dwelling units in excess of four (4) units, for a total of 29 spaces. The retail

portion of the development is not required to provide any spaces due to its size. As allowable by 11 DCMR Subtitle C § 702.1(c)(4), a 50% reduction in required parking is warranted as the Site is within 0.25 miles of a Priority Corridor Network Metrobus Route stop, in this case the X9 MetroExtra stop at Nannie Helen Burroughs Avenue and Division Avenue, NE. With the applicable reduction, the development is required to provide 15 parking spaces.

The Site will include a total of 20 parking spaces, including two (2) surface spaces for short term usage and a ground-level parking garage with 18 total parking spaces for residents, at a ratio of 0.23 spaces per dwelling unit. This amount includes nine (9) compact spaces and (1) handicap-accessible space.

## BICYCLE AND PEDESTRIAN FACILITIES

### Bicycle Facilities

Based on ZR 2016 requirements, the residential portion is required to supply one (1) short-term bicycle parking space for every 20 dwelling units, therefore the development is required to supply five (5) short-term bicycle spaces. The retail portion is required to provide one (1) short-term space for every 3,500 feet, resulting in one (1) space. The project will meet this requirement by supplying approximately four (4) bicycle racks to accommodate 8 bicycles. These short-term spaces will include inverted U-racks placed along the Site frontage 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, the residential portion of the building is required to supply one (1) long-term bicycle parking space for every three (3) dwelling units, resulting in a total of 29 long-term bicycle parking spaces. The retail portion is required to provide one (1) long-term space per 3,500 square feet, resulting in one (1) long-term space. The project will meet the required number of secure long-term spaces for residents in the ground-floor parking garage.

### 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 sidewalks along portions of NHB Avenue and Division Avenue that will meet or exceed



the width requirements, and additional design elements such as renovated streetscaping along NHB Avenue 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 Strand Residences 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 meet Zoning requirements to provide bicycle parking facilities at the proposed development. This includes secure parking located on-site and a minimum of 8 short-term bicycle parking spaces around the perimeter of the Site (in the form of 4 bicycle racks).
- The Applicant will provide a bicycle repair station to be located in the secure long-term bicycle storage room.
- The Applicant will install a Transportation Information Center Display (electronic screen) within the residential lobby containing information related to local transportation alternatives.

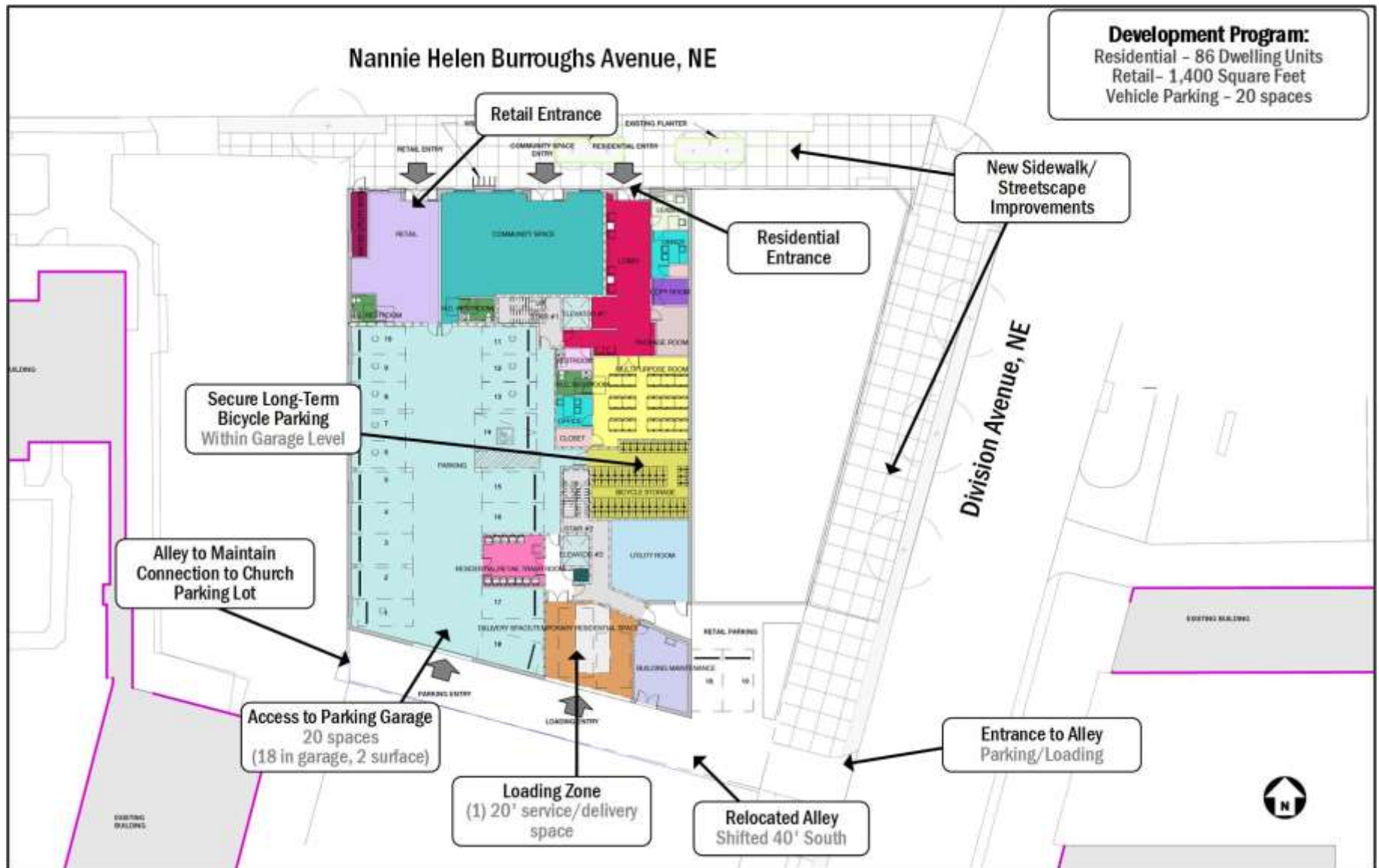


Figure 6: Site Plan







## TRIP GENERATION

This section outlines the transportation demand of the proposed Strand Residences project. It summarizes the projected trip generation of the development 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. Retail trip generation was calculated based on ITE land use 820, Shopping Center. Mode split for the retail component was primarily based on data for retail sites from the *WMATA Ridership Survey*, influenced by census data for employees that travel to the Site to take into account employees that will be arriving or departing during the peak hours. The vehicular mode split was then adjusted to reflect parking supply and the availability of on-street parking.

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 28 vehicular trips (6 in, 22 out) during the morning peak hour and 42 vehicular trips (26 in, 16 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%
Retail	60%	25%	2%	13%

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

Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto	Apartments	5 veh/hr	22 veh/hr	27 veh/hr	25 veh/hr	14 veh/hr	39 veh/hr
	Retail	1 veh/hr	0 veh/hr	1 veh/hr	1 veh/hr	2 veh/hr	3 veh/hr
	<b>Total</b>	<b>6 veh/hr</b>	<b>22 veh/hr</b>	<b>28 veh/hr</b>	<b>26 veh/hr</b>	<b>16 veh/hr</b>	<b>42 veh/hr</b>
Transit	Apartments	4 ppl/hr	14 ppl/hr	18 ppl/hr	16 ppl/hr	10 ppl/hr	26 ppl/hr
	Retail	1 ppl/hr	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
	<b>Total</b>	<b>5 ppl/hr</b>	<b>14 ppl/hr</b>	<b>19 ppl/hr</b>	<b>17 ppl/hr</b>	<b>11 ppl/hr</b>	<b>28 ppl/hr</b>
Bike	Apartments	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	0 ppl/hr	1 ppl/hr
	Retail	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr
	<b>Total</b>	<b>0 ppl/hr</b>	<b>1 ppl/hr</b>	<b>1 ppl/hr</b>	<b>1 ppl/hr</b>	<b>0 ppl/hr</b>	<b>1 ppl/hr</b>
Walk	Apartments	0 ppl/hr	2 ppl/hr	2 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
	Retail	0 ppl/hr	0 ppl/hr	0 ppl/hr	1 ppl/hr	0 ppl/hr	1 ppl/hr
	<b>Total</b>	<b>0 ppl/hr</b>	<b>2 ppl/hr</b>	<b>2 ppl/hr</b>	<b>2 ppl/hr</b>	<b>1 ppl/hr</b>	<b>3 ppl/hr</b>



## 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 Strand Residences 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. 2020 Future Conditions without the development (2020 Background)
3. 2020 Future Conditions with the development (2020 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:

- Most of the study area intersections operate at an acceptable level of service during all analysis scenarios for both the morning and afternoon peak hours, with a single approach at two different study intersections operating above capacity.
- 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 Division Avenue.
- 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.
- The addition of site generated trips triggered the need to explore mitigations at the intersection of

Nannie Helen Burroughs Avenue and Division Avenue.

- At the intersection of Nannie Helen Burroughs Avenue and Division Avenue, it was found that the reallocation of green time to the Division Avenue 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 were 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. 2020 Future Conditions without the development (2020 Background)
3. 2020 Future Conditions with the development (2020 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. Division Avenue & Nannie Helen Burroughs Avenue, NE
3. 55<sup>th</sup> Street & Nannie Helen Burroughs Avenue, NE
4. Division Avenue, NE & Site Driveway

Figure 8 shows a map of the study area intersections. Of note, Intersection 4 (Division Avenue and Site Driveway) will be moved with the relocation of the alley to the south 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 two days: Wednesday, March 22, 2017 from 6:30 to 9:30 AM and 3:00 to 6:00 PM & Wednesday, June 7, 2017 from 6:30 to 9:30 AM and from 4:00 to 7:00 PM. The results of the traffic counts are included in the Technical Attachments. For all intersections, the individual morning and afternoon peak hours were used. The existing peak hour traffic volumes are shown Figure 10. Typically afternoon peak hours are from 4:00 to 7:00 PM. However, in order to account for traffic generated by pick-up/drop-offs at a nearby school, the afternoon peak hour was shifted one hour earlier (3:00-6:00 PM) to capture this behavior and its effect at the NHB Avenue/49<sup>th</sup> Street intersection.

##### *2020 Background Traffic Volumes (without the project)*

The traffic projections for the 2020 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 2020 Background scenario: the Deanwood Hills PUD.

An existing study was available for the Deanwood Hills PUD. Trip generation and distribution assumptions for the background development were 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 (MWCOC) currently adopted regional transportation model, comparing the difference between the year 2017 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 2020 Background traffic volumes. The traffic volumes for the 2020 Background conditions are shown on Figure 11.

##### *2020 Total Future Traffic Volumes (with the project)*

The 2020 Total Future traffic volumes consist of the 2020 Background volumes with the addition of the traffic volumes generated by the proposed development (site-generated trips). Thus, the 2020 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 12 for outbound trips and on Figure 13 for inbound trips.

The traffic volumes for the 2020 Total Future conditions were calculated by adding the development-generated traffic volumes to the 2020 Background traffic volumes. Thus, the future condition with the proposed development scenario includes traffic generated by: existing volumes, background developments through the year 2020, inherent growth on the network, and the proposed development. The site-generated traffic volumes are shown on Figure 15 and the 2020 Total Future traffic volumes are shown on Figure 16.

### **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 9.

#### *2020 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 2020 Background Conditions. Therefore, the lane configurations and traffic controls for the 2020 Background Conditions were based on those for the Existing Conditions as shown on Figure 9.

#### *2020 Future Geometry and Operations Assumptions*

The configurations and traffic controls for the 2020 Future Conditions were based on those for the Existing and 2020 Background Conditions with the relocation of the alley along Division Avenue approximately 40 feet south of its current alignment to accommodate the new Site Driveway.

The lane configurations and traffic controls for the 2020 Future Conditions are shown on Figure 14.

## **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, 2020 Background, and 2020 Future scenarios. The capacity analysis results are shown on Figure 17 for the morning peak hour and Figure 18 for the afternoon peak hour.

The study intersections generally operate at acceptable conditions during the morning and afternoon peak hours for the Existing, 2020 Background, and 2020 Future scenarios. However, two intersection approaches operate above acceptable conditions during one or more peak hour:

- 49<sup>th</sup> Street and Nannie Helen Burroughs Avenue, NE  
During the morning peak period, the northbound 49<sup>th</sup> Street approach operates at above capacity during the 2020 Background and 2020 Future scenarios. This can be attributed to the lane configuration of the approach, with left and thru 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 vehicles behind. It should be noted that this intersection does not degrade as a result of the proposed development; therefore, mitigations are not recommended.
- Division Avenue and Nannie Helen Burroughs Avenue, NE  
During the morning peak period, the northbound approach of Division Avenue operates at above capacity during the existing, 2020 Background and 2020 Future scenarios. This can be attributed to the lane configuration of the approach, with the left and thru 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 vehicles behind. As a consequence of the number of site trips added at this intersection, mitigations are warranted and proposed in the next section.

### 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. Two 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
- Division Avenue 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 in the future with conditions with the proposed development where one does not exist in the 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 conditions; 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:

- Division Avenue and Nannie Helen Burroughs Avenue, NE  
The northbound approach of Division Avenue is projected to operate under LOS E during the morning peak period for



2020 Background Conditions, degrading to LOS F in the 2020 Future Conditions. The delay increases by more than 5 seconds when compared to the 2020 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 the long delay along the minor approach of Division Avenue 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 over 40 seconds, to the level which is observed under Existing Conditions, as shown in Table 6.

Implementation of this change would require a calibration in the signal timings for this intersection. This report recommends that DDOT review and comment on this change. If DDOT were to explore this idea further, this report recommends that the Applicant support their efforts and coordinate on a possible implementation.

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	Annual Growth Rate		Total Growth between 2017 and 2020	
	AM Peak	PM Peak	AM Peak	PM Peak
49th Street, NE – Northbound	3.50%	4.50%	10.87%	14.12%
49th Street, NE – Southbound	5.00%	0.10%	15.76%	0.30%
Nannie Helen Burroughs Avenue, NE – Eastbound	2.50%	0.10%	7.69%	0.30%
Nannie Helen Burroughs Avenue, NE – Westbound	0.10%	0.10%	0.30%	0.30%
Division Avenue, NE – Northbound	2.00%	0.10%	6.12%	0.30%
Division Avenue, NE – Southbound	0.10%	0.10%	0.30%	0.30%
55th Street, NE – Northbound	0.10%	0.10%	0.30%	0.30%
55th Street, NE – Southbound	0.10%	0.10%	0.30%	0.30%



Figure 8: Study Area Intersections

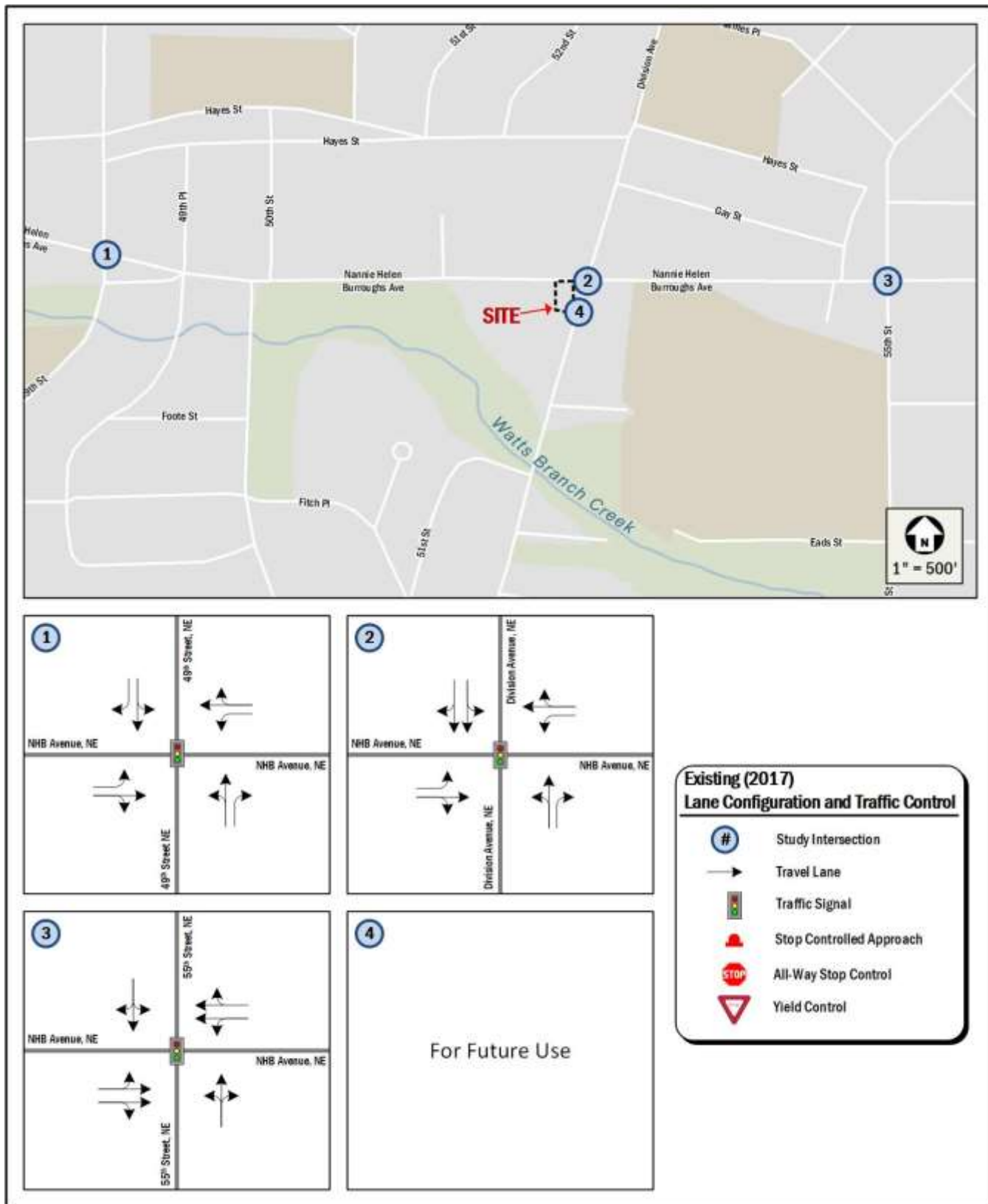
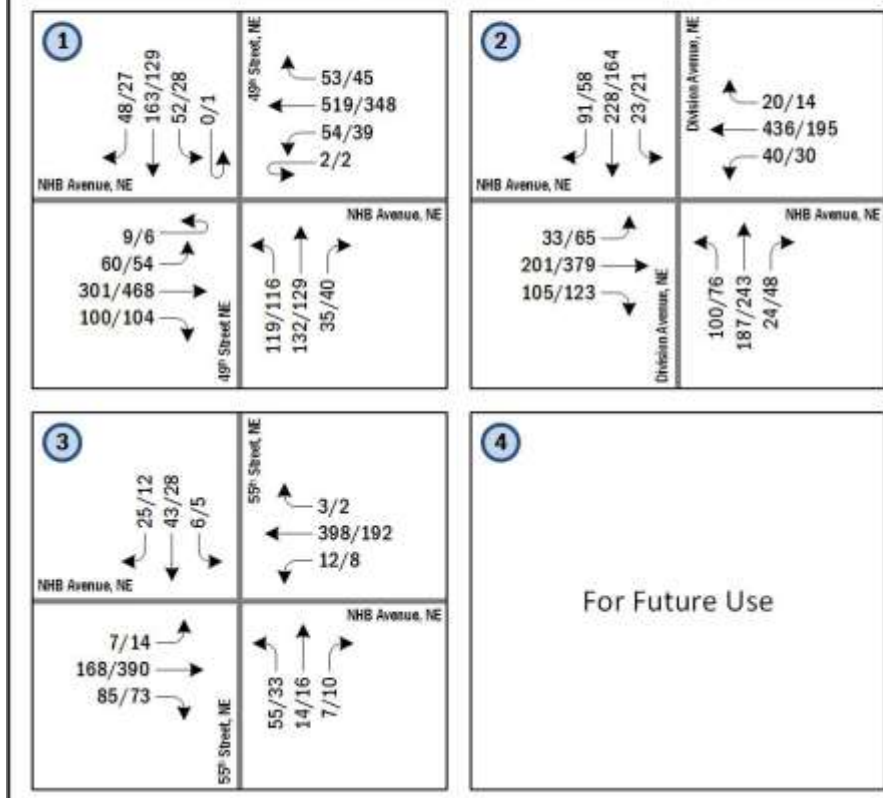


Figure 9: Existing Lane Configuration and Traffic Control





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

# Study Intersection

→ Turning Movement

1234/5678 AM / PM Peak Hour Volume

Figure 10: Existing (2017) Peak Hour Traffic Volumes

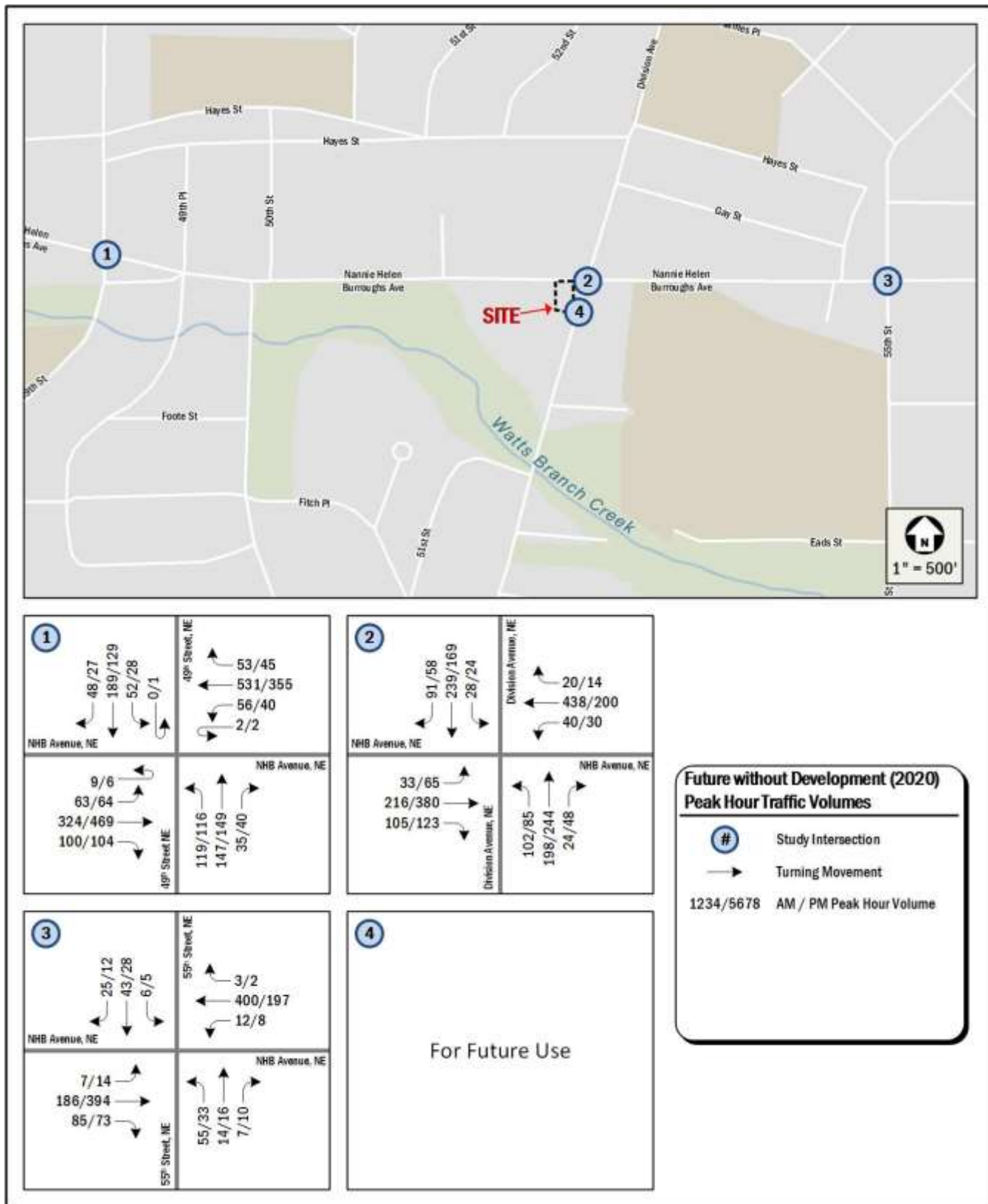


Figure 11: Future without Development (2020) Peak Hour Traffic Volumes



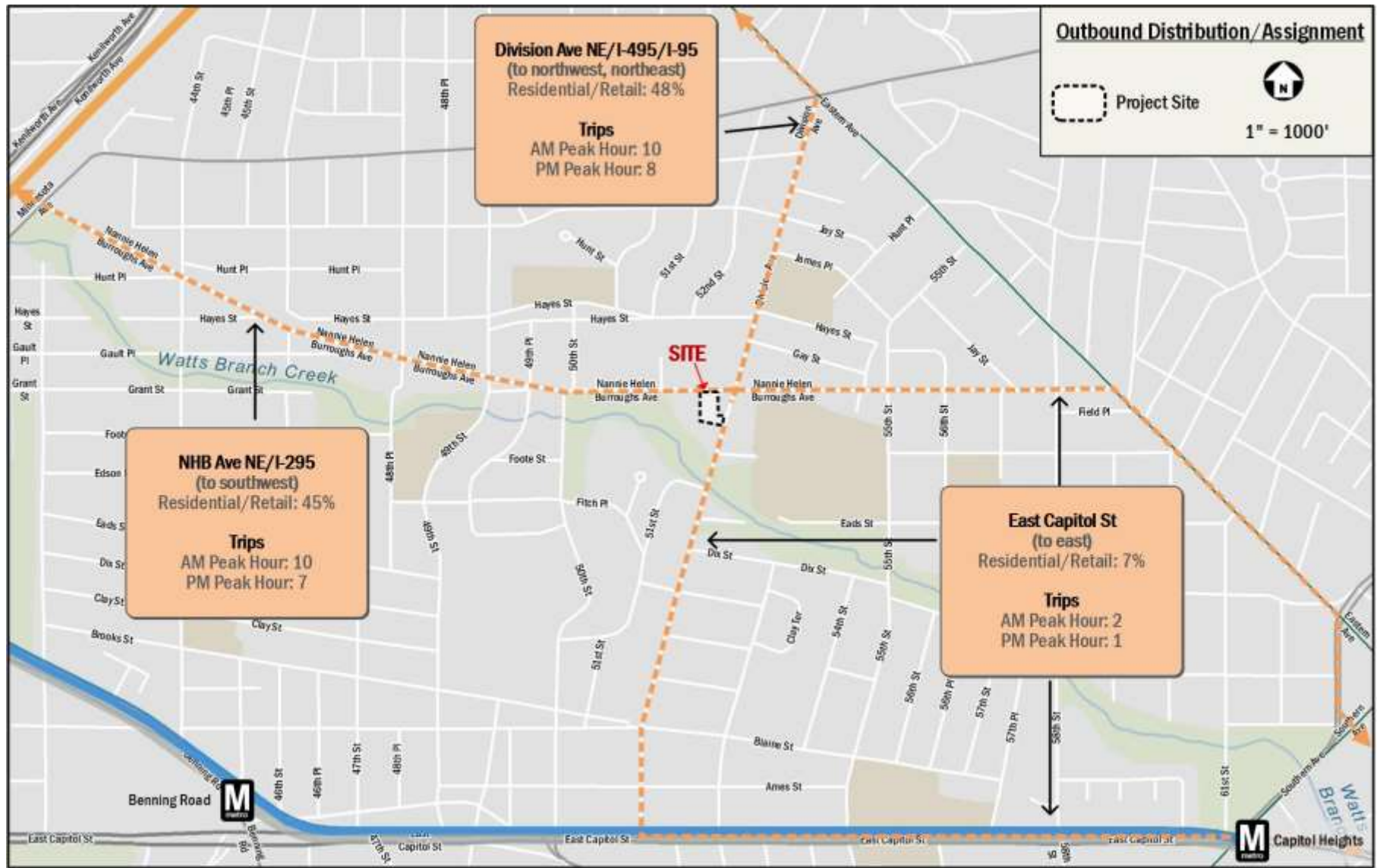


Figure 12: Outbound Trip Distribution and Routing



Figure 13: Inbound Trip Distribution and Routing

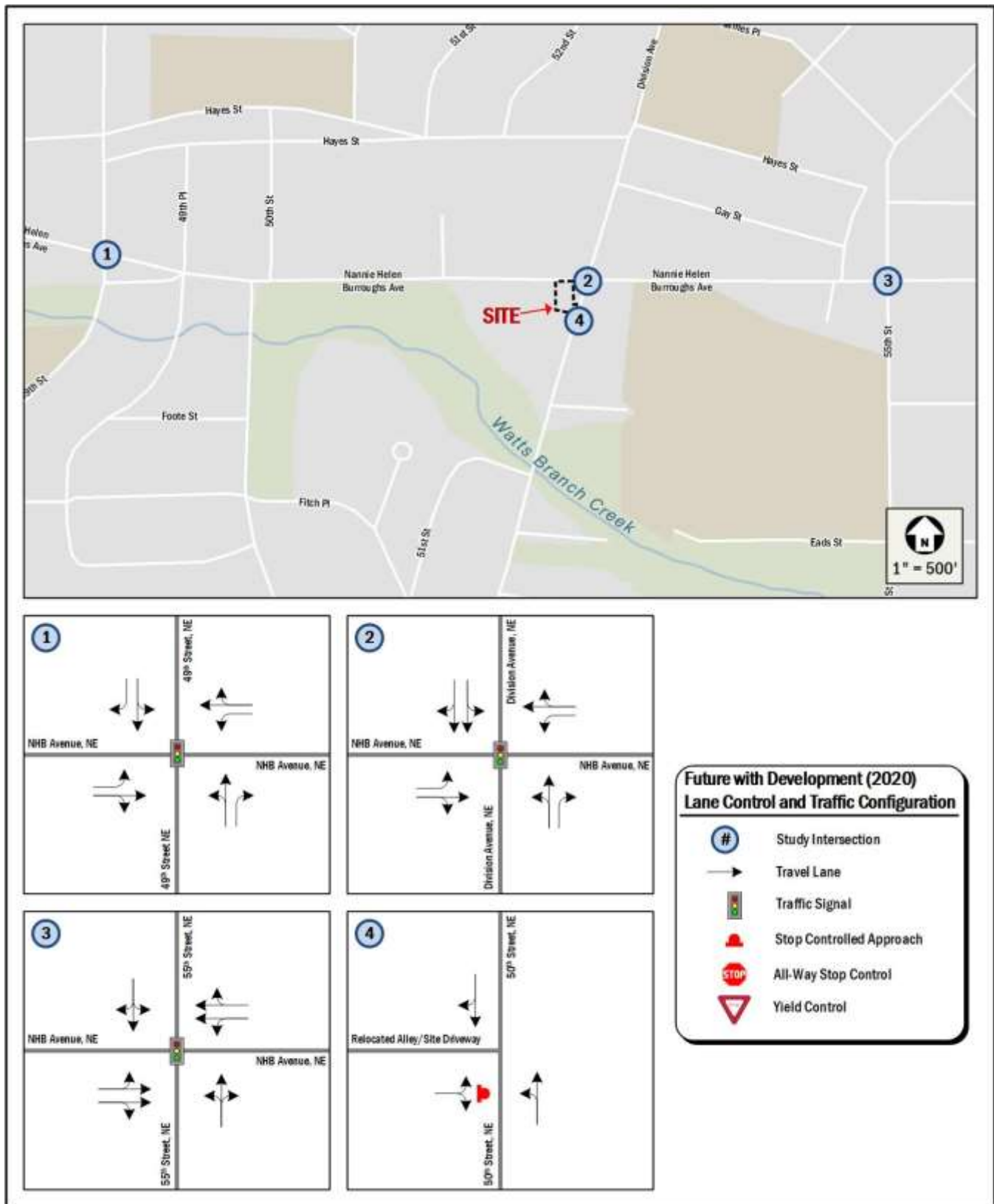
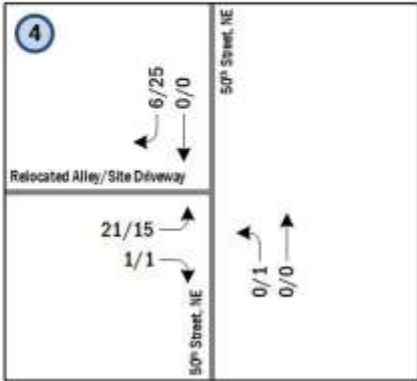
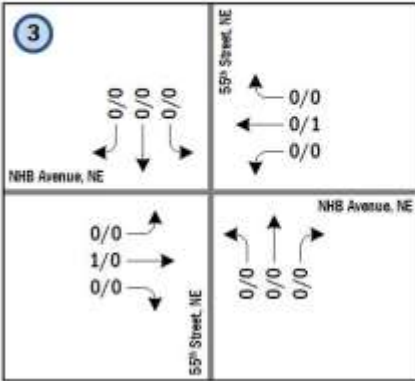
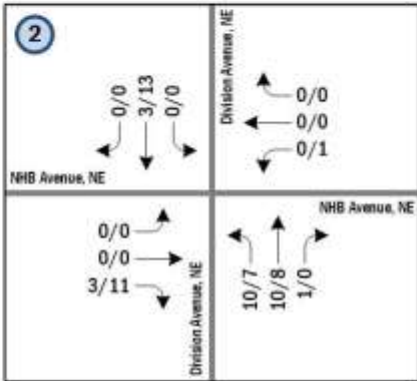
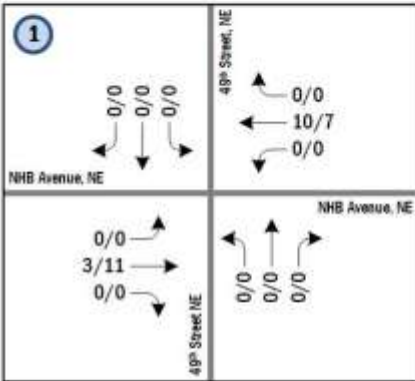


Figure 14: Future with Development (2020) Lane Configuration and Traffic Control



**Site-Generated Peak Hour Traffic Volumes**

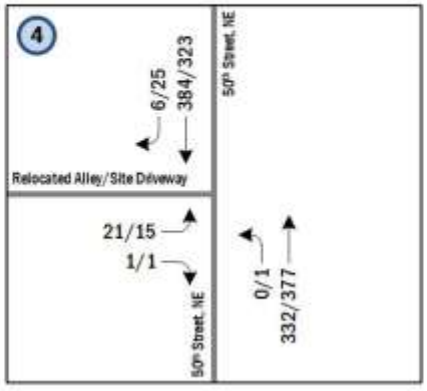
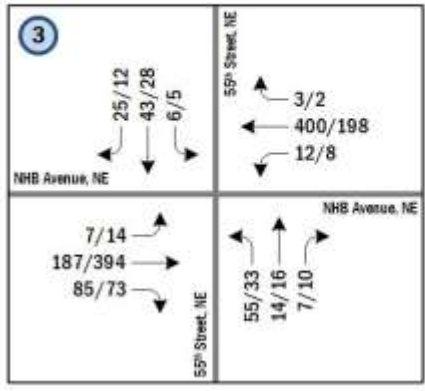
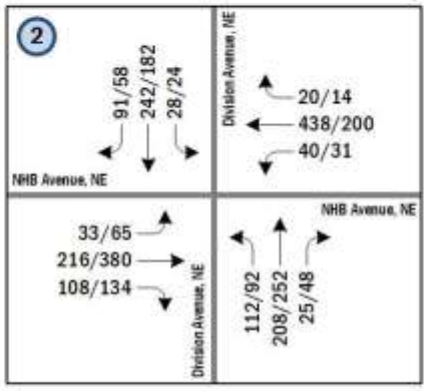
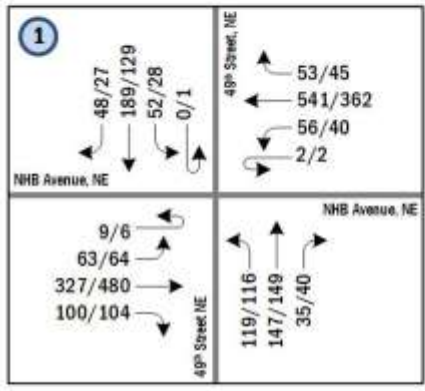
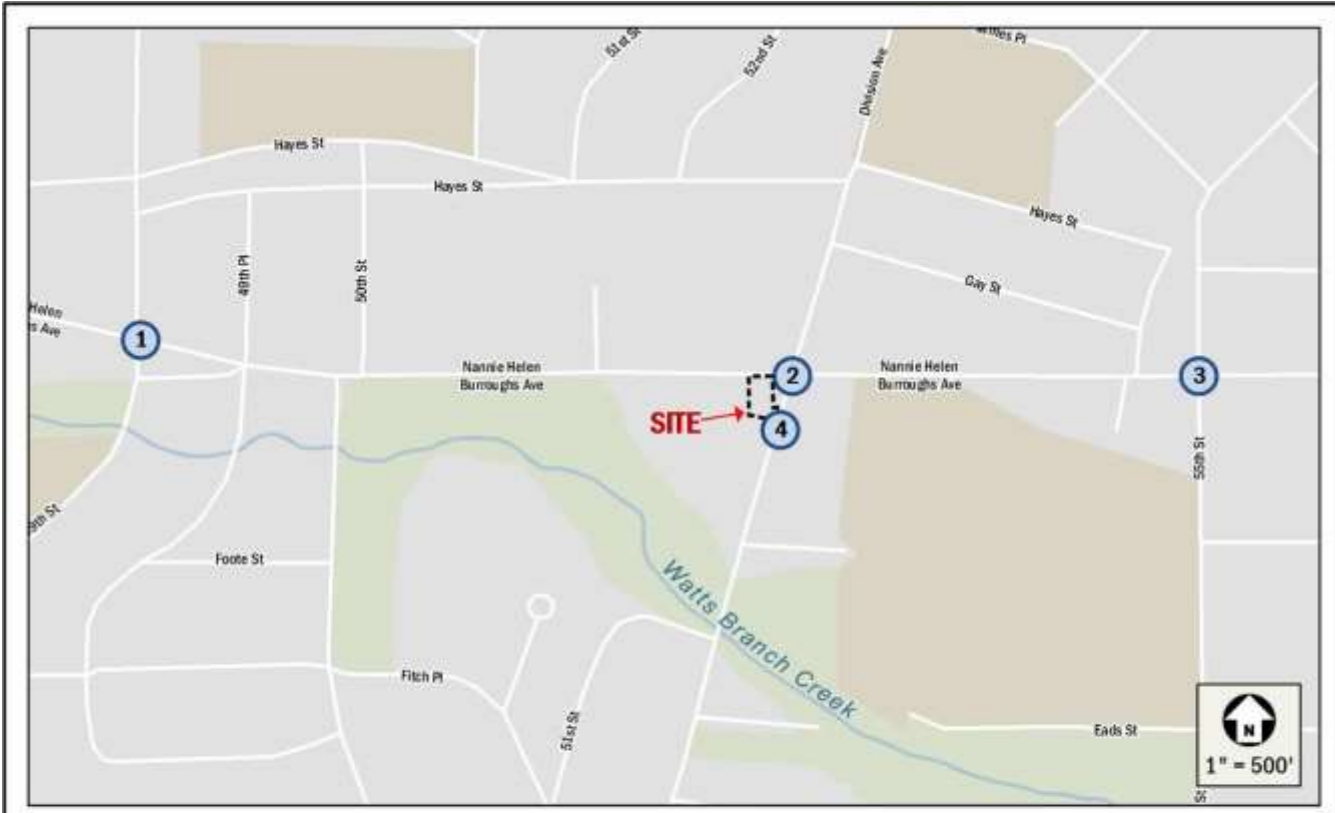
# Study Intersection

→ Turning Movement

1234/5678 AM / PM Peak Hour Volume

Figure 15: Site-Generated Peak Hour Traffic Volumes





**Future with Development (2020)  
Peak Hour Traffic Volumes**

# Study Intersection

→ Turning Movement

1234/5678 AM / PM Peak Hour Volume

Figure 16: 2020 Future with Development (2020) Peak Hour Traffic Volumes



**Table 6: LOS Results**

Intersection	Approach	Existing Conditions (2017)				Background Conditions (2020)				Total Future Conditions (2020)				Total Future Conditions, Mitigations (2020)	
		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
49th Street and Nannie Helen Burroughs Avenue, NE	Overall	20.4	C	20.1	C	24.1	C	20.7	C	24.2	C	20.8	C	--	--
	Eastbound	10.9	B	15.8	B	11.2	B	15.8	B	11.2	B	16.2	B	--	--
	Westbound	11.4	B	16.2	B	11.5	B	16.4	B	12.0	B	16.6	B	--	--
	Northbound	45.2	D	32.3	C	60.5	E	34.5	C	60.5	E	34.5	C	--	--
	Southbound	31.6	D	23.5	C	35.9	D	23.6	C	35.9	D	23.6	C	--	--
Division Avenue and Nannie Helen Burroughs Avenue, NE	Overall	30.1	C	21.5	C	31.4	C	22.2	C	36.4	D	23.2	C	31.5	C
	Eastbound	10.1	B	11.9	B	10.5	B	12.5	B	10.6	B	13.5	B	10.8	B
	Westbound	32.4	C	26.5	C	33.7	C	27.7	C	33.7	C	28.8	C	37.9	D
	Northbound	56.2	E	33.2	C	60.6	E	33.9	C	80.7	F	35.8	D	55.2	E
	Southbound	22.2	C	19.4	B	21.8	C	18.8	B	22.0	C	18.3	B	20.1	C
55th Street and Nannie Helen Burroughs Avenue, NE	Overall	30.7	C	32.0	C	31.9	C	32.3	C	31.9	C	32.6	C	--	--
	Eastbound	39.0	D	41.1	D	41.6	D	41.8	D	41.5	D	42.2	D	--	--
	Westbound	35.9	D	26.6	C	36.1	D	26.6	C	36.1	D	26.6	C	--	--
	Northbound	4.3	A	4.5	A	4.3	A	4.5	A	4.3	A	4.5	A	--	--
	Southbound	4.2	A	4.4	A	4.2	A	4.4	A	4.2	A	4.4	A	--	--
Division Avenue and Alley/Site Driveway, NE	Eastbound									15.4	C	15.0	C	--	--
	Northbound									0.0	A	0.0	A	--	--
	Southbound									0.0	A	0.0	A	--	--



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

Intersection	Lane Group	Storage Length (ft)	Existing Conditions (2017)				Background Conditions (2020)				Total Future Conditions (2020)				Total Future Conditions, Mitigations (2020)	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour	
			50th %	95th %	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	118	188	196	318	119	190	202	328	--	--
	Westbound Left	175	11	m20	10	m23	11	m21	10	m24	12	m21	11	m24	--	--
	Westbound TR	200	133	m168	190	268	137	m173	196	276	143	m190	202	m282	--	--
	Northbound LT	925	125	#254	119	#196	138	#286	131	#228	138	#286	131	#228		
	Northbound Right	50	1	23	4	24	1	23	4	24	1	23	4	24	--	--
	Southbound LT	315	128	#244	69	117	117	#227	69	117	117	#227	69	117		
	Southbound Right	50	20	47	11	28	20	47	11	28	20	47	11	28	--	--
<b>Division Avenue and Nannie Helen Burroughs Avenue, NE</b>	Eastbound Left	115	7	m17	12	m28	6	m16	12	m28	6	m16	13	m28	7	m17
	Eastbound TR	200	93	144	101	227	98	150	106	229	100	152	111	240	105	158
	Westbound Left	125	18	m33	16	42	18	m33	16	42	18	m33	17	43	22	m37
	Westbound TR	975	238	334	112	176	239	335	115	180	239	335	115	179	266	363
	Northbound LT	350	160	#290	156	220	171	#309	157	232	~207	#339	162	#259	177	#314
	Northbound Right	50	0	13	6	25	0	13	6	25	0	14	6	25	0	13
	Southbound LTR	285	77	117	50	70	82	123	49	72	83	125	51	76	77	116
<b>55th Street and Nannie Helen Burroughs Avenue, NE</b>	Eastbound LTR	985	42	82	89	#162	51	92	100	#165	52	93	106	#165	--	--
	Westbound LTR	310	105	155	48	77	106	156	50	78	106	156	50	79	--	--
	Northbound LTR	375	12	24	8	19	12	24	8	19	12	24	8	19	--	--
	Southbound LTR	350	8	20	6	15	8	20	6	15	8	20	6	15	--	--
<b>Division Avenue and Alley/Site Driveway, NE*</b>	Eastbound LR	75									--	5	--	4	--	--
	Northbound LT	200				<b>For Future Use</b>				<b>For Future Use</b>	--	0	--	0	--	--
	Southbound TR	125									--	0	--	0	--	--

*m = Volume for 95<sup>th</sup> percentile queue is metered by upstream signal*

*# = 95<sup>th</sup> percentile volume exceeds capacity, queue may be longer*

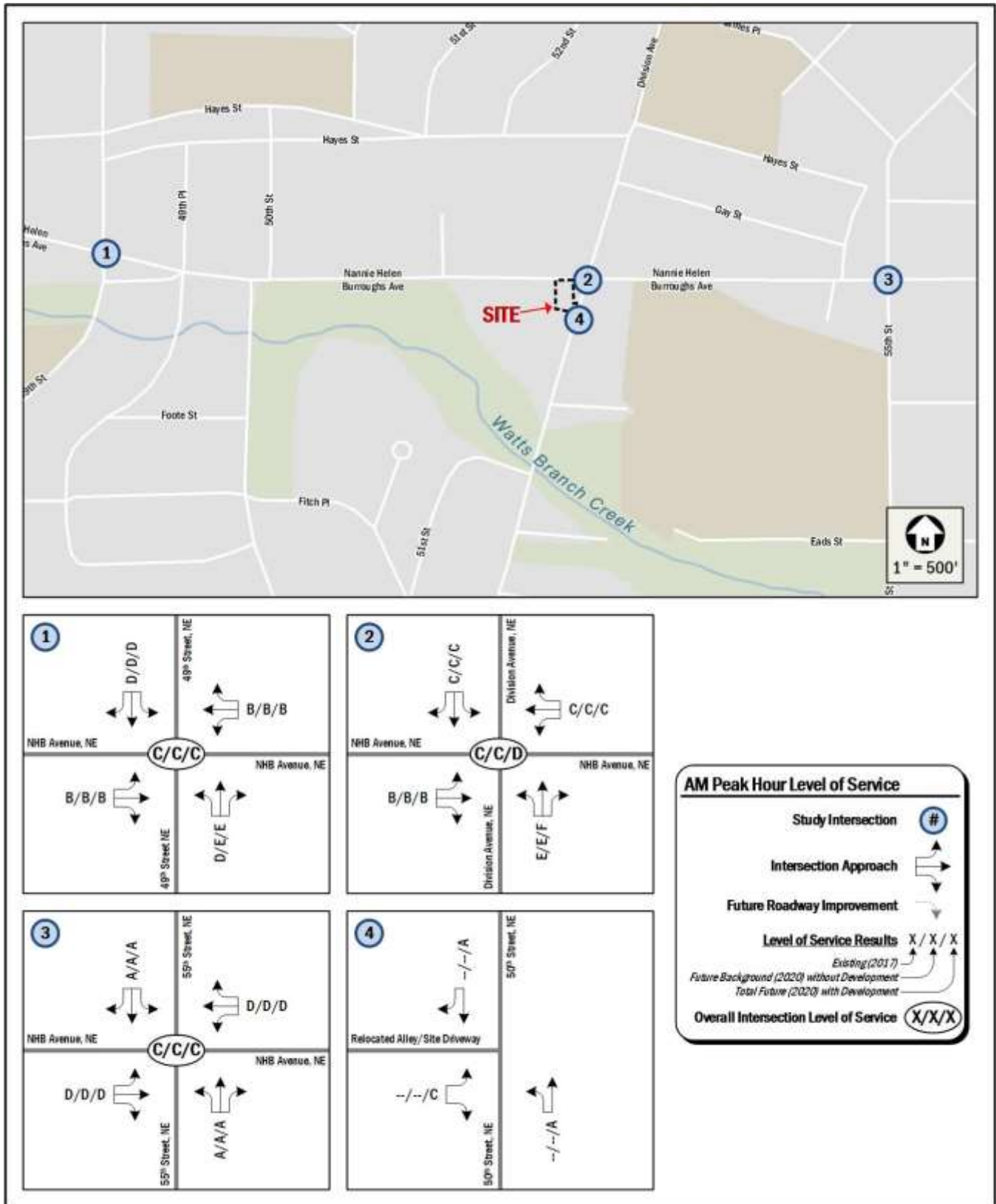


Figure 17: AM Peak Hour Level of Service Results



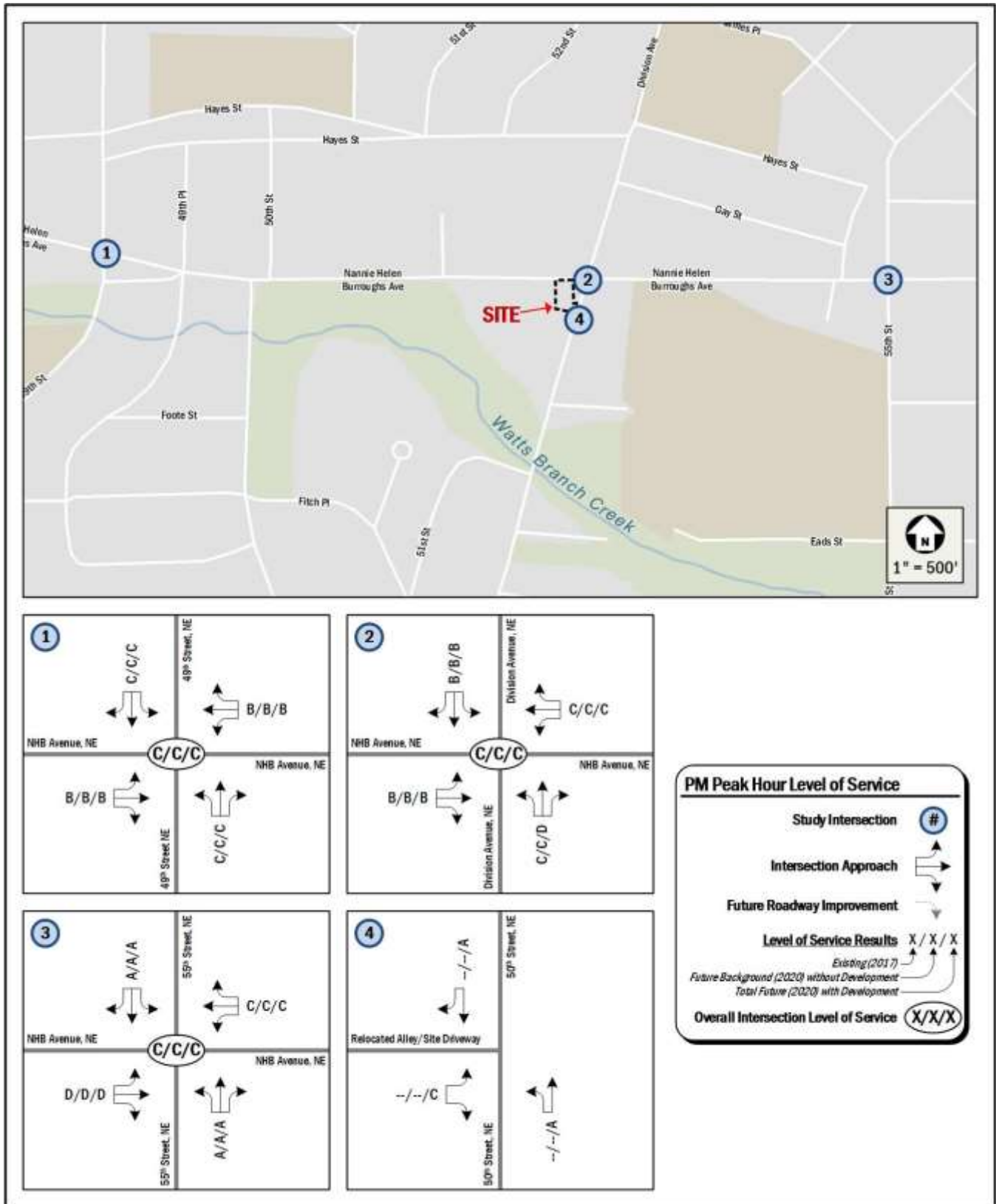


Figure 18: PM Peak Hour Level of Service Results



## 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 Strand Residences project.

The following conclusions are reached within this chapter:

- The development has adequate access to transit
- The development is located 1.1 miles from the Benning Road Metrorail station
- The development Site is surrounded by six (6) Metrobus routes that travel along multiple primary corridors
- The development 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 19 identifies the major transit routes, stations, and stops in the study area.

The Site is located approximately 1.1 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	0.3 miles, 8 minutes
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 mile, 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	<0.1 mile, 1 minute
X9	Benning Road-H Street Limited Line	Weekdays: 6:23 AM – 7:16 PM	Weekdays: 11–20 minutes	<0.1 mile, 1 minute

The Blue and Silver Lines connects the Site to western terminals in 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. Additionally, the Site is 1.2 miles from the Deanwood Metrorail station, served by the Orange Line. The Orange Line provides overlapping service with the Blue and Silver Lines in the direction of the District core, with eastbound service to New Carrollton, where transfers can be made to MARC and Amtrak services.

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. The X9 MetroExtra route serves the Site at the intersection of NHB Avenue and Division Avenue, providing direct access to and from Northwest, D.C. during peak commute hours. 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 19 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 criteria for standards is included in the Technical Attachments.

## PROPOSED TRANSIT SERVICE

### MoveDC

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 study, the U5 and 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 and 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 AM Peak (U5), PM 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 AM Peak period trips in order to meet the headway criteria, calibration of running time in order to meet 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 Strand Residences development is projected to generate 19 transit trips (5 inbound, 14 outbound) during the morning peak hour and 28 transit trips (17 inbound, 11 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 five (5) people will use Metrorail and 14 will use Metrobus during the morning peak hour; approximately eight (8) people will use Metrorail and 20 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.

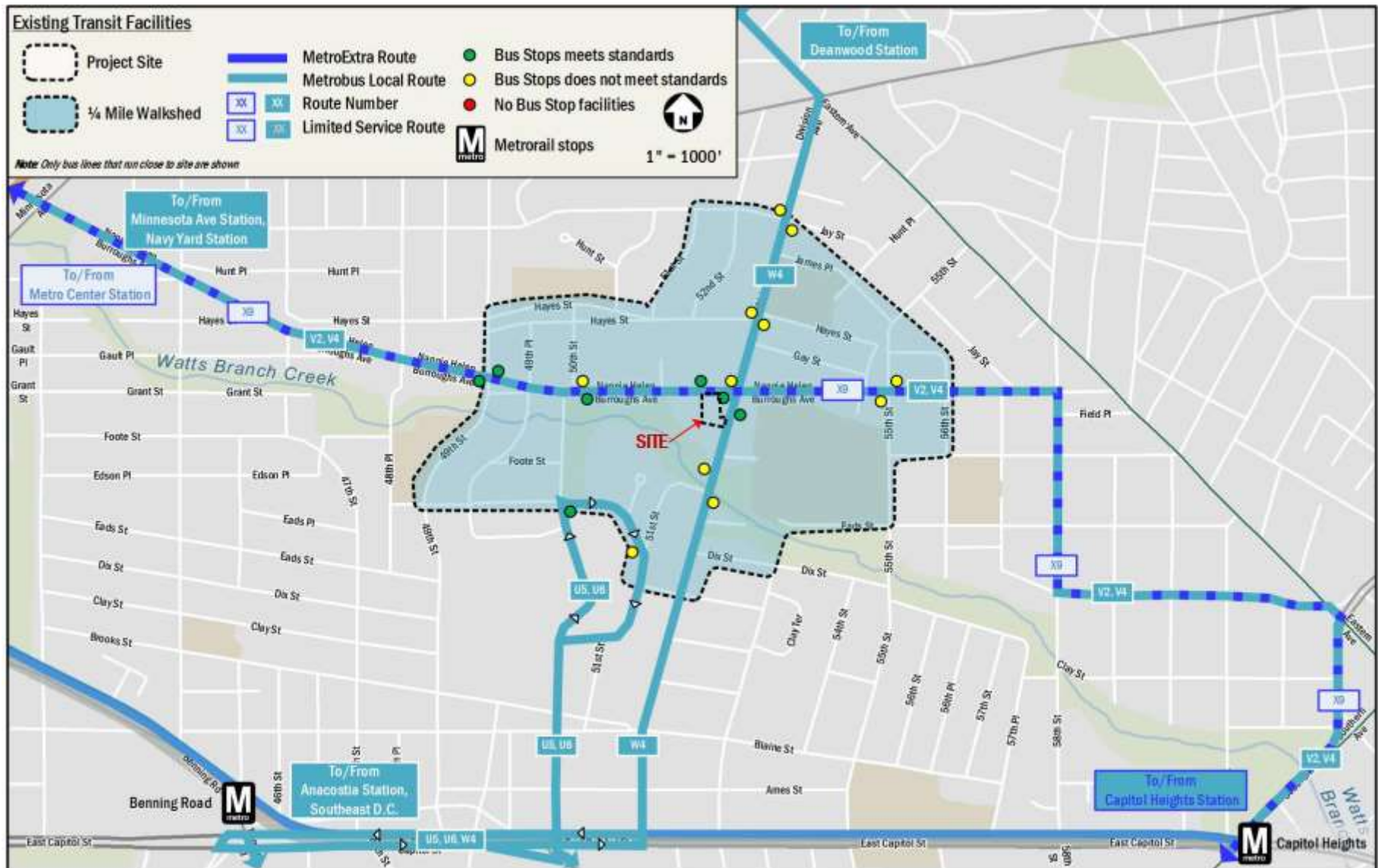


Figure 19: Existing Transit Service





## 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 sidewalks along the majority of primary routes to pedestrian destinations with some gaps in the system.
- The development 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 20 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, resulting in an adequate walking environment. Figure 21 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 *Design and Engineering Manual (2017)* 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 (particularly along Division Avenue) do not comply with DDOT standards, this is a consequence more of insufficient sidewalk and buffer widths rather than sidewalks of poor quality. All primary pedestrian destinations are accessible via routes with sidewalks, some of which met DDOT standards. Residential streets northeast and northwest of the Site lack sidewalks. These streets are generally low-volume. 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 21, under existing conditions crosswalks and curb ramps with detectable warnings are generally absent along portions of Division Avenue 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 NHB Avenue and Division Avenue that meet or

**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



exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as plantings, fencing, and streetscaping will result in improvements over existing conditions. The expected pedestrian facilities included with the development and improvements from other developments is shown in Figure 22.

## SITE IMPACTS

### **Pedestrian Trip Generation**

The Strand Residences development is expected to generate 2 walking trips (0 inbound, 2 outbound) during the morning peak hour and 3 walking trips (2 inbound, 1 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 will have the capacity to absorb the newly generated trips from the Site.





Figure 20: Pedestrian Pathways

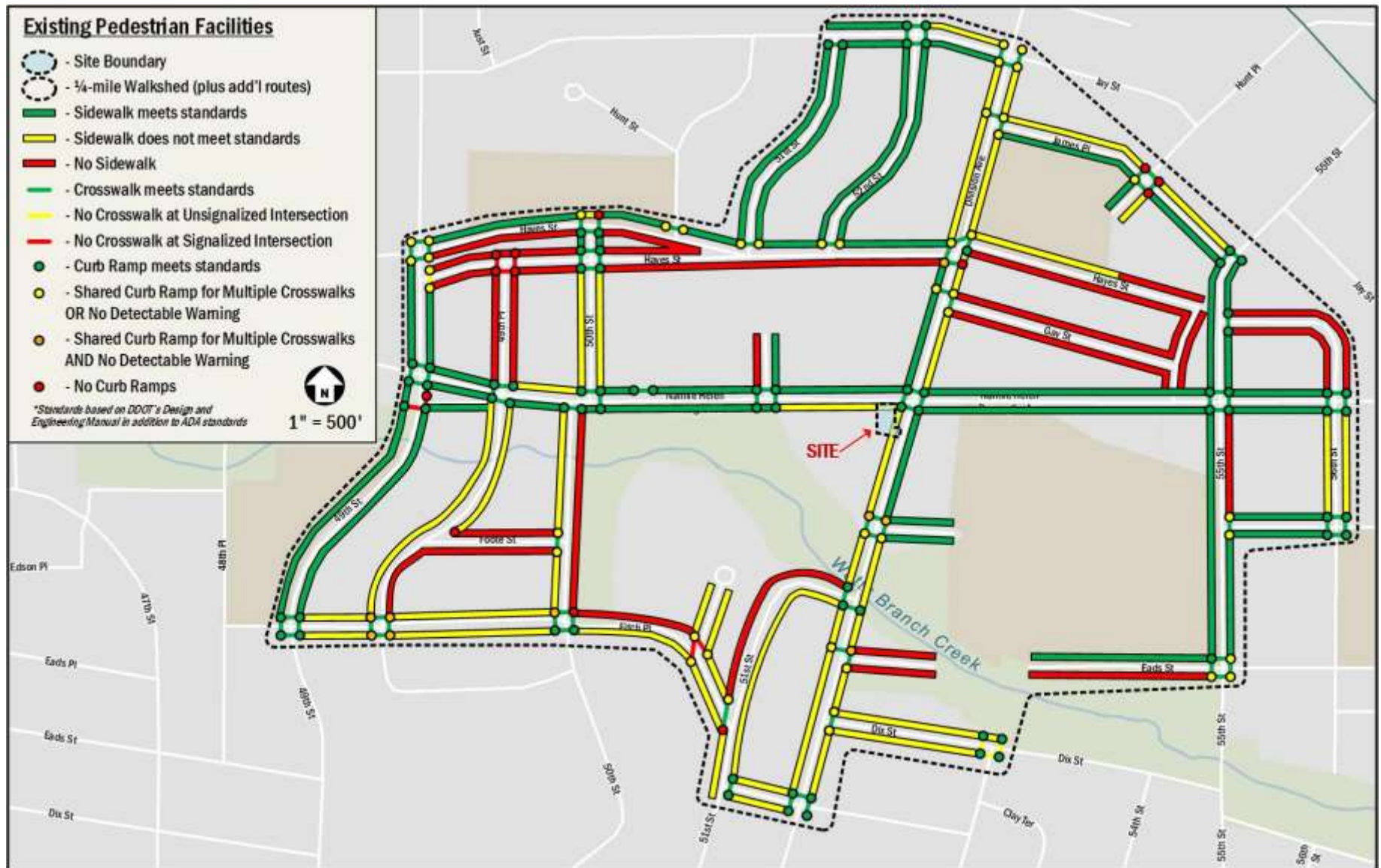


Figure 21: Existing Pedestrian Infrastructure



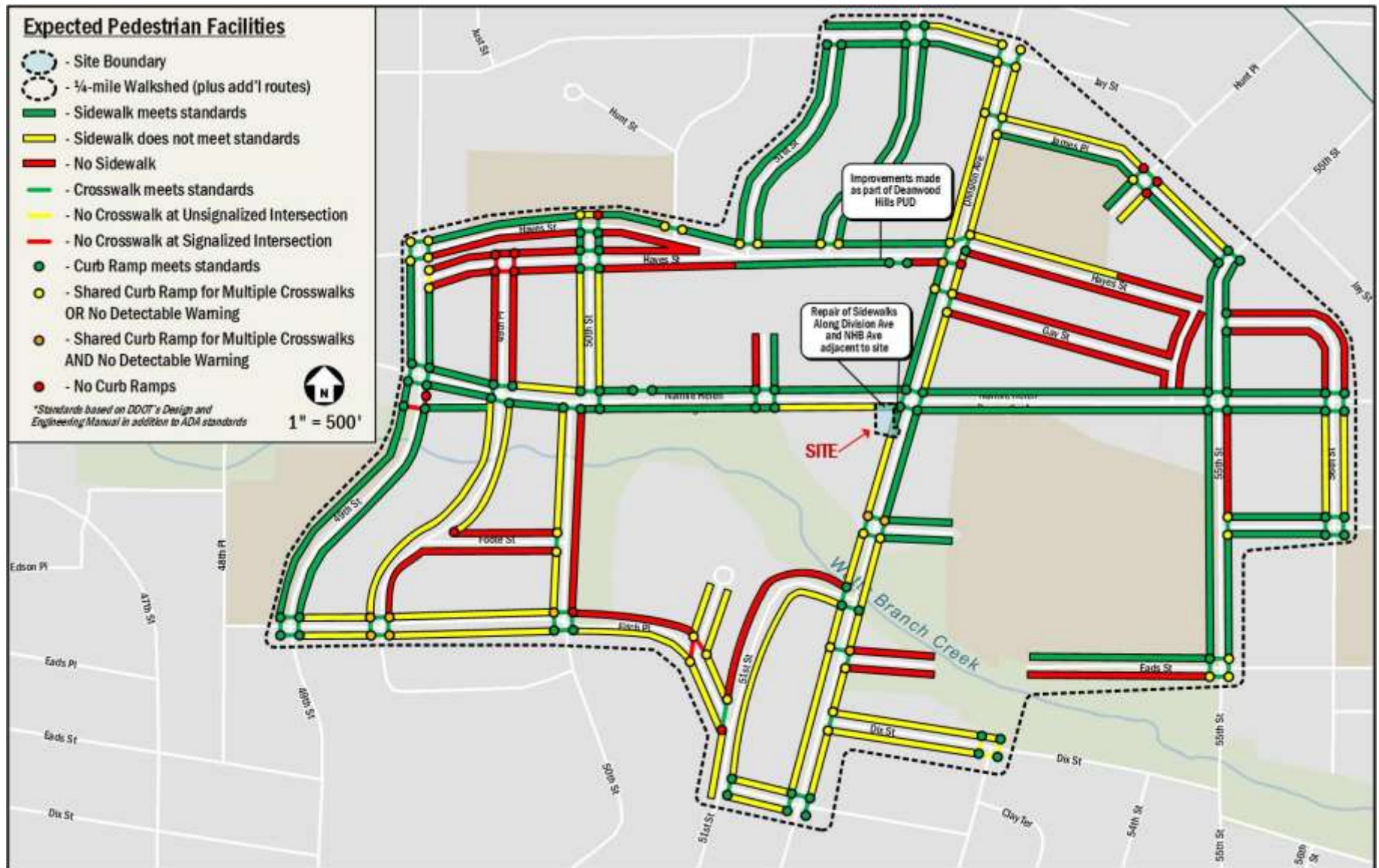


Figure 22: Expected Pedestrian Infrastructure



## 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 development is not expected to generate a significant number 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 Division Avenue, 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 four blocks from the facilities on 49<sup>th</sup> Street, NE.

These bicycle facilities connect the site to areas within the District, Maryland and Virginia. Figure 23 illustrates the existing bicycle facilities in the study 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 East Capitol Street 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 report. The investments will however be shown in Figure 23.

### **Capital Bikeshare**

The Capital Bikeshare program provides additional cycling options for residents, employees, and patrons of the planned development. The Bikeshare program has placed 440 Bikeshare stations across Washington, DC, Arlington, and Alexandria, VA, Montgomery County, MD, and most recently Fairfax County, VA, with 3,700 bicycles provided. Capital Bikeshare currently has two existing Capital Bikeshare stations with 25 available bicycle docks within a quarter-mile biking distance of the Site at the intersection of Division Avenue and Foote Street (just south of the Site), and at the intersection of Nannie Helen Burroughs Avenue and 49<sup>th</sup> Street. Figure 23 illustrates the existing Capital Bikeshare facilities in the area.

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

The project will include approximately four (4) short-term bicycle racks for eight (8) bicycles at street level along the perimeter of the Site. 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 on Division Avenue or NHB Avenue.

The project will also include secure long-term bicycle parking. The plans identify a total of approximately 31 long-term spaces in the ground-level parking garage for residents and retail customers of the proposed development, which meets current ZR16 regulations.

## **SITE IMPACTS**

### **Bicycle Trip Generation**

The Strand Residences development is expected to generate 1 bicycle trip (0 inbound, 1 outbound) during the morning peak hour and 1 bicycle trip (1 inbound, 0 outbound) during the afternoon peak hour. Despite the low number of anticipated bicycle site trips, bicycling will be an important mode getting to and from the Site. With significant facilities located on site and existing routes to and from the Site, the impacts from bicycling will be minimal when compared to the impacts of other modes.



Figure 23: 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. One (1) of the four intersections in this study area meet this criterion (as shown in Table 10 and detailed in Table 11). The Strand Residences 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

**Table 10: Intersection Crash Rates**

Intersection	Total Crashes	Ped Crashes	Bike Crashes	Rate per MEV*
1. Nannie Helen Burroughs Avenue and 49th Street, NE	16	1	1	0.71
2. Nannie Helen Burroughs Avenue and Division Avenue, NE	30	4	1	1.45
3. Nannie Helen Burroughs Avenue and 55th Street, NE	5	1	0	0.44
4. Division Avenue 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
NHB Avenue and Division Avenue, NE	1.45	3	5	2	3	5	1	0	2	0	2	1	1	0	5	30
		10%	17%	7%	10%	17%	3%	0%	7%	0%	7%	3%	3%	0%	17%	

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

Generally, the reasons why an intersection has a high crash rate cannot be derived from crash data, as the exact details of each crash are not represented. 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 one intersection with a crash rate over 1.0 per MEV.

### POTENTIAL IMPACTS

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

#### ▪ NHB Avenue and Division Avenue, NE

This intersection was found to have a high crash rate of 1.45 crashes per MEV over the course of the 3-year study period. The majority of crashes at this intersection were left turn and side-swiped vehicles. Left turn crashes may be elevated at this intersection due to all left turn movements being permitted rather than protected. Side-swiped vehicles may be elevated at this intersection due to the lack of exclusive left-turn lanes along northbound Division Avenue. Additionally, side-swiped crashes are typical along roadways with on-street parking, such as Division Avenue. The presence of bus stops along the north and south corners on Division Avenue create situations where vehicles may need to change lanes to continue onwards. Site-generated traffic is not expected to degrade the safety at this intersection; thus no improvements are recommended as part of the PUD.





## SUMMARY AND CONCLUSIONS

This report is a Comprehensive Transportation Review (CTR) for the Strand Residences Planned Unit Development (PUD). The report reviews the transportation aspects of the project's voluntary design review application. The Zoning Commission Case Number is 17-10. 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 Strand Residences site (the "Site") is located at 5119-5123 and 5127 Nannie Helen Burroughs (NHB) Avenue NE and is generally bounded by NHB Avenue NE to the north, a church parking lot to the south and west, and Division Avenue NE to the east. The Site is adjacent to the Strand Theater, a historical landmark that is currently vacant. The Site will include a six-story building consisting of 86 residential units and approximately 1,400 square feet of ground-floor retail facing NHB Avenue NE.

The Site is currently zoned low-density Mixed-Use (MU-3). The Applicant requests a change in zoning to medium-density Mixed-Use (MU-5A) consistent with the Comprehensive Plan's Future Land Use for this area and allows a greater height and floor area ratio (FAR) for which the PUD is seeking.

Vehicular and loading access for the project will be provided from the reconfigured alley accessible from Division Avenue. Loading and trash operations will take place within the loading dock, adjacent to the garage and accessible by the alley. As part of the development, the existing alley will be relocated to the southern edge of the project site, replacing a development located at 612 Division Avenue NE.

Pedestrian facilities along the perimeter of the project will be improved so that they meet or exceed DDOT and ADA standards.

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 1.1 miles from the Benning Road Metrorail Station, with Metrobus stops located within walking distance of the site along Fitch Place, NHB Avenue, and Division Avenue.

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

#### *Pedestrian*

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

As a result of the development, pedestrian facilities along the north and east perimeter of the site will be improved, including the installation of sidewalks that meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as an alarm to warn pedestrians when vehicles are exiting the alley.

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 adjacent to shared lanes along NHB Avenue, 0.1 miles from the Marvin Gaye Trail, and four blocks from bicycle lanes along 49<sup>th</sup> Street.

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 existing facilities will be able to handle these new trips.



### *Vehicular*

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, and an existing network of collector and local roadways.

In order to determine impacts that the proposed development will have on the transportation network, this report projects future conditions with and without the proposed development 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 Nannie Helen Burroughs Avenue and Division Avenue, NE needs mitigation as a result of the proposed development.

After exploring options for mitigating impacts at this intersection, this report is recommending that one improvement be considered for implementation. The analyses contained in the report demonstrate that a reallocation in green signal time of Division Avenue and Nannie Helen Burroughs Avenue, NE can reduce delay to levels seen in existing conditions. This report recommends that DDOT review and consider this change. If DDOT were to explore this idea further, this report recommends that the Applicant support their efforts and coordinate possible implementation.

### *Summary and Recommendations*

This report concludes that the Strand Residences development **will not** have a detrimental impact to the surrounding transportation network, as long as the project implements the recommendations as follows:

- All planned site design elements and mitigation measures are implemented.
- Implement a robust Transportation Demand Management (TDM) plan to curtail the demand of single-occupancy, private vehicles during peak period travel times. These include elements such as bicycle parking and carshare/bikeshare packages for new residents.
- Implement a loading management plan for residential loading uses, as detailed in this report.
- Pedestrian Improvements