COMPREHENSIVE TRANSPORTATION REVIEW

BROOKLAND TOWNHOMES PUD

WASHINGTON, DC

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EXECUTIVE SUMMARY

The following report is a Comprehensive Transportation Review (CTR) for the Brookland Townhomes project. This report reviews the transportation aspects of the project's Planned Unit Development (PUD) application. The Zoning Commission Case Number is 15-02.

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 total future conditions. This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network assuming that all planned site design elements are implemented.

Proposed Project

The site is currently home to a residential building for the Holy Redeemer College and an associated surface parking lot, and is located on the southwest corner of the Jackson Street and 7th Street NE intersection. The site is generally bound by the Chancellor's Row Townhomes development to the west, Jackson Street to the north, 7th Street to the east, and University Hall Condominiums to the south.

The application plans to develop part of the site into a residential development while renovating the existing building on-site to include new residential units. The site will include 39 townhomes and up to 46 new residential units in the renovated existing Redemptorists' Building with its associated surface parking lot.

Parking and loading access will be off of Jackson Street and 7th Street. The development will utilize the existing curb cut on 7th Street and shift the existing curb cut on Jackson Street 150 feet west of its current location.

Pedestrian facilities along the perimeter of the site will be improved where necessary to include sidewalk and buffer widths that meet DDOT requirements. The development will supply short-term bicycle parking in and around the perimeter of the site.

Multi-Modal Impacts and Recommendations

Transit

The site is well-served by regional and local transit services such as Metrorail, Metrobus, and Circulator. The site is less than 0.4 miles from the nearest Brookland-CUA Metrorail Station portal located at the Monroe Street and 9th Street intersection. Metrobus stops are located within a block of the site along 7th Street.

Although the Brookland Townhomes development will be generating new transit trips on the network, the existing facilities have enough capacity to handle the new trips. The Brookland-CUA Metrorail station does not have existing capacity concerns and is not expected to as a result of the planned development. Some nearby Metrobus lines do have existing capacity concerns, but the small amount of transit trips added to the network as a result of the planned development will not exacerbate existing conditions by much.

Pedestrian

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

As a result of the planned development, pedestrian facilities along the perimeter of the site will be improved where necessary. The development will ensure that sidewalks adjacent to the site meet DDOT requirements and provide an adequate pedestrian environment.

Bicycle

The site is well served by existing bicycle facilities. Many trails, bike lanes, and signed bike routes exist near the site such as the Metropolitan Branch Trail to the east, north-south bike lanes along 4th Street NE, and east-west bike routes along Irving Street. The site is also served by the Capital Bikeshare program which provides an additional cycling option for residents, employees, and patrons of the Broookland Townhomes development.

On site, the planned development will provide short-term bicycle parking along the perimeter of the site.

Vehicular

The Brookland Townhomes site is well-connected to regional roadways such as US Route 1, US Route 29, US Route 50, and Interstate 395, as well as primary and minor arterials such as Michigan Avenue and an existing network of collector and local roadways.

In order to determine if the proposed development will have a negative impact on this transportation network, this report projects future conditions with and without the development of the site and performs analyses of intersection delays. These delays are compared to the acceptable levels of delay set by DDOT standards to determine if the site will negatively impact the study area.

The analyses conclude that the planned development will not have adverse impacts on the surrounding transportation network.

INTRODUCTION

This report reviews the transportation elements of the Brookland Townhomes development project. The development will contain a residential component and the site, shown in Figure 1, is located in the Brookland neighborhood in northeast DC.

The purpose of this report is to:

1. Review the transportation elements of the development site plan and demonstrate that the site conforms to DDOT's general polices of promoting non-automobile modes of travel and sustainability.
2. Provide information to the District Department of Transportation (DDOT) and other agencies on how the development of the site will influence the local transportation network. This report accomplishes this by identifying the potential trips generated by the site on all major modes of travel and where these trips will be distributed on the network.
3. Determine if development of the site will lead to adverse impacts on the local transportation network. This report accomplishes this by projecting future conditions with and without development of the site and performing analyses of vehicular delays. These delays are compared to the acceptable levels of delay set by DDOT standards to determine if the site will negatively impact the study area. The report discusses what improvements to the transportation network are needed to mitigate adverse impacts.

CONTENTS OF STUDY

This report contains nine sections as follows:

- *Study Area Overview*
  This section reviews the area near and adjacent to the proposed project and includes an overview of the site location.
- *Project Design*
  This section reviews the transportation components of the project, including the site plan and access. This chapter also contains the proposed Transportation Demand Management (TDM) plan for the site.
- *Trip Generation*
  This section outlines the travel demand of the proposed project. It summarizes the proposed trip generation of the project.
- *Traffic Operations*
  This section provides a summary of the existing roadway facilities and an analysis of the existing and future roadway capacity in the study area. This section highlights the vehicular impacts of the project, including presenting
- *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.

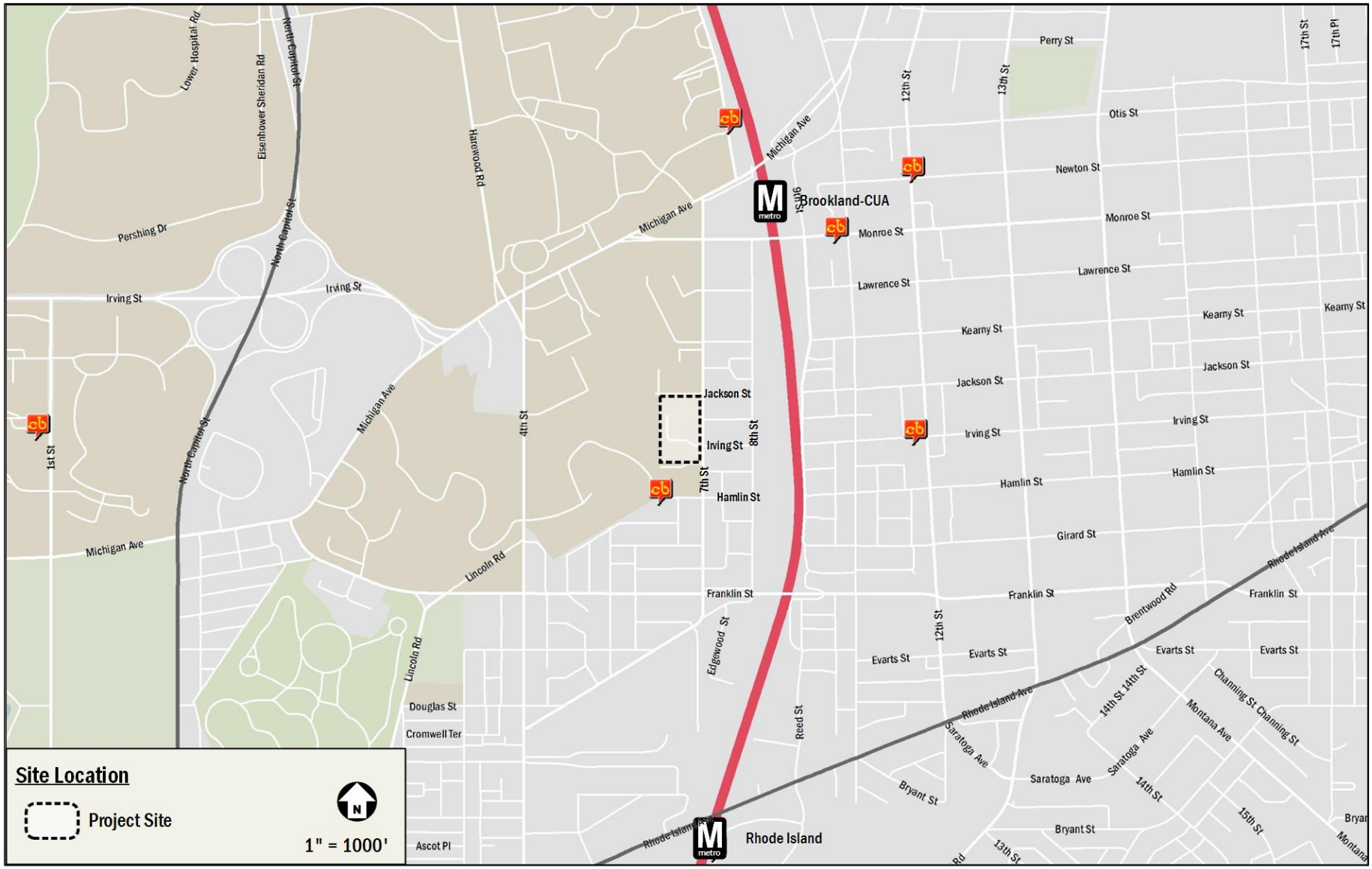

Figure 1: Site Location

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 accommodate the residents of the proposed development
- The site is well-served by public transportation with access to the Red Metrorail line and several local and regional Metro bus lines.
- There is some existing bicycle infrastructure including the bike trails along the Metropolitan Branch Trail and several bike lanes and signed routes in the vicinity of the site.
- Pedestrian conditions are generally good, particularly along anticipated major walking routes.

MAJOR TRANSPORTATION FEATURES

Overview of Regional Access

The Brookland Townhomes site has ample access to regional vehicular- and transit-based transportation options, as shown in Figure 3, that connect the site to destinations within the District, Virginia, and Maryland.

The site is accessible from several US highways such as US Route 50 (New York Avenue), US Route 29 (Georgia Avenue) and US Route 1 (Rhode Island Avenue). These connect to interstates such as I-395, I-695, and I-295. The highways and interstates create connectivity to the Capital Beltway (I-495) that surrounds Washington, DC and its inner suburbs as well as regional access to I-95. All of these roadways bring vehicular traffic within half-mile of the site, at which point arterials and local roads can be used to access the site directly.

The site has access to the Red Line which provided connections to areas in the District and Maryland. These lines connect stations in Prince George's County and Montgomery County, Maryland while providing access to the District core. In addition, the Red Line provides connections to 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 several local transportation options near the site that serve vehicular, transit, walking, and cycling trips, as shown on Figure 4.

The site is served by a local vehicular network that includes several primary and minor arterials such as Franklin Street, Michigan Avenue, and Monroe Street. In addition, there is an existing network of connector and local roadways that provide access to the site.

The Metrobus and Circulator systems provides local transit service in the vicinity of the site, including a connection to Union Station which acts as a primary hub for Amtrak, VRE, and MARC rail services. As shown in Figure 4, there are seven bus routes that service the site. In the vicinity of the site the majority of routes travel along Michigan Avenue and Monroe Street. These bus lines connect the site to many areas of the District and Maryland, including several Metrorail stations.

There are existing bicycle facilities that connect the site to areas within the District, most notably the Metropolitan Branch Trail and 4th Street bike lanes which provide connections to the Downtown and other bicycle facilities. Other facilities include bicycle-friendly roads along 12th Street NE and Newton Street NE.

In the vicinity of the site, most roadways provide sidewalks with crosswalks present at most intersections. Anticipated pedestrian routes, such as those to public transportation stops, retail zones, and community amenities, provide acceptable pedestrian facilities; however there are some pedestrian barriers in the area that limit the overall connectivity to and from the site. A detailed review of existing and proposed pedestrian access and infrastructure is provided in a later section of this report.

Overall, the Brookland Townhomes site is surrounded by an extensive local transportation network that allows for efficient transportation options via transit, bicycle, walking, or vehicular modes.

Car-sharing

Three car-sharing companies provide service in the District: Zipcar, Enterprise Carshare, and Car2Go. All three services are private companies that provide registered users access to a variety of automobiles. Of these, Zipcar and Enterprise Carshare have designated spaces for their vehicles. There are multiple car-share locations located within a quarter-mile of the site; these locations are listed in Table 1.

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

Walkscore

Walkscore.com is a website that provides scores and rankings for the walking, biking, and transit conditions within neighborhoods of the District. Based on this website the planned development is located in the Brookland Neighborhood. This project location itself has a walk score of 80 (or "Very Walkable"), transit score of 73 (or "Excellent Transit"), and a bike score of 75 (or "Very Bikable"). Figure 2 shows the neighborhood borders in relation to the site location and displays a heat map for walkability and bikeability.

As shown in Figure 2, the site is situated in a neighborhood that encompasses some good and some average walk scores. The site is situated in an area with good bike scores due to its proximity to bike facilities and flat topography. Overall, the Brookland neighborhood has good walk, transit, and bike scores. Additionally, other planned developments and roadway improvements will help increase the walk and bike scores in the Brookland neighborhood.

Table 1: Summary of Car-share Locations

Carshare Location	Number of Vehicles
Zipcar	
9th Street NE and Monroe Street NE	3 vehicles
Monroe Street Market (625 Monroe Street NE)	4 vehicles
Chancellor's Row (650 Jackson Street NE)	1 vehicle
Enterprise Carshare	
Brookland-CUA Metro	2 vehicles
Total	10 vehicles

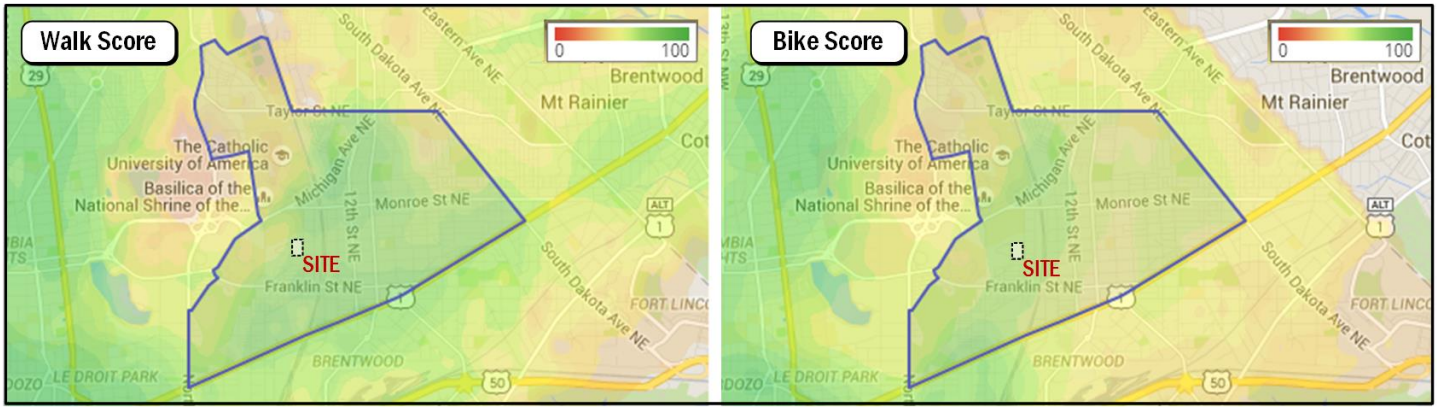

Figure 2: Summary of Walkscore and Bikescore

FUTURE REGIONAL PROJECTS

There are several District initiatives and background 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 an implementation-based 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 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

In direct relation to the proposed development, the MoveDC plan outlines recommended transit and bicycle improvements such as a Streetcar route and new bicycle trails and cycle tracks. These recommendations would create additional multi-modal capacity and connectivity to the proposed development.

Brookland Multi-Modal Transportation and Streetscape Study

The purpose of the Brookland project is to improve safety, mobility, and accessibility and to support economic development in the vicinity of the project. The project will: (1) reduce traffic congestion and travel speeds; (2) improve parking supply; (3) promote pedestrian safety; and (4) enhance transit, bicycle, and pedestrian access and connectivity. Ultimately, the goal of the Brookland project is to address the problems of the corridor in a way that both addresses the transportation issues, while also revitalizing the surrounding neighborhoods around 12th Street NE, just across the railroad tracks from the Brookland Townhomes PUD development.

Through short-term and long-term goals, the study aims to correct design deficiencies, improve safety issues for all users, including drivers, transit riders, pedestrians, and bicyclists, as well as providing key connections in the local, regional, and national transportation network.

The study recommends several potential short-term goals such as improved maintenance of pavement markings, the installation of rumble strips for traffic calming measures, improved street level lighting, and the replacement of absent or deteriorated sidewalks and curbs.

The potential long-term recommendations outlined in the study are the updating of signal phasing at all traffic lights along the corridor, add truck routing signs to reduce the number of heavy-vehicles on residential streets, improve intersections along the corridor to coincide with DDOT's Public Realm Design Manual, improve the pedestrian environment on bridges, and install mutli-space parking meters along major streets.

Planned Developments

There are several potential development projects in the vicinity of the Brookland Townhomes site. For the purpose of this analysis, only approved developments expected to be complete prior to planned development with an origin/destination within the study area were included. A detailed list of all background developments considered and a description of their applicability for incorporation in the study is included in the Technical Attachments. Of the background developments considered, three were ultimately included and is described below. Figure 5 shows the location of these developments in relations to the proposed development.

The Arcadia at Brookland Station

The project consists of transit-oriented, mixed-use development composed of 213 residential units, 13,000 sq. ft. of retail space and 154 parking spaces. The site is located directly across from the Brookland-CUA Metro Station and the historic Brooks Mansion.

The development was approved by ZC Order 10-28(3) and is expected to be completed in 2016. According to the Comprehensive Transportation Review approved under ZC Order 10-28, not trips were assumed to travel along 7th Street in either northbound or southbound directions. Thus, this development will not be included in the future traffic analysis.

Monroe Street Market – Lot A2

Part of the Monroe Street Market project, the Lot A2 phase consists of a 45 townhomes residential development. The site is bounded by a future extension of Kearny Street to the south, 7th Street to the east, a future extension of Lawrence Street to the north, and the Dominican House of Studies to the west.

The development was approved by ZC Order 08-24B/04-25 and is expected to be completed in the near-term. The Comprehensive Transportation Review approved under ZC Order 08-24 will be used for trip generation and assumption. The approved TIS sought approval for 55 townhomes, a more conservative trip generation than the current 44 planned.

Brookland Middle School

A new 100,000 sq. ft. school located at 1150 Michigan Ave NE that will house 540 students starting in the 2015-2016 school year.

Trip generation and assumptions for the Brookland Middle School that will be used for the future conditions analysis will be based on the Transportation Statement for the District of Columbia Environmental Impact Screening Form submitted on April, 2013.

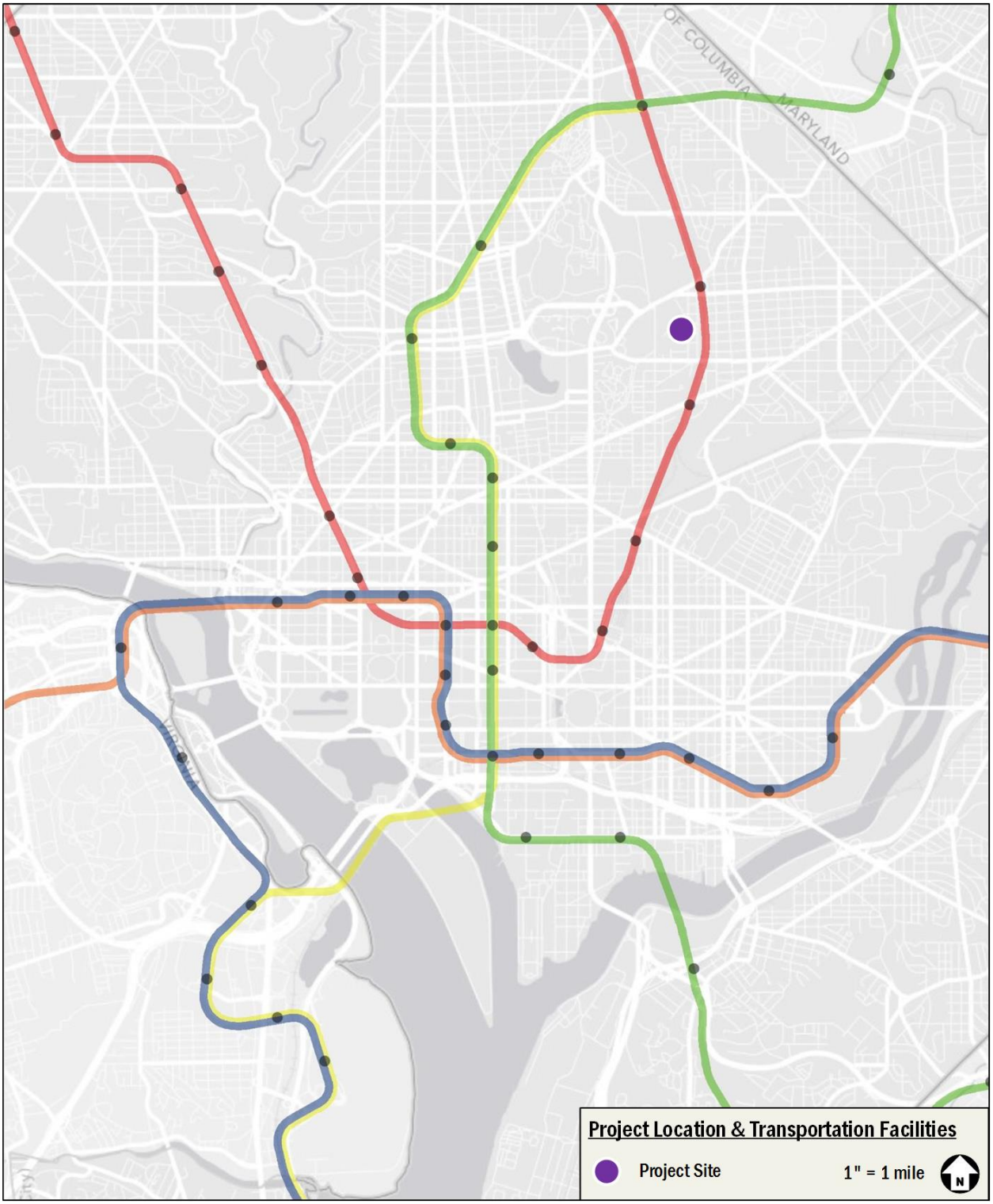

Figure 3: Major Regional Transportation Facilities

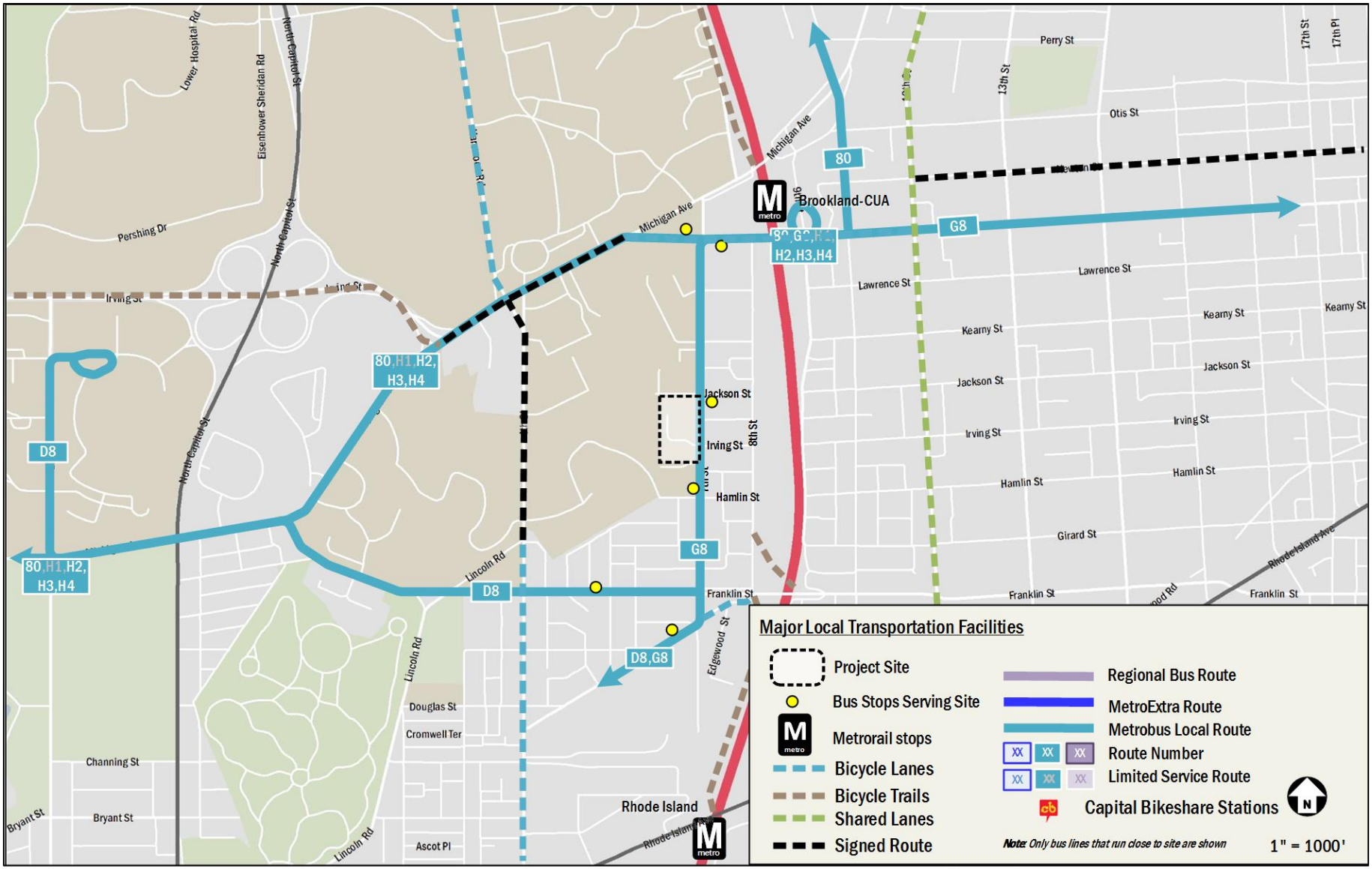

Figure 4: Major Local Transportation Facilities

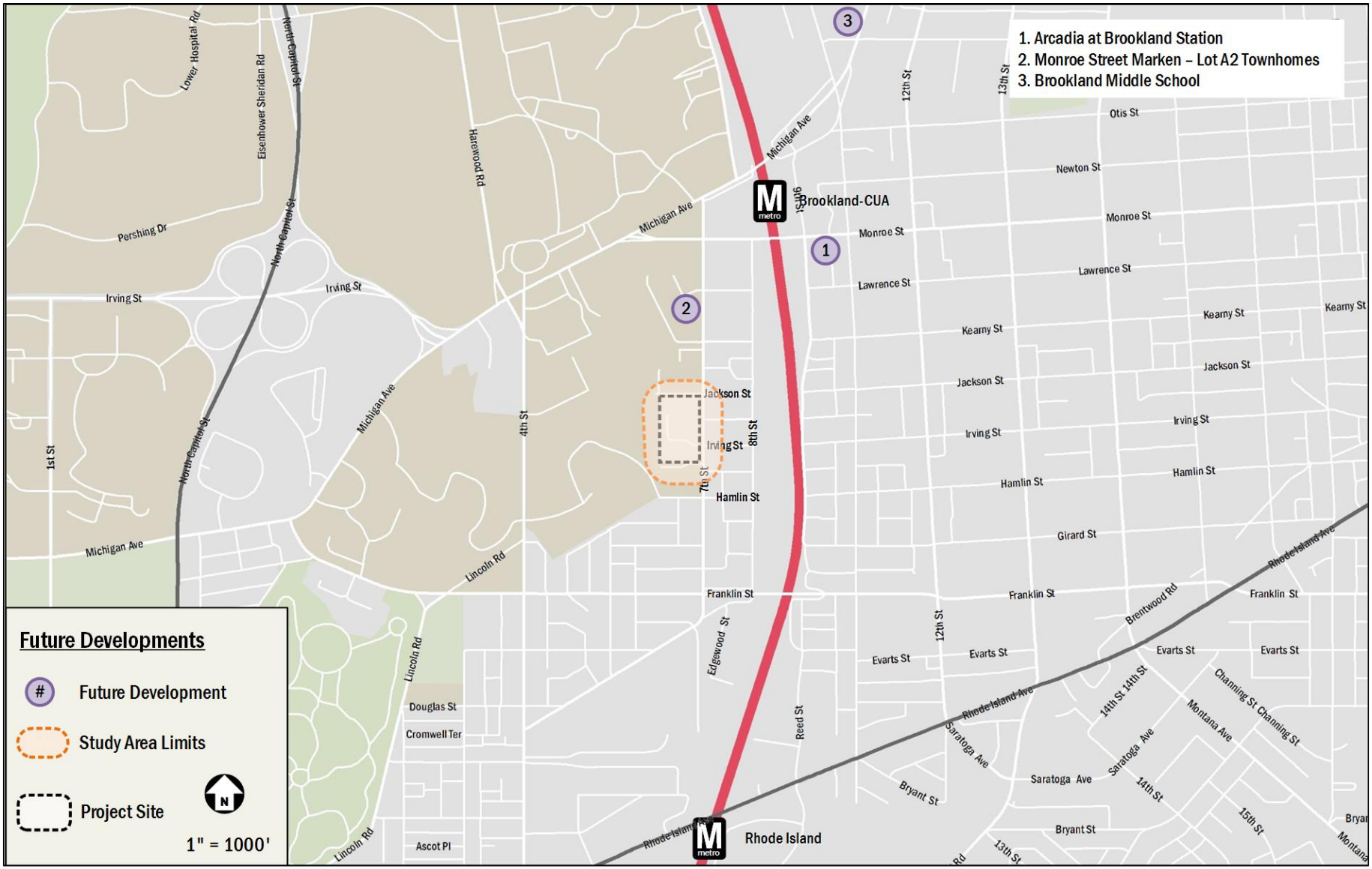

Figure 5: Planned Development Map

PROJECT DESIGN

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

The project will develop currently unutilized space that surrounds the existing Redemptorists' Building and parking lot into 39 townhomes as well as renovating the existing Redemptorists' Building to include up to 46 new residential units. The site is primarily surrounded by sidewalks along Jackson Street NE, and 7th Street NE.

The development will consists of 39 townhomes with one or two-car garages, up to 46 new residential units in the existing Redemptorists' Building, and an associated 23 space surface parking lot that will remain unchanged. Figure 6 shows an overview of the development program and site plan elements.

ACCESS AND LOADING

Vehicular access to the site will be off of Jackson Street and 7th Street, which is a collector. As shown in Figure 6, two curb cuts are proposed to provide vehicular access to the planned development's private alley. These curb cuts will serve as the parking and loading access for the entire development.

As shown in Figure 6, vehicular circulation within the site will be controlled via gates on either side of the Redemtorists' Building and a one way circulation to prevent cut-through traffic from using private alley within the site. Entering vehicles looking to access the Redemtorists' Building's surface parking lot will only be able to do so from the northern gate and access point along Jackson Street, and exiting vehicles will only be able to exit the Redemtorists' Building's surface parking lot via the southern gate which leads to the 7th Street access point.

According to DC zoning requirements, the development is not required to provide any loading or service bays. However, any necessary truck routing to and from the site will be focused on 7th Street with access directly to the site from 7th Street and Jackson Street.

Pedestrian access to the development will occur predominately via 7th Street. Twenty (20) townhomes will be accessed through the private alley and sidewalk network within the site. The remaining thirteen (13) townhomes will directly front onto Jackson Street, and six will directly front onto 7th Street. The 46 new residential units in the renovated Redemptorists' Building will be accessed from 7th Street.

PARKING

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

- *Residential*
  1 space per dwelling unit, amounting to a minimum requirement of 39 parking spaces

- *Redemptorists' Building*
  1 space per 2 dwelling units, amounting to a minimum requirement of 23 parking spaces

71 parking spaces will be supplied by the development. This includes 48 parking spaces for townhome use, primarily provided in garages for each unit, and 23 spaces in the existing Redemtorists' Building parking lot. Therefore, the proposed development will satisfy the zoning requirement of 62 parking spaces by supplying a total of 71 parking spaces.

BICYCLE AND PEDESTRIAN FACILITIES

The project will include short-term public bicycle spaces along the interior and perimeter of the site. These short term spaces will include inverted U-racks placed in high-visibility areas. The applicant will work with DDOT to determine the exact location of bicycle racks in public space.

Pedestrian facilities will be provided along the perimeter of the site. Sidewalks along 7th Street will comply with DDOT standards. Furthermore, two mini-parks will be created within the site and a pocket park will be added to the northeast corner of the development.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

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

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

- The Applicant will identify TDM Leaders (for planning, construction, and operations). The TDM Leaders will work with residents to distribute and market various transportation alternatives and options.
- The Applicant will establish a TDM marketing program that provides detailed transportation information and promotes walking, cycling, and transit. An effective marketing strategy should consist of a multi-modal access guide that provides comprehensive transportation information. This information can be compiled in a brochure for distribution. The marketing program should also utilize and provide website links to CommuterConnections.com and goDCgo.com, which provide transportation information and options for getting around the District.
- The Applicant will encourage all alternative transportation modes including bicycling. Bicycling will be promoted with the provision of on-site outdoor temporary bicycle parking spaces. The marketing program will include brochures on bicycling in the District and for Capital Bikeshare.
- The Applicant will be providing “Welcome Packages” to each resident that include: (1) info on local routes, (2) $50 Smartrip card, (3) a one-year membership to Capital Bikeshare, and (4) a one-year member ship and $50 to Zipcar.

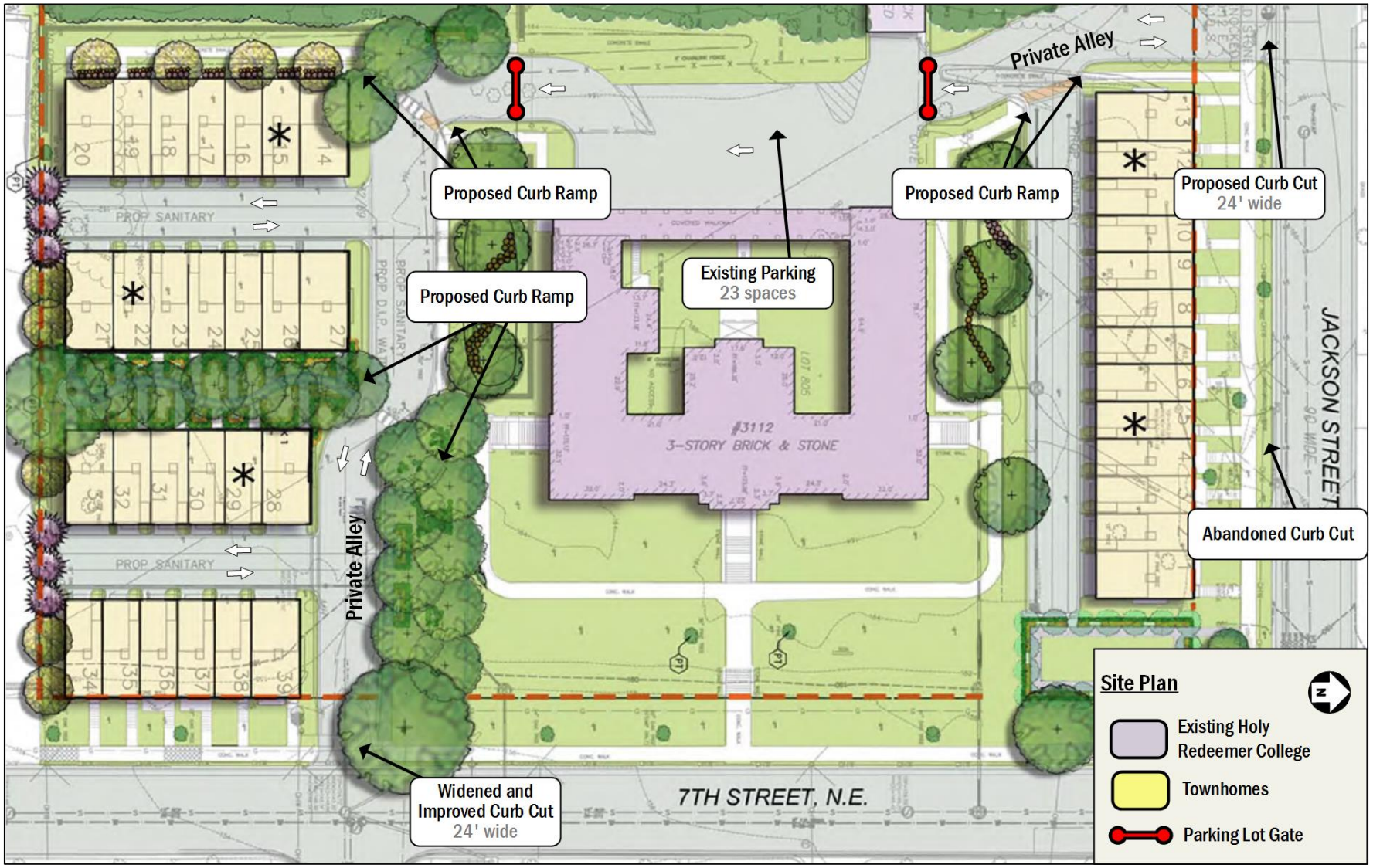

Figure 6: Site Plan

TRIP GENERATION

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

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

Residential trip generation was calculated based on ITE land use 230, Townhomes, and ITE land use 220, Apartments, splitting trips into different modes using assumptions derived from census data for the residents that currently live near the site.

A summary of the multimodal trip generation for the development is provided in Table 2 for the morning and afternoon peak hours. Detailed calculations are included in the Technical Appendix.

Table 2: Summary of Trip Generation by Mode

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	5 veh/hr	23 veh/hr	28 veh/hr	27 veh/hr	13 veh/hr	40 veh/hr
Transit	4 ppl/hr	19 ppl/hr	23 ppl/hr	21 ppl/hr	11 ppl/hr	32 ppl/hr
Bike	1 ppl/hr	0 ppl/hr	1 ppl/hr	1 ppl/hr	0 ppl/hr	1 ppl/hr
Walk	1 ppl/hr	2 ppl/hr	3 ppl/hr	3 ppl/hr	2 ppl/hr	5 ppl/hr

TRAFFIC OPERATIONS

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

The purpose of the capacity analysis is to:

- Determine the existing capacity of the study area roadways;
- Determine the overall impact of the project 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. 2015 Existing Conditions
2. 2017 Background Conditions without the development (2017 Background)
3. 2017 Future Conditions with the development (2017 Total Future)

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

The following conclusions are reached within this chapter:

- All the study intersections operate at an acceptable level of service during all analysis scenarios for both the morning and afternoon peak hours.
- Overall, this report concludes that the project will not have a detrimental impact to the surrounding transportation network

STUDY AREA, SCOPE, & METHODOLOGY

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

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

Capacity Analysis Scenarios

The vehicular analyses are performed to determine if the proposed development of the Brookland Townhomes project 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 Total Future condition).

Specifically, the roadway capacity analysis examined the following scenarios:

1. 2015 Existing Conditions
2. 2017 Background Conditions without the development (2017 Background)
3. 2017 Future Conditions with the development (2017 Total Future)

Study Area

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

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

1. Jackson Street NE/Driveway
2. 7th Street NE/Jackson Street NE
3. 7th Street NE/Irving Street NE

Figure 7 shows a map of the study area intersections.

Traffic Volume Assumptions

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

Existing Traffic Volumes

The existing traffic volumes are comprised of turning movement count data, which was collected on Thursday, January 22, 2015. The results of the traffic counts are included in the Technical Attachments. The existing peak hour traffic volumes are shown on Figure 8. For all intersections the individual morning and afternoon peak hours were used.

2017 Background Traffic Volumes (without the project)

The traffic projections for the 2017 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 industry, 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 discussed previously, two development were included in in the 2017 Background scenario:

- Monroe Street Market – Lot A2
- Brookland Middle School

Available background development traffic studies were used to determine the number of trips added for the background developments. These documents were used to determine the number of trips generated, the mode split percentages, and trip routing, as available. For developments that have updated development programs since being approved, the trip generation was recalculated accordingly.

Based on the available background studies and the trips estimated following the methodology outlined above, Table 3 shows the total number of trips generated by the background developments. Detailed trip generation tables are included in the Technical Appendix.

These trips were then distributed and assigned to the network based on the direction of approach included in the background study.

While the background developments represent local traffic changes, regional traffic growth is typically accounted for using percentage growth rates. The growth rates used in this analysis are derived using the Annual Average Daily Travel rates provided by DDOT by comparing volumes at two different time periods within the model. Negative to no growth was noted along 7th Street NE, so a conservative growth rate of 0.25 percent was assumed along all approaches.

The traffic volumes generated by the background developments and the inherent growth along the network were added to the existing traffic volumes in order to establish the 2017 Background traffic volumes. The traffic volumes for the 2017 Background conditions are shown on Figure 9.

Table 3: Background Development Trip Generation

Development	Trip Generation					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Monroe Street Market - Lot A2						
Total Vehicular Trips	3	15	18	13	6	19
Distribution along 7th Street NE (2%)	0	0	0	0	0	0
Brookland Middle School						
Total Vehicular Trips	129	105	234	34	35	69
Distribution along 7th Street NE (5%)	3	2	5	1	1	1
Total	**3**	**2**	**5**	**1**	**1**	**1**

2017 Total Future Traffic Volumes (with the project)

The 2017 Total Future traffic volumes consist of the 2017 Background volumes with the addition of the traffic volumes generated by the proposed development (site-generated trips). Thus, the 2017 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.

The trip distribution for project generated trips was assembled based on a review of existing traffic patterns and flow data from CTPP (Census Transportation Planning Products). The residential trip distribution was influenced significantly by the CTPP TAZ flow data for drivers commuting from the site's TAZ, and adjusted based on traffic volumes and patterns.

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 is provided on Figure 10.

The site-generated traffic volumes are shown on Figure 11 and the 2017 Total Future traffic volumes are shown on Figure 12.

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.

The lane configurations and traffic controls for the Existing conditions are shown on Figure 13.

Future Geometry and Operations Assumptions

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

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

Based on these criteria, no background assumptions were included in the analysis.

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 8.0 was used to analyze the study intersections based on the Highway Capacity Manual 2010 (HCM) methodology.

The results of the capacity analyses are expressed in level of service (LOS) and delay (seconds per vehicle) for each approach. A LOS grade is a letter grade based on the average delay (in seconds) experienced by motorists traveling through an intersection. LOS results range from "A" being the best to "F" being the worst. LOS D is typically used as the acceptable LOS threshold in the District; although LOS E or F is sometimes accepted in urbanized areas if vehicular improvements would be a detriment to safety or non-auto modes of transportation.

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

Table 4 shows the results of the capacity analyses, including LOS and average delay per vehicle (in seconds) for the Existing, 2017 Background, and 2017 Total Future scenarios. The capacity analysis results are shown on Figure 15 for the morning peak hour and Figure 16 for the afternoon peak hour.

All of the study intersections operate at acceptable conditions during the morning and afternoon peak hours for the Existing, 2017 Background, and 2017 Future scenarios.

Improvements

Generally speaking, the proposed development is considered to have an impact at an intersection within the study area if the capacity analyses show an LOS E at an intersection or along an

approach in the future conditions with the proposed development where one does not exist in the existing or background conditions. Following these guidelines, no intersections are impacted by the planned development.

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 the *Synchro* software. The 50th percentile and 95th percentile maximum queue lengths are shown for each lane group at the study area signalized intersections. The 50th percentile maximum queue is the maximum back of queue on a typical cycle. The 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes. For unsignalized intersection, the 95th percentile queue is reported for each lane group (including free-flowing left turns and stop-controlled movements) based on the HCM calculations.

Table 5 shows the queuing results for the study area intersections. No significant impacts to the queuing results are seen with the addition of the proposed development. During the morning and afternoon peak hours, queues are slightly increased at all of the study intersections, but no major impacts are seen.

Overall, the site does not have a significant impact on queuing in the study area.

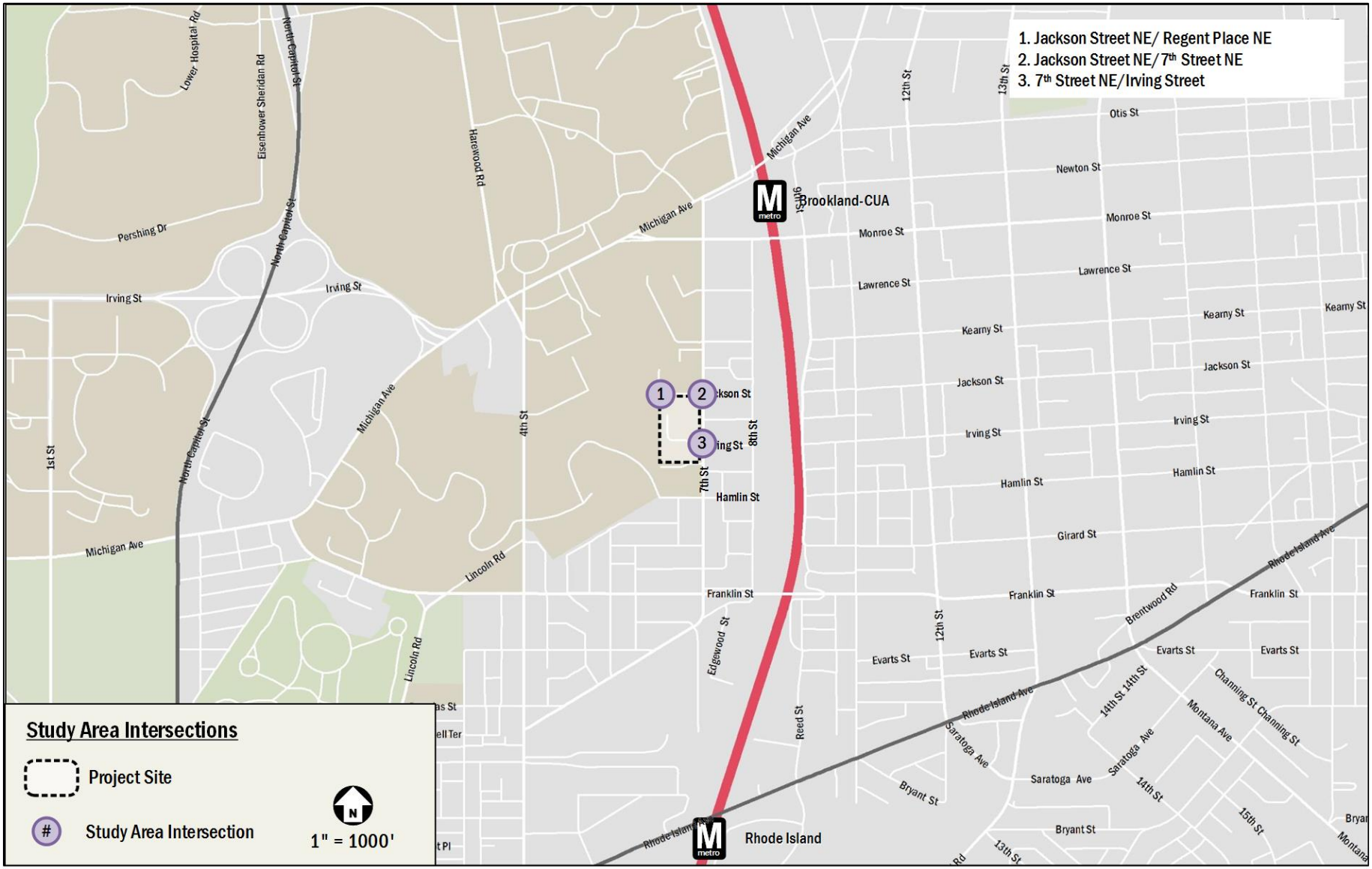

Figure 7: Study Area Intersections

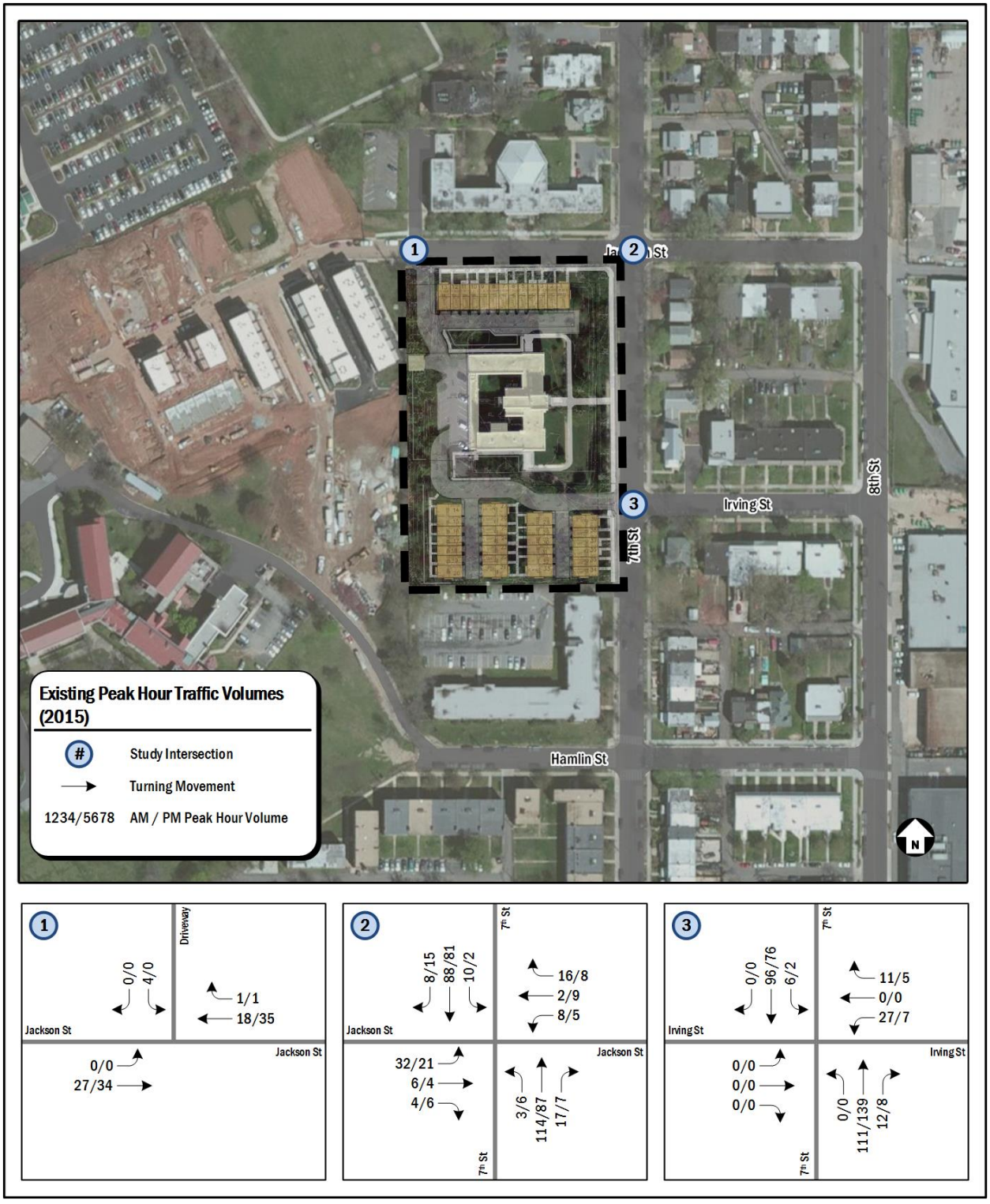

Figure 8: Existing Peak Hour Traffic Volumes

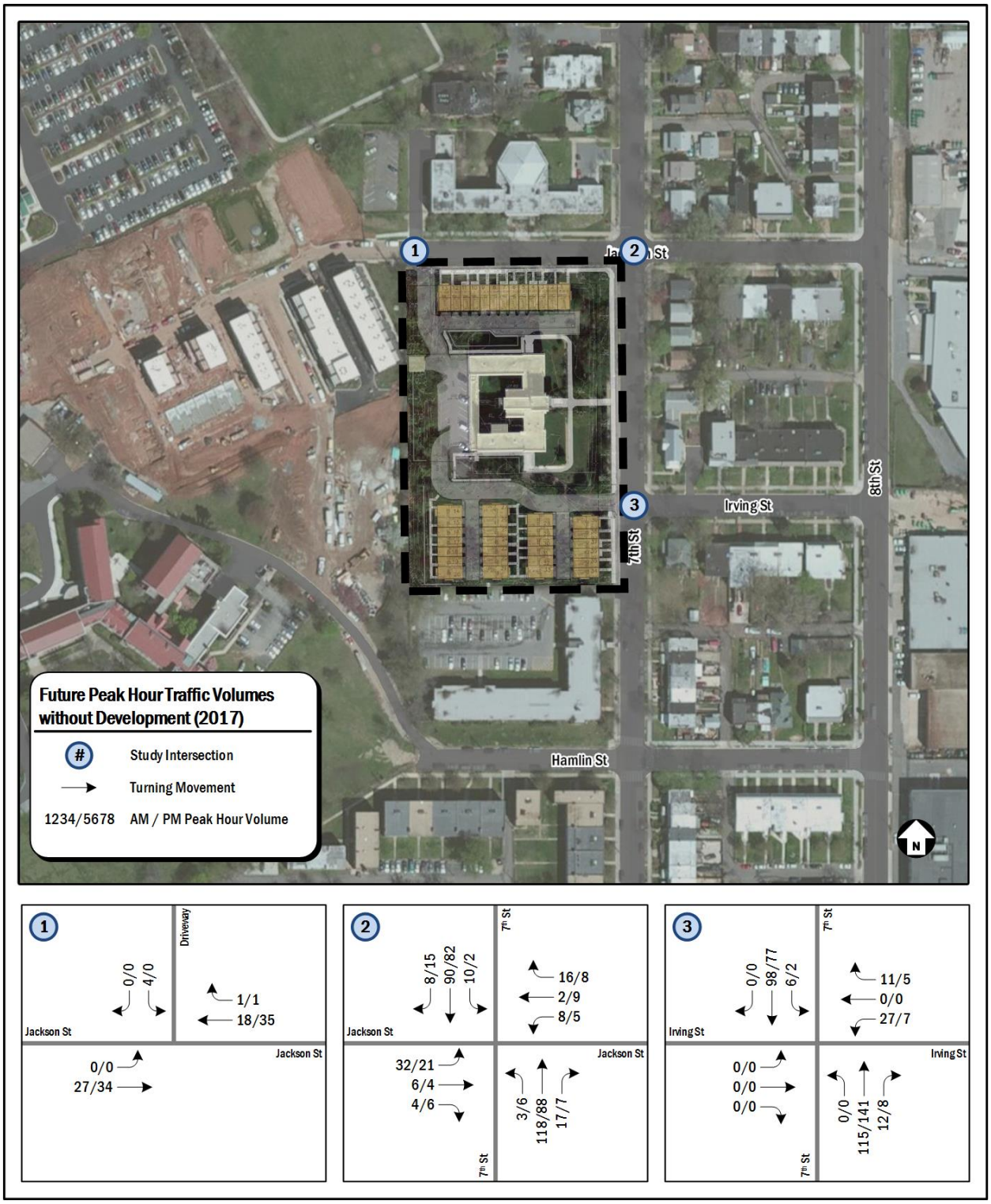

Figure 9: Background Peak Hour Traffic Volumes

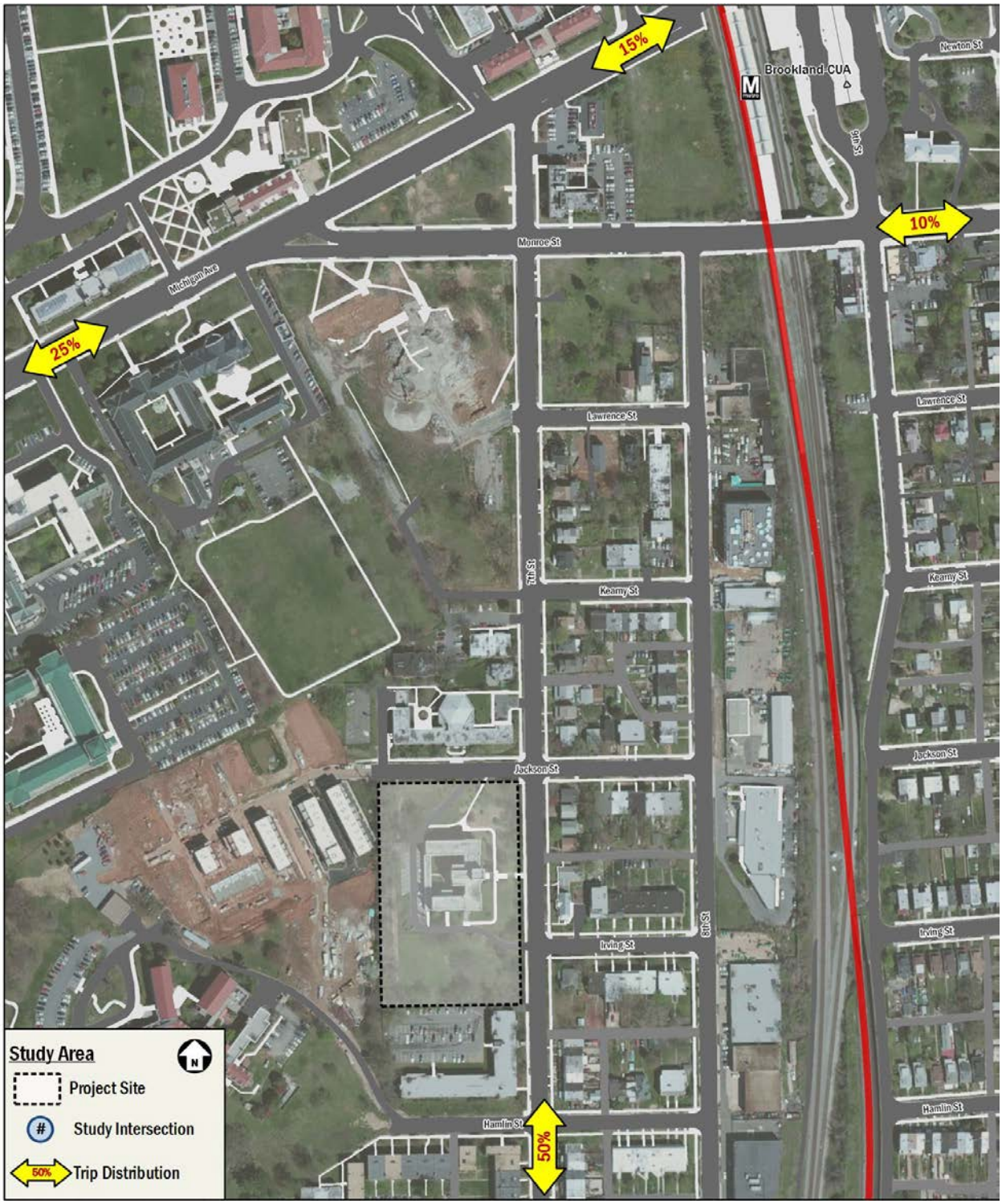

Figure 10: Brookland Townhomes Trip Distribution and Routing

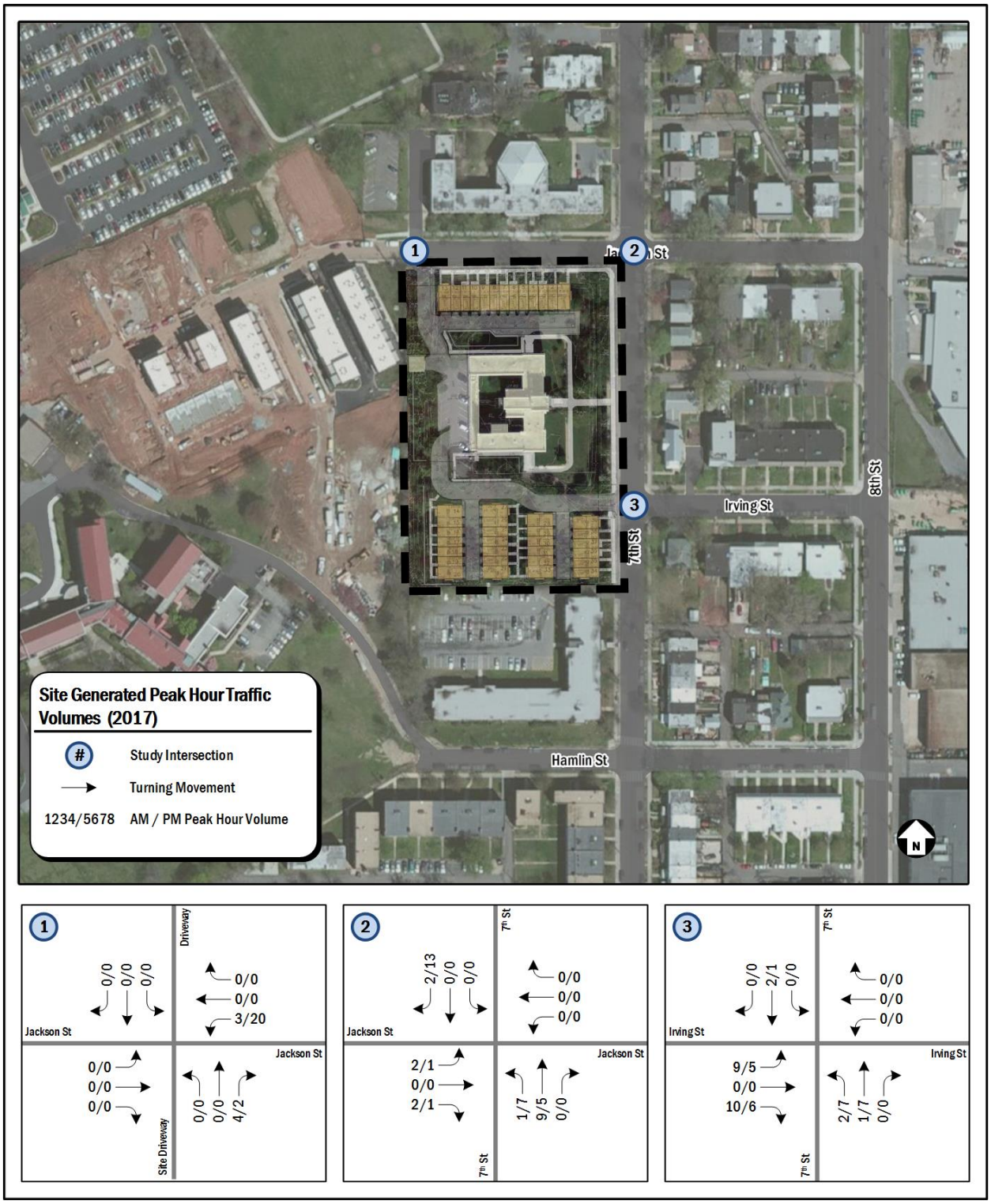

Figure 11: Site-Generated Peak Hour Traffic Volumes

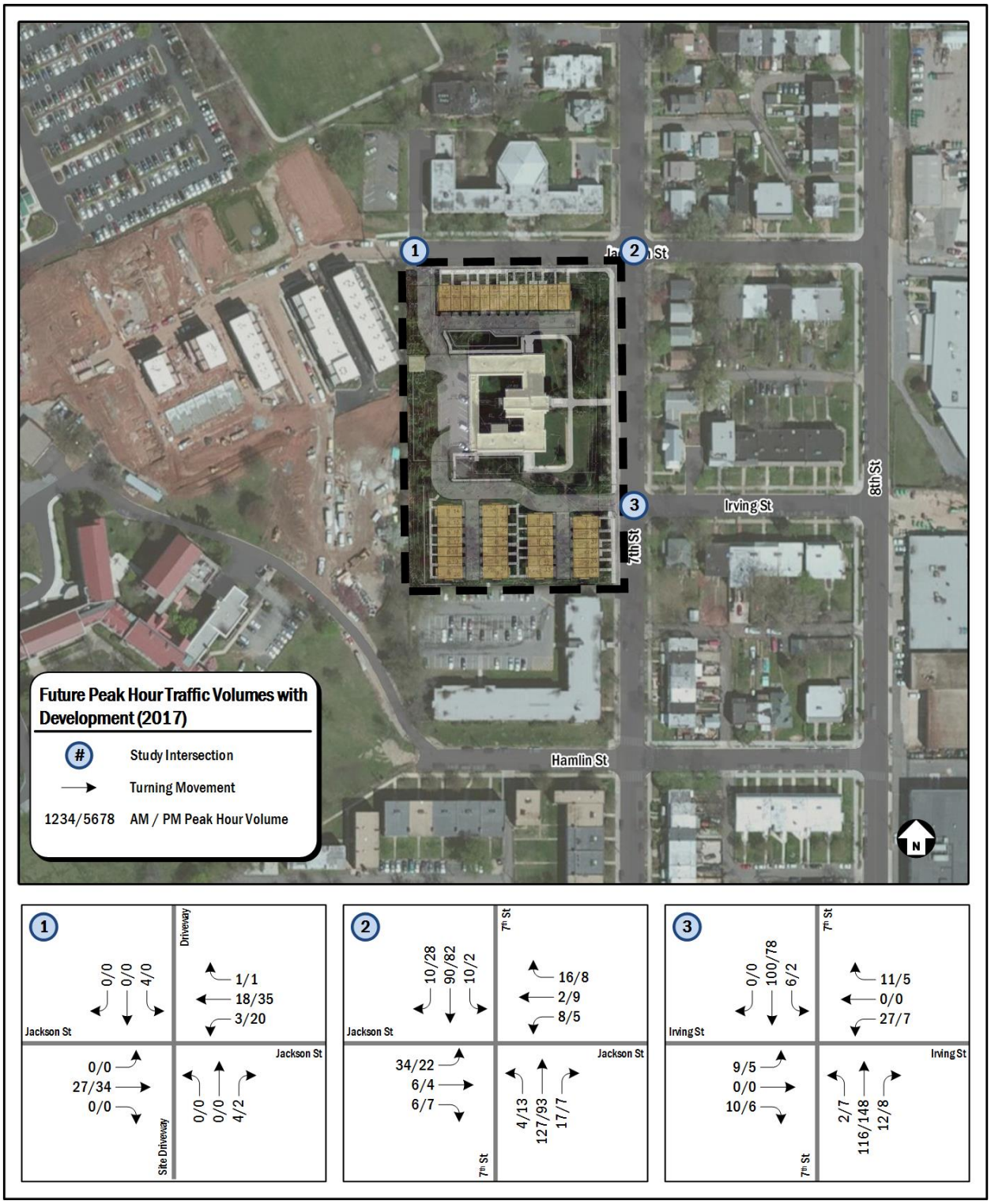

Figure 12: Total Future Peak Hour Traffic Volumes

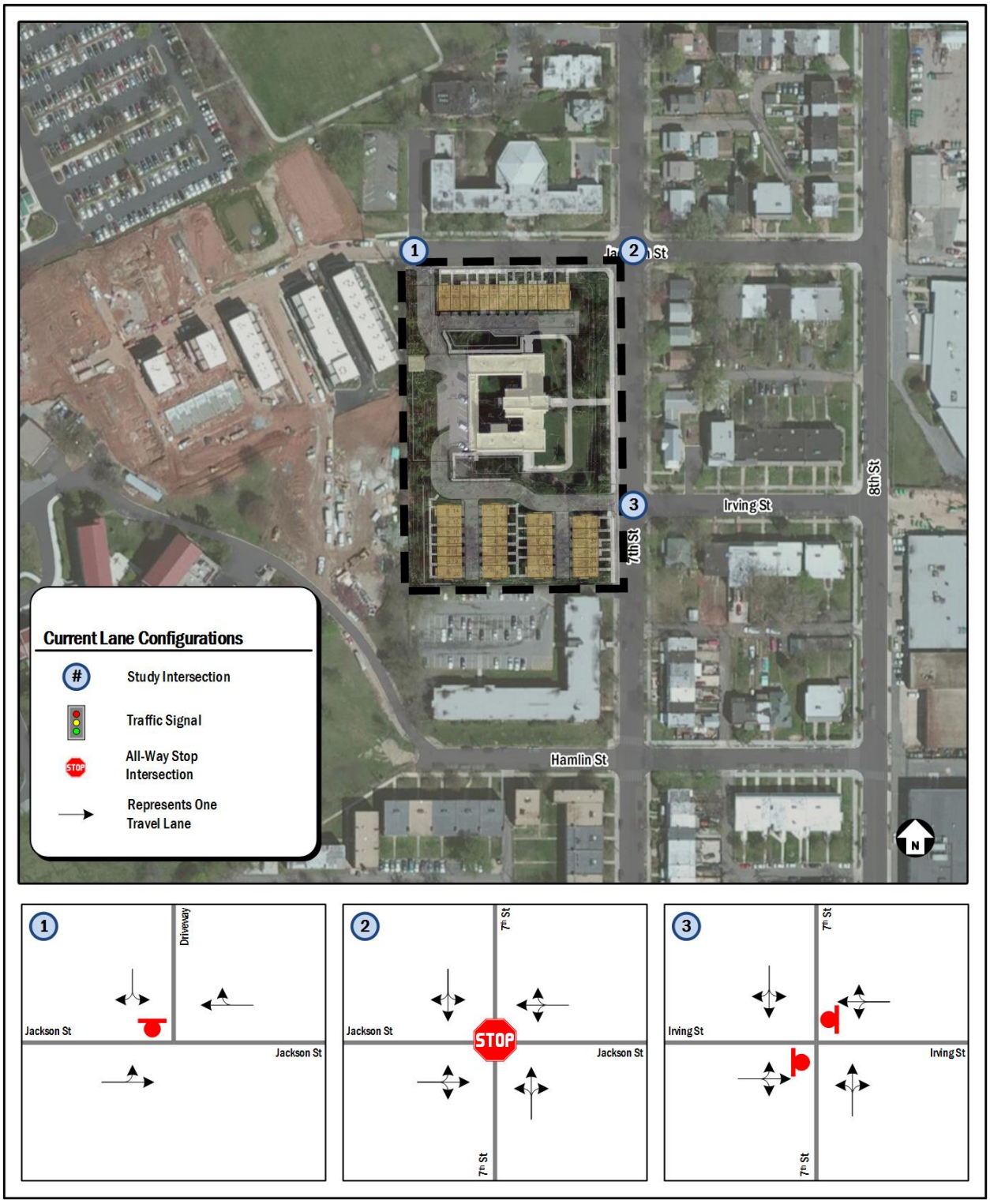

Figure 13: Current Lane Configuration and Traffic Control

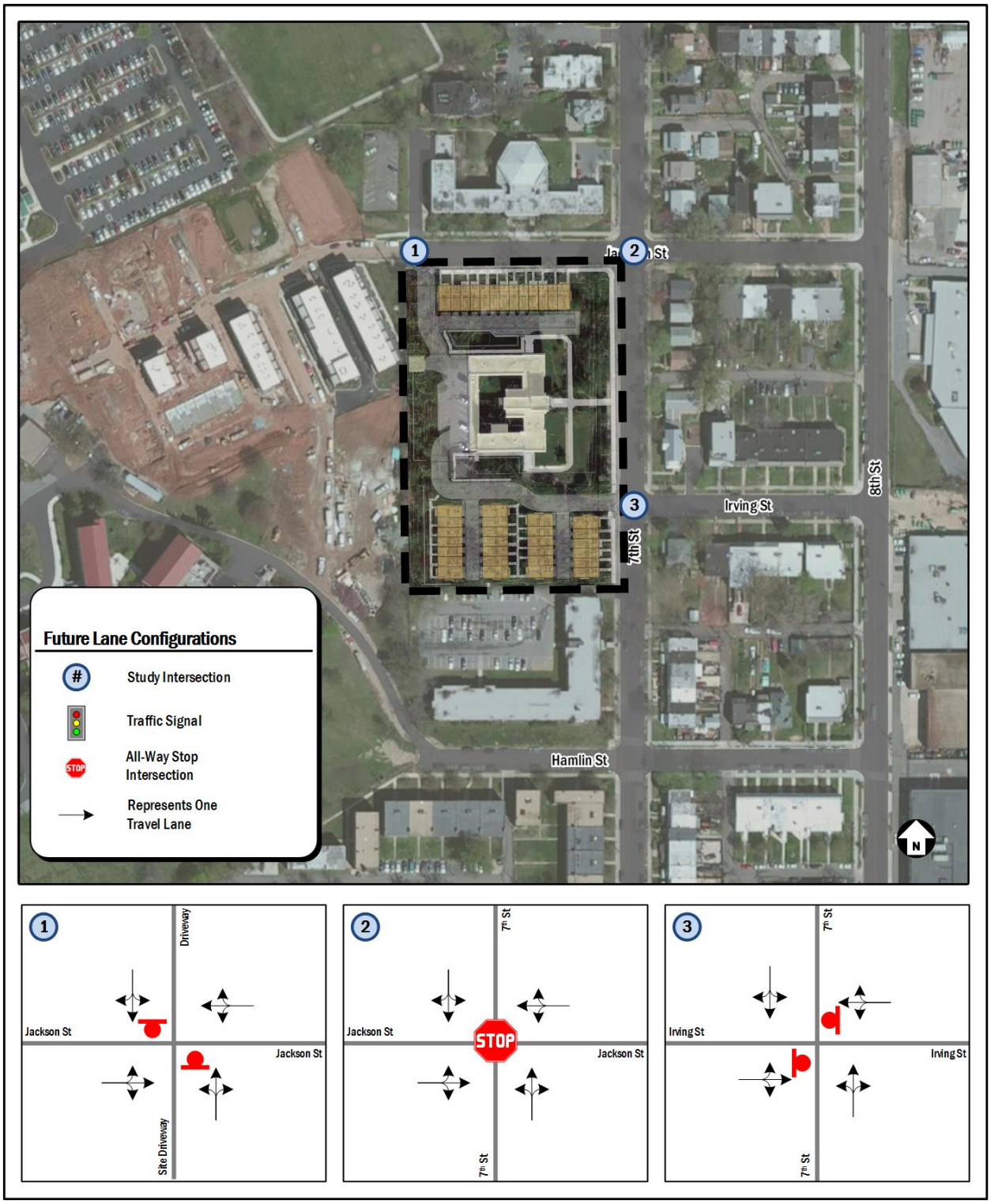

Figure 14: Proposed Lane Configuration and Traffic Control

Table 4: LOS Results

Intersection	Approach	Existing Conditions				Future Background Conditions (2017)				Total Future Conditions (2017)			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Jackson St & Driveway	**Overall**	**0.7**	**A**	**0.0**	**A**	**0.7**	**A**	**0.0**	**A**	**1.6**	**A**	**1.8**	**A**
	Eastbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
	Westbound	0.0	A	0.0	A	0.0	A	0.0	A	1.0	A	2.6	A
	Northbound	--	--	--	--	--	--	--	--	8.7	A	8.8	A
	Southbound	9.1	A	0.0	A	9.1	A	0.0	A	9.3	A	0.0	A
Jackson St & 7th St	**Overall**	**7.9**	**A**	**7.7**	**A**	**7.9**	**A**	**7.7**	**A**	**8.0**	**A**	**7.8**	**A**
	Eastbound	7.9	A	7.7	A	8.0	A	7.7	A	8.0	A	7.8	A
	Westbound	7.4	A	7.4	A	7.4	A	7.4	A	7.5	A	7.5	A
	Northbound	8.0	A	7.8	A	8.0	A	7.8	A	8.1	A	7.9	A
	Southbound	7.9	A	7.7	A	7.9	A	7.7	A	7.9	A	7.8	A
7th St & Irving St	**Overall**	**1.8**	**A**	**1.6**	**A**	**1.7**	**A**	**0.5**	**A**	**2.3**	**A**	**1.1**	**A**
	Eastbound	0.0	A	0.0	A	0.0	A	0.0	A	9.9	A	9.8	A
	Westbound	10.3	B	10.1	B	10.3	B	10.1	B	10.5	B	10.3	B
	Northbound	0.0	A	0.0	A	0.0	A	0.0	A	0.1	A	0.3	A
	Southbound	0.4	A	0.2	A	0.4	A	0.0	A	0.4	A	0.2	A

Table 5: Queuing Results

Intersection	Approach	Storage Length (ft)	Existing Conditions				Future Background Conditions (2017)				Total Future Conditions (2017)			
			AM Peak		*PM Peak*		*AM Peak*		*PM Peak*		*AM Peak*		*PM Peak*	
			50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
Jackson St & Driveway	Eastbound	600	--	0	--	0	--	0	--	0	--	0	--	0
	Westbound	280	--	0	--	0	--	0	--	0	--	0	--	0
	Northbound	115	--	0	--	0	--	0	--	0	--	0	--	0
	Southbound	140	--	0	--	0	--	0	--	0	--	0	--	0
Jackson St & 7th St	Eastbound	270	--	5	--	3	--	5	--	3	--	5	--	5
	Westbound	275	--	3	--	3	--	3	--	3	--	3	--	3
	Northbound	325	--	15	--	13	--	15	--	13	--	18	--	13
	Southbound	340	--	10	--	10	--	10	--	13	--	10	--	13
7th St & Irving St	Eastbound	200	--	0	--	0	--	0	--	0	--	3	--	3
	Westbound	275	--	5	--	5	--	5	--	3	--	5	--	3
	Northbound	340	--	0	--	0	--	0	--	0	--	0	--	0
	Southbound	325	--	0	--	0	--	0	--	0	--	0	--	0

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

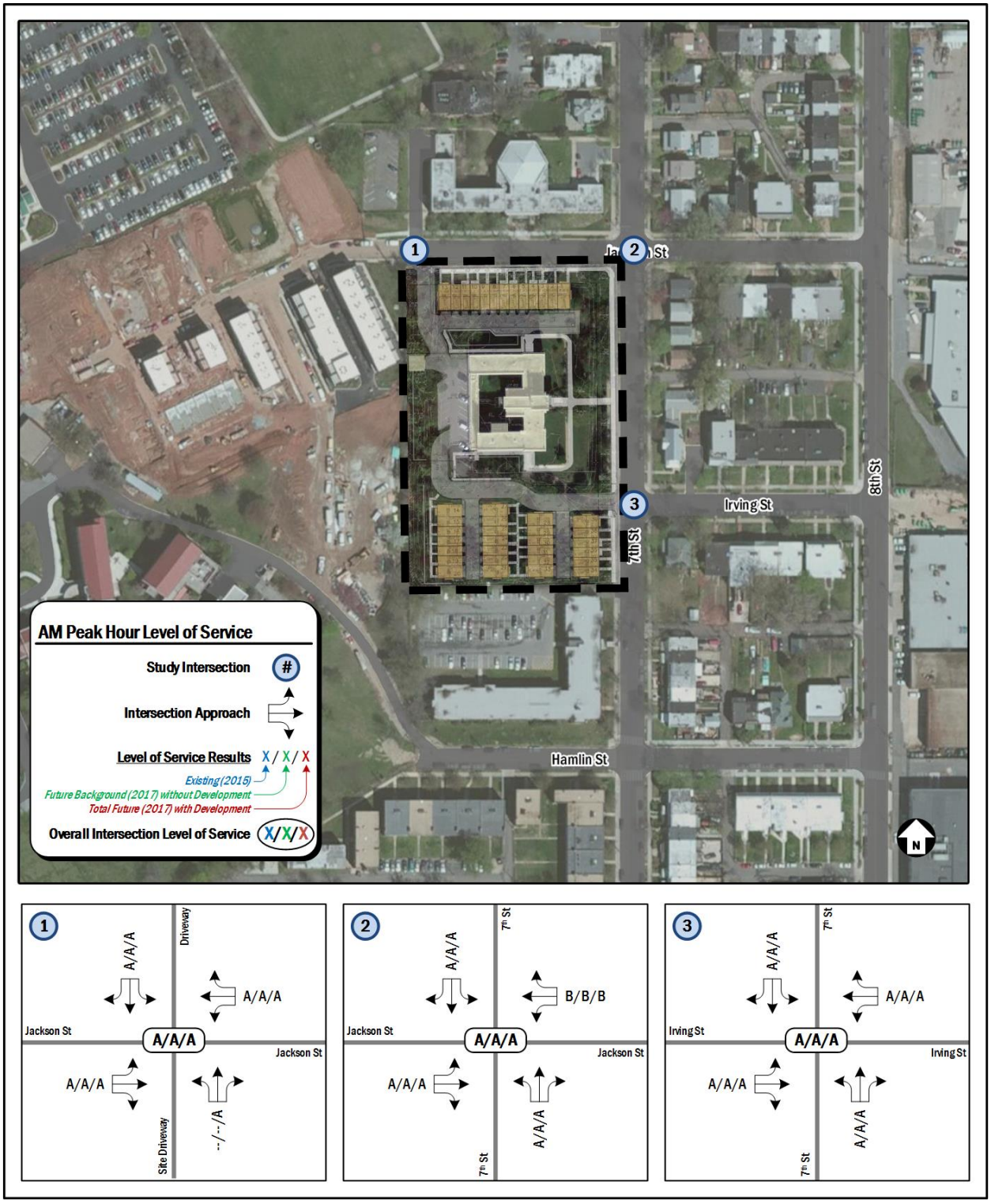

Figure 15: Morning Peak Hour Capacity Analysis Results

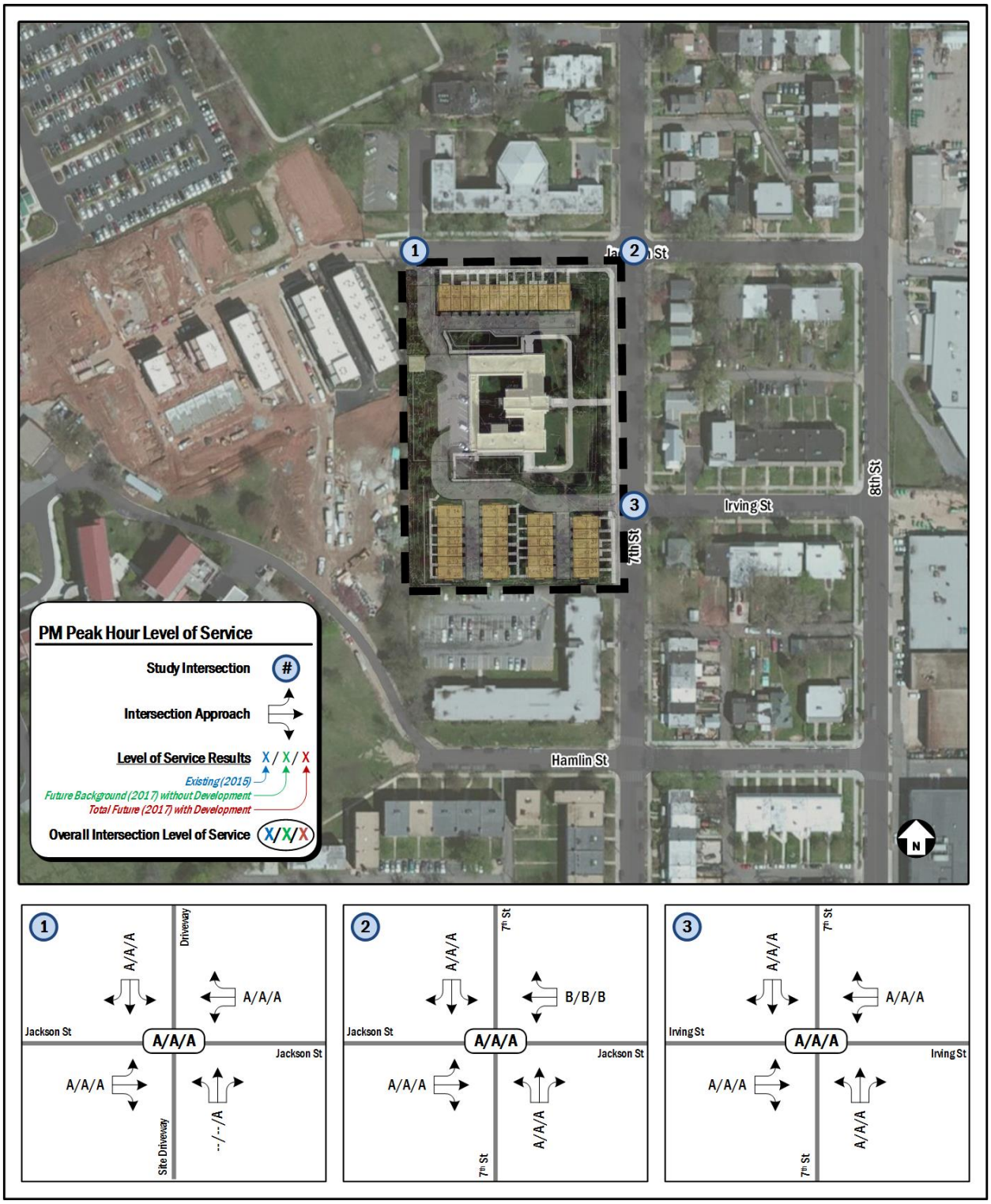

Figure 16: Afternoon Peak Hour Capacity Analysis Results

TRANSIT

This section discusses the existing and proposed transit facilities in the vicinity of the site, accessibility to transit, and evaluates the overall transit impacts due to the Brookland Townhomes project.

The following conclusions are reached within this chapter:

- The development site is near two Metrorail station and surrounded by several Metrobus routes that travel along multiple primary corridors
- The site is expected to generate a manageable amount of transit trips, and the existing service is capable of handling these new trips

EXISTING TRANSIT SERVICE

The study area is well served by Metrorail and Metrobus. Combined, these transit services provide local, city wide, and regional transit connections and link the site with major cultural, residential, employment, and commercial destinations throughout the region. Figure 17 identifies the major transit routes, stations, and stops in the study area.

The Brookland-CUA and Rhode Island Metrorail stations are each located less than 0.7 miles from the development site. Both are served by the Red Line, which travels south from Glenmont, through downtown DC, and then continues northwards through the District core to Shady Grove. Trains run approximately every three to six minutes during the morning and afternoon peak hours. They run about every 12 minutes during weekday non-peak hours, every 15-18 minutes on weekday evenings after 9:30 pm and 12 to 15 minutes on the weekends.

The site is also serviced by Metrobus along multiple primary corridors. These bus lines connect the site to many areas of the District, Maryland, and Virginia, including several Metrorail stations serving five of the six lines. Table 6 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.

PROPOSED TRANSIT SERVICE

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

One streetcar route is expected to travel near the site. This route would run along Michigan Avenue and connect the site with the Woodley Park and Brookland-CUA Metrorail stations.

SITE-GENERATED TRANSIT IMPACTS

The proposed development is projected to generate 23 transit trips (4 inbound, 19 outbound) during the morning peak hour

Table 6: Metrobus Route Information

Route Number	Route Name	Service Hours	Headway	Walking Distance to Nearest Bus Stop
80	North Capitol Street Line	Weekdays: 4:29AM-1:20AM Weekends: 4:40AM – 2:14 AM	15-30 min	0.3 miles, 5 minutes
D8	Hospital Center Line	Weekdays: 5:30AM – 1:49 AM Weekends: 6:30AM – 12:45 AM	15-30 min	0.3 miles, 6 minutes
G8	Rhode Island Avenue Line	Weekdays: 6:03AM-12:06AM Weekends: 8:27AM – 11:56 PM	30-40 min	<0.1 miles, 1 minute
H1	Brookland-Potomac Park Line	Weekdays: Northbound 4:15PM-7:04PM Southbound 6:28AM-9:50AM	15-30 min	0.3 miles, 5 minutes
H2,H3,H4	Crosstown Line	Weekdays: 4:40AM-1:24AM Weekends: 5:00AM – 12:33 PM	8-30 min	0.3 miles, 5 minutes

and 32 transit trips (21 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 20220 which shows that approximately 45 percent of transit riders used Metrorail and the remainder use Metrobus or Circulator. Given the minimal size of the development, approximately 10 people will use Metrorail and 13 will use Metrobus or Circulator during the morning peak hour; approximately 14 people will use Metrorail and 18 will use Metrobus or Circulator during the afternoon peak hour.

WMATA studied capacity of Metrorail stations in its *Station Access & Capacity Study.* 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 Brookland-CUA station will require additional sidewalks to accommodate the 14.4% growth in ridership at the station, and can currently accommodate future growth at all access points.

WMATA 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 the Metrobus routes that travel near the site exceed the acceptable load factor during all periods of the day. Based on this information and the extensive Metrobus service surrounding the site, it is not expected that site-generated transit trips will cause detrimental impacts to Metrobus service.

Figure 17: 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 a quality walking environment. There are some gaps in the system, but there are sidewalks along all primary routes to pedestrian destinations.
- The site is not expected to generate a significant amount of pedestrian trips.

PEDESTRIAN STUDY AREA

Facilities within a quarter-mile of the site were evaluated as well as routes to nearby transit facilities and prominent retail and neighborhood destinations. The site is easily accessible to transit options such as bus stops along 7th Street, Michigan Avenue, and the Brookland-CUA Station. The site is also within walking distance of many destinations such as the Catholic University of America and Trinity University. There are some barriers and areas of concern within the study area that negatively impact the quality of and attractiveness of the walking environment. This includes roadway conditions that reduce the quality of walking conditions, narrow or nonexistent sidewalks, incomplete or insufficient crossings at busy intersections, and the railroad tracks that limits connectivity to the east. Figure 18 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 planned development shows that many facilities meet DDOT standards and provide a quality walking environment. Figure 19 shows a detailed inventory of the existing pedestrian infrastructure surrounding the site. Sidewalks, crosswalks, and curb ramps are evaluated based on the guidelines set forth by DDOT's *Public Realm Design Manual* in addition to ADA standards. Sidewalk widths and requirements for the District are shown below in Table 7.

Within the area shown, most roadways are considered residential with a low to moderate density. Some areas along Monroe Street NE are considered commercial and thus require wider sidewalks. Most of the sidewalks surrounding the site comply with DDOT standards; however there are some areas which have inadequate sidewalks or no sidewalks at all. All primary pedestrian destinations are accessible via routes with sidewalks, most of which meeting DDOT standards. The sidewalks that do not meet DDOT standards are typically along routes that do not provide an acceptable buffer width, but do maintain the minimum sidewalk width. Some of these issues will be remedied as part of the project.

ADA standards require that all curb ramps be provided wherever an accessible route crosses a curb and must have a detectable warning. Additionally, curb ramps shared between two crosswalks is not desired. As shown in the figure, under existing conditions there are some issues with crosswalks and curb ramps near the site.

SITE IMPACTS

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

Pedestrian Trip Generation

The planned development is expected to generate 3 walking trips (1 inbound, 2 outbound) during the morning peak hour and 4 walking trips (3 inbound, 1 outbound) during the afternoon peak hour. The origins and destinations of these trips

Table 7: 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

are likely to be:

- Employment opportunities where residents can walk to work
- Retail locations in the vicinity of the site
- Neighborhood destinations such as CUA, Metropolitan Branch Trail, etc.

In addition to these trips, the transit trips generated by the site will also generate pedestrian demand between the site and nearby transit stops. About 45 percent of these will be walking to the Brookland-CUA and Rhode Island Metrorail Stations located less than 0.7 miles from the site and the rest will be walking to Metrobus stops, which are primarily located along 7th Street within a block of the site, or Michigan Avenue located 0.2 miles from the site.

On-Site Pedestrian Infrastructure

The Brookland Townhomes project will include enhanced pedestrian facilities within the perimeter of the site. As shown on Figure 20, the applicant will construct sidewalks and pathways within the site to allow for safe and comfortable pedestrian access and circulation. Furthermore, the creation of two mini-parks and one active-use pocket park will add pedestrian friendly on-site amenities.

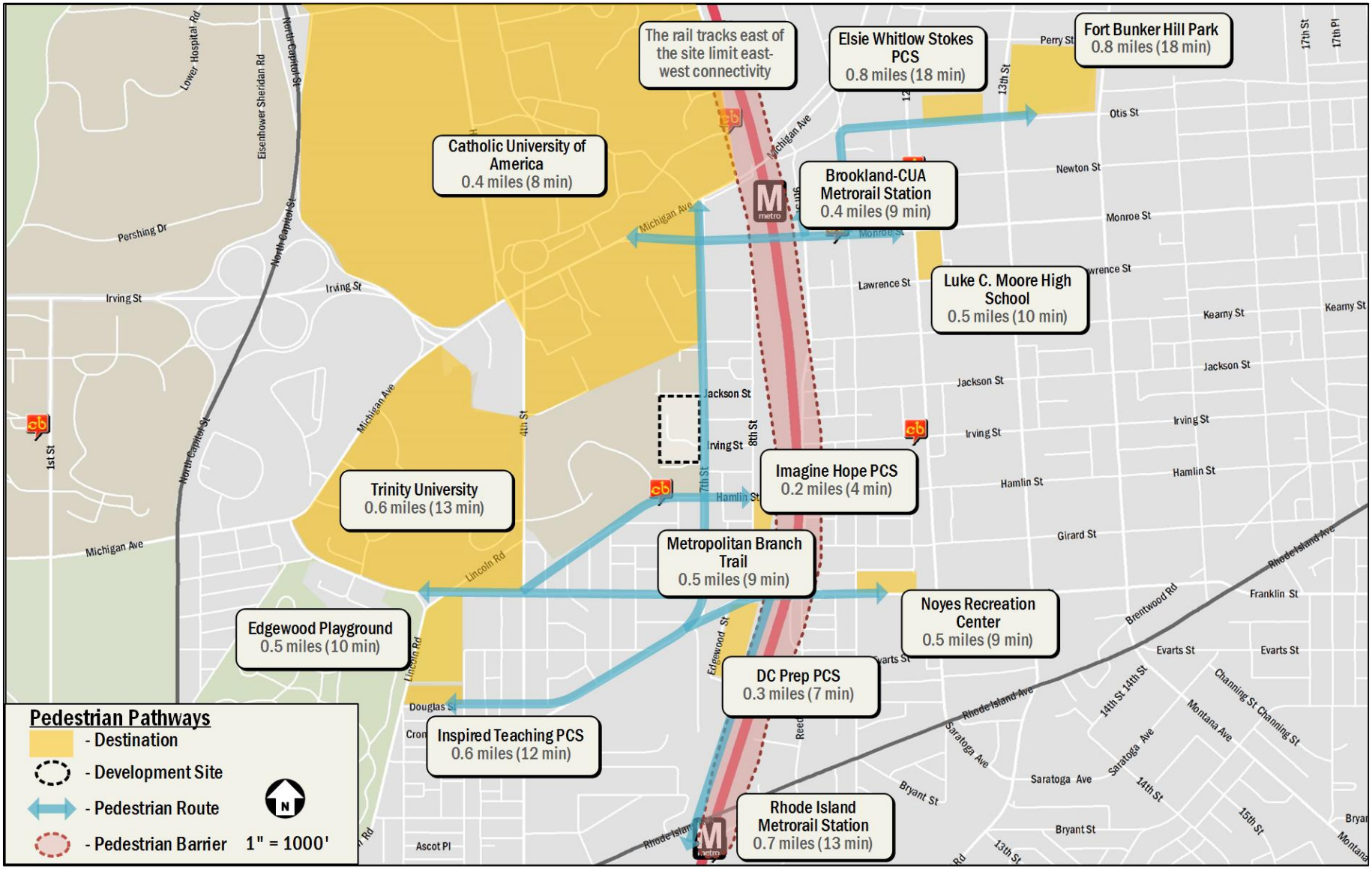

Figure 18: Pedestrian Pathways

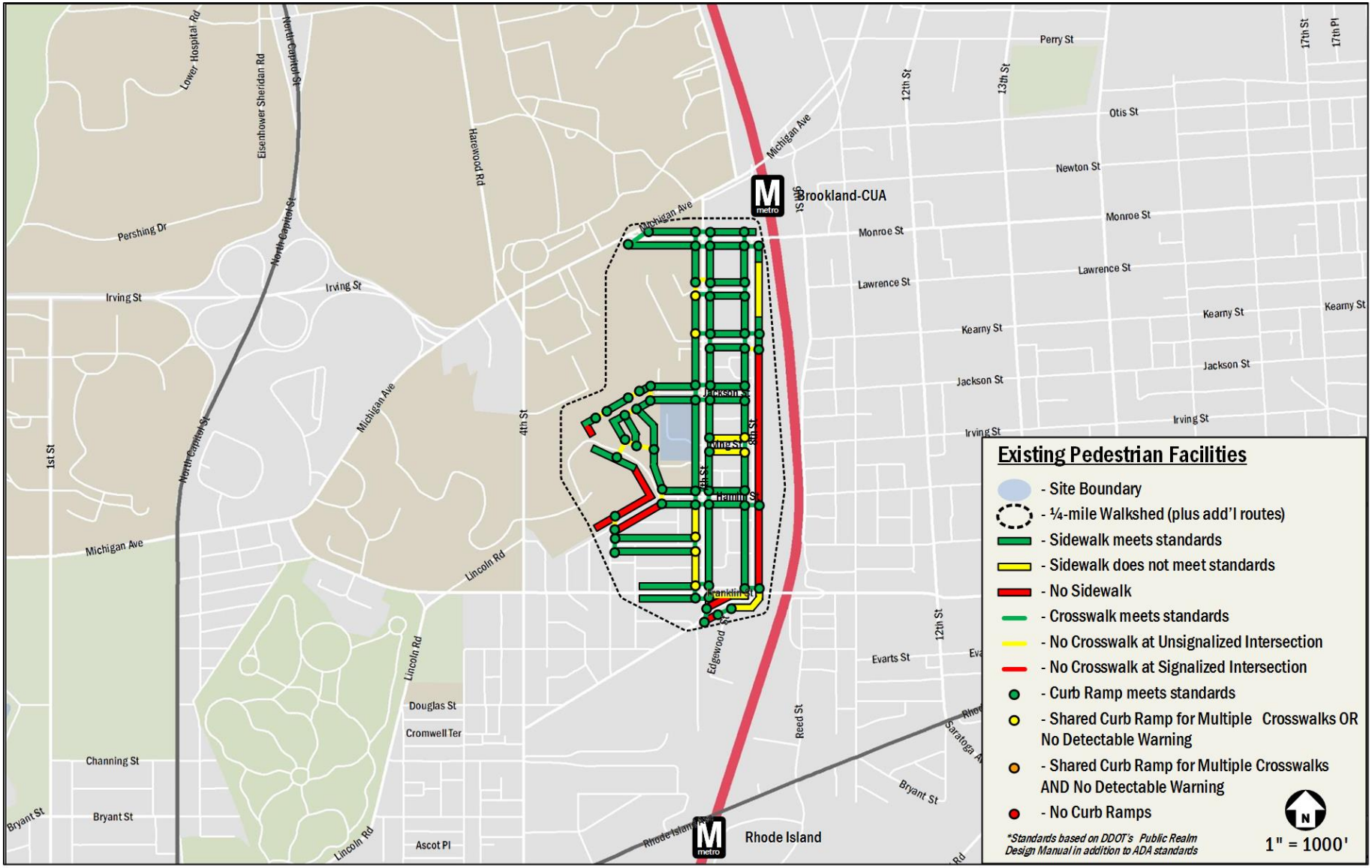

Figure 19: Existing Pedestrian Infrastructure

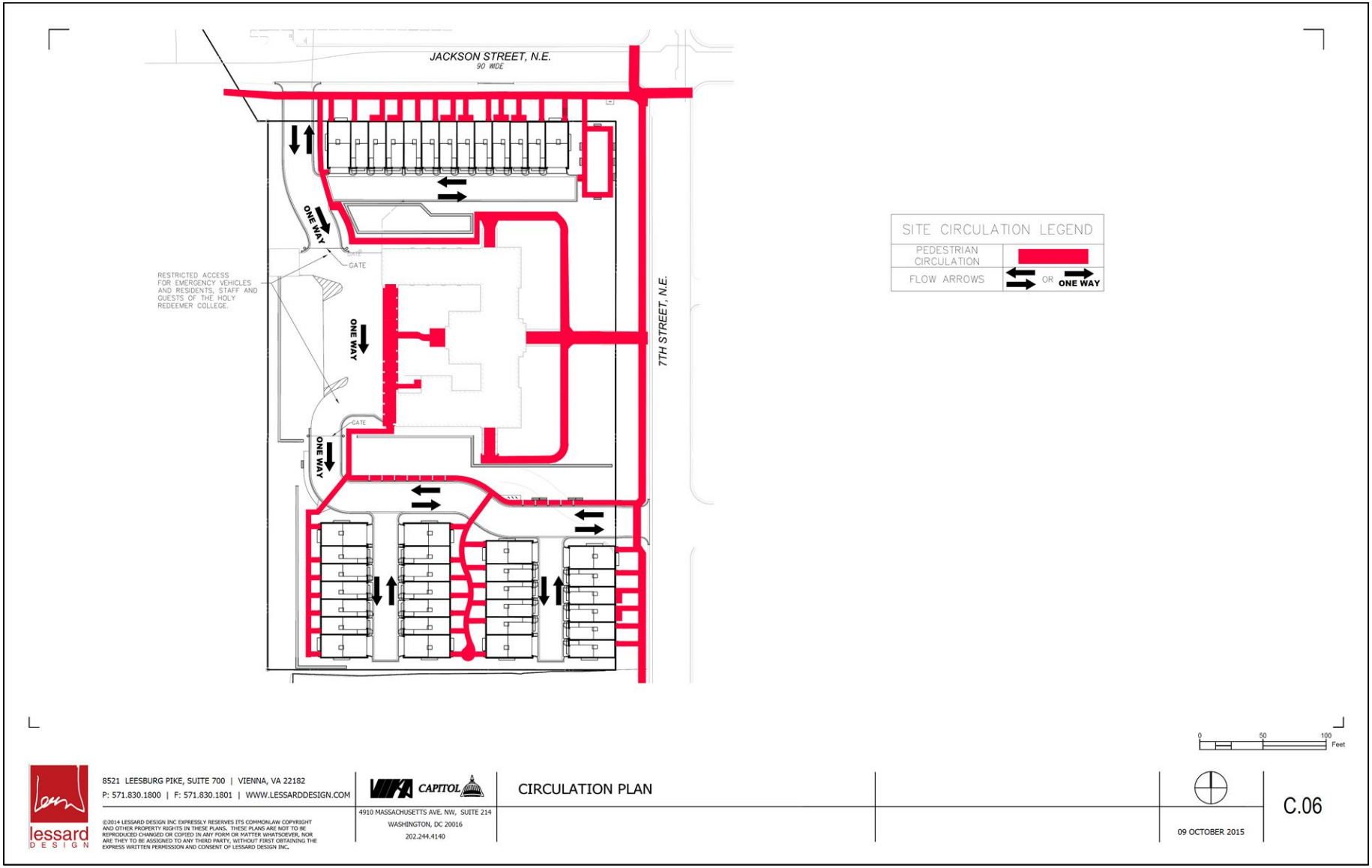

Figure 20: Internal Pedestrian Facilities

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 bike trails, bike lanes, and signed bike routes in addition to multiple nearby Capital Bikeshare stations.
- The site is not expected to generate a significant amount of bicycle trips, therefore all site-generated bike trips can be accommodated on existing infrastructure.
- The development site will include short-term bicycle racks within the site and along the perimeter of the site.

EXISTING BICYCLE FACILITIES

The site is well-connected to existing on- and off-street bicycle facilities. North-south connectivity is provided along the along bike lanes on 4th Street NE, 12th Street NE, and the Metropolitan Branch Trail. East-west connectivity is provided along the Irving Street NE/NW and Newton Street NE. Figure 21 illustrates the existing bicycle facilities in the area.

Some short-term bicycle parking exists in the vicinity of the site, particularly surrounding recently developed structures such as the Monroe Street Market. However, no bike parking is provided along the perimeter of the site under existing conditions.

In addition to personal bicycles, the Capital Bikeshare program provides an additional cycling option for residents, employees, and patrons of the planned development. The Bikeshare program has placed over 300 bicycle-share stations across Washington, DC, Arlington and Alexandria, VA, and most recently Montgomery County, MD with over 2,500 bicycles provided. Within a quarter-mile of the site there is one Capital Bikeshare station that houses a total of 15 docks. Figure 21 illustrates the existing Capital Bikeshare facilities in the area.

PROPOSED BICYCLE FACILITIES

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

- *Tier 1*
  Investments should be considered as part of DDOT's 6-year 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.

  A bicycle trail from Monroe Street NE to Park Place NW along Irving Road NE/NE will be in the tier 1 additions.

- *Tier 2*
  Investments within this tier are not high priorities in the early years of MoveDC implementation. They could begin moving through the Project Development Process if there are compelling reasons for their advancement.

  There are a few tier 2 additions that will positively affect bicycle connectivity to and from the site. A bike lane from Michigan Avenue NE to Taylor Street NE along Harewood Road and a bike lane from the Maryland/District border to M Street NW along Rhode Island Avenue NE/NW are planned. These facilities would greatly improve the bicycle connectivity near the site.

- *Tier 3*
  Investments within this tier are not priorities for DDOT-led advancement in the early years of MoveDC's implementation. They could move forward earlier under circumstances such as real estate development initiatives and non-DDOT partnerships providing the opportunity for non-District-led completion of specific funding.

- *Tier 4*
  Generally, investments within this tier are not priorities for DDOT-led advancement and are lower priority for project development in the early years of implementation.

Due to the timeline of the Brookland Townhomes development, this report focuses 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 or included in DDOT's Transportation Implementation Plan thus they will not be assumed as complete for this analysis.

SITE IMPACTS

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

Bicycle Trip Generation

The planned 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. Although bicycling will be an important mode for getting to and from the site, with facilities located on site and quality routes to and from the site, the impacts from bicycling will be relatively less than impacts to other modes.

On-Site Bicycle Elements

The project will provide amenities that cater to cyclists including short-term bicycle racks. Exact numbers and locations of bicycle racks have not yet been determined; however, it is expected that bicycle racks will be located along the perimeter of the site. The Applicant is willing to work with DDOT to determine the locations of bicycle racks within public space.

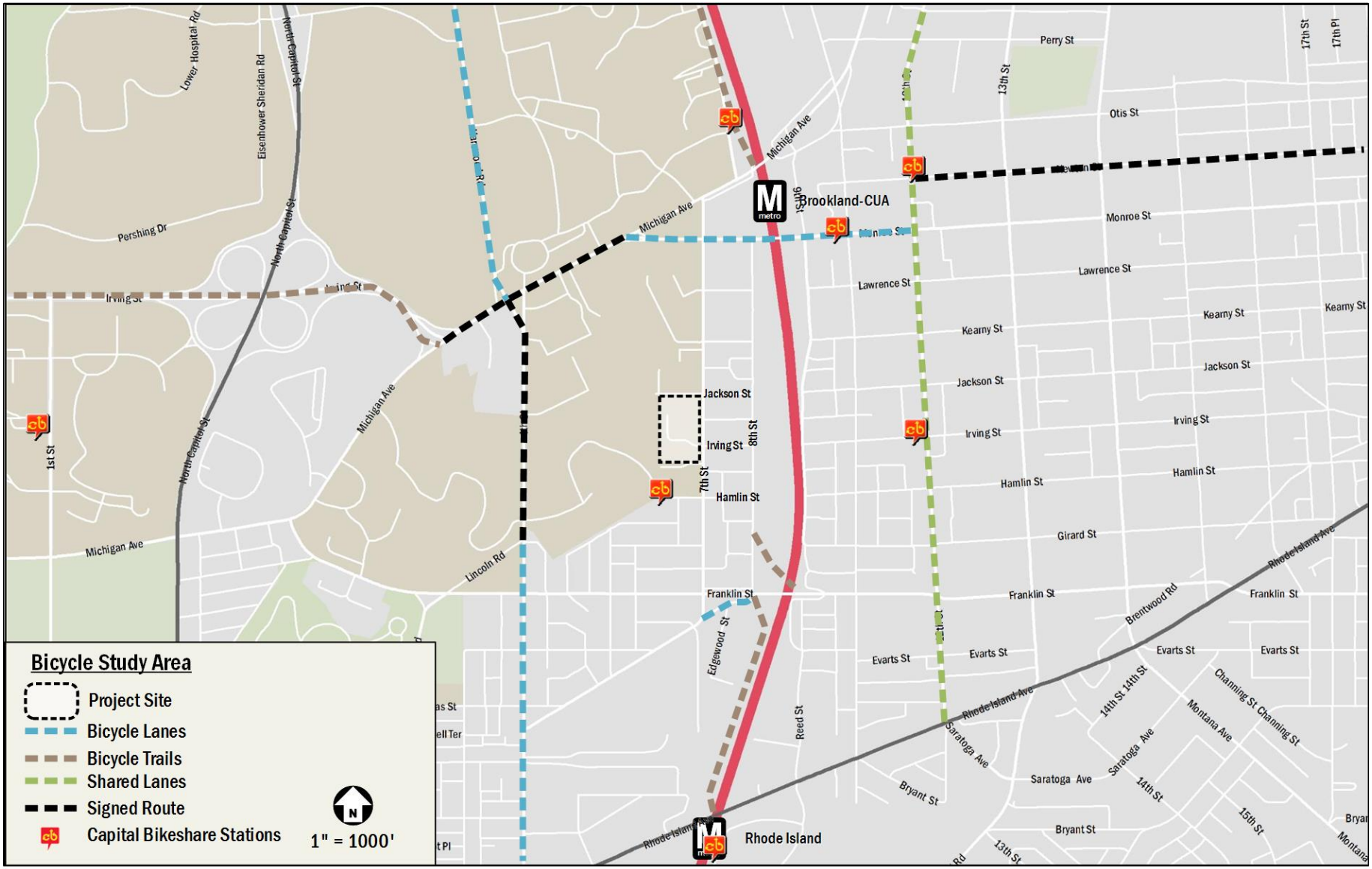

Figure 21: Existing Bicycle Facilities

CRASH DATA ANALYSIS

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

SUMMARY OF AVAILABLE CRASH DATA

A crash analysis was performed to determine if there was an abnormally high crash rate at study area intersections. DDOT provided the last three years of intersection crash data, from 2012 to 2014 for the study area. This data was reviewed and analyzed to determine the crash rate at each location. For intersections, the crash rate is measure in crash per million-entering vehicles (MEV). The crash rates per intersections are shown in Table 8.

According to the Institute of Transportation Engineer's *Comprehensive Transportation Review for Site Development*, a crash rate of 1.0 or higher is an indication that further study is required. No intersections in this study area meet this criterion.

Table 8: Intersection Crash Rates (2012 to 2014)

Intersection	Total Crashes	Ped Crashes	Bike Crashes	Rate per MEV*
2. 7th Street NE & Jackson Street NE	2	0	0	0.65
3. 7th Street NE & Irving Street NE	1	1	0	0.37

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

SUMMARY AND CONCLUSIONS

This report presents the findings of the Comprehensive Transportation Review (CTR) conducted for the Brookland Townhomes project. This report reviews the transportation aspects of the project's Planned Unit Development (PUD) application. The Zoning Commission Case Number is 15-02.

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 total future conditions. This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network assuming that all planned site design elements are implemented.

Proposed Project

The site is currently home to a residential building for the Holy Redeemer College and an associated surface parking lot, and is located on the southwest corner of the Jackson Street and 7th Street NE intersection. The site is generally bound by the Chancellor's Row Townhomes development to the west, Jackson Street to the north, 7th Street to the east, and University Hall Condominiums to the south.

The application plans to develop part of the site into a residential development while renovating the existing building on-site to include new residential units. The site will include 39 townhomes and up to 46 new residential units in the renovated existing Redemptorists' Building with its associated surface parking lot.

Parking and loading access will be off of Jackson Street and 7th Street. The development will utilize the existing curb cut on 7th Street and shift the existing curb cut on Jackson Street 150 feet west of its current location.

Pedestrian facilities along the perimeter of the site will be improved where necessary to include sidewalk and buffer widths that meet DDOT requirements. The development will supply short-term bicycle parking in and around the perimeter of the site.

Multi-Modal Impacts and Recommendations

Transit

The site is well-served by regional and local transit services such as Metrorail, Metrobus, and Circulator. The site is less than 0.4 miles from the nearest Brookland-CUA Metrorail Station portal located at the Monroe Street and 9th Street intersection. Metrobus stops are located within a block of the site along 7th Street.

Although the Brookland Townhomes development will be generating new transit trips on the network, the existing facilities have enough capacity to handle the new trips. The Brookland-CUA Metrorail station does not have existing capacity concerns and is not expected to as a result of the planned development. Some nearby Metrobus lines do have existing capacity concerns, but the small amount of transit trips added to the network as a result of the planned development will not exacerbate existing conditions by much.

Pedestrian

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

As a result of the planned development, pedestrian facilities along the perimeter of the site will be improved where necessary. The development will ensure that sidewalks adjacent to the site meet DDOT requirements and provide an adequate pedestrian environment.

Bicycle

The site is well served by existing bicycle facilities. Many trails, bike lanes, and signed bike routes exist near the site such as the Metropolitan Branch Trail to the east, north-south bike lanes along 4th Street NE, and east-west bike routes along Irving Street. The site is also served by the Capital Bikeshare program which provides an additional cycling option for residents, employees, and patrons of the Broookland Townhomes development.

On site, the planned development will provide short-term bicycle parking along the perimeter of the site.

Vehicular

The Brookland Townhomes site is well-connected to regional roadways such as US Route 1, US Route 29, US Route 50, and Interstate 395, as well as primary and minor arterials such as Michigan Avenue and an existing network of collector and local roadways.

In order to determine if the proposed development will have a negative impact on this transportation network, this report projects future conditions with and without the development of the site and performs analyses of intersection delays. These delays are compared to the acceptable levels of delay set by DDOT standards to determine if the site will negatively impact the study area.

The analyses conclude that the planned development will not have adverse impacts on the surrounding transportation network.