

**COMPREHENSIVE TRANSPORTATION REVIEW**

# **680 RHODE ISLAND AVENUE PUD**

**WASHINGTON, DC**

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## EXECUTIVE SUMMARY

The following report is a Comprehensive Transportation Review (CTR) for the 680 Rhode Island Avenue development. The report reviews the transportation aspects of the project's Planned Unit Development (PUD) application. The PUD is in seven phases; Phase 1 is applying for consolidated PUD approval, and Phases 2-7 are applying for Stage 1 approvals only. The Zoning Commission Case Number is 15-16.

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, two background conditions, and two 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 planned development will replace the underutilized strip shopping center and associated surface parking lot with a mixed-use project with a thriving pedestrian-friendly environment. The site is located in the Edgewood neighborhood, in the Northeast quadrant of Washington, DC. The site is generally bound by the Metropolitan Branch Trail and Metrorail Red Line tracks to the east, Rhode Island Avenue to the south, 4<sup>th</sup> Street to the west, and a residential development to the north.

The project consists of six blocks, nine buildings, and seven phases as follows:

- Phase 1 of the development will be a consolidated PUD and will include Blocks 1A, 1B and 5B. Over the three buildings, representing all of Block 1 and half of Block 5, Phase 1 will include up to 484 residential units, 85,190 square feet of retail, and 23,250 square feet of office space.
- Phase 2 of the development will include Block 2B. Phase 2 of the development will include a 950 seat movie theatre and 7,160 square feet of retail.
- Phase 3 of the development will include Block 3. Phase 3 will include 368 dwelling units and 82,558 square feet of grocery space.

- Phase 4 will include Block 2A, the second half of Block 2, and is a single structure with up to 336 dwelling units and 30,106 square feet of retail.
- Phase 5 will include Block 4, a single structure with up to 163 dwelling units and 19,595 square feet of retail.
- Phase 6 will include Block 5A, the second half of Block 5, and is a single structure with up to 164 dwelling units and 17,685 square feet of retail.
- Phase 7 will include Block 6, a single structure with up to 116 dwelling units and 8,828 square feet of retail.

As part of the development, the internal roadway network will be reconfigured. The main internal east-west spine will be shifted northward and aligned as an extension of Bryant Street at the intersection of Bryant Street and 4<sup>th</sup> Street. The PUD takes advantage of the size of the development to reconfigure and enhance the internal roadway network. The existing internal roadway system and surface parking lot is auto-centric, set back from the street, with little neighborhood connectivity. The proposed internal roadway configuration integrates the site with the surrounding neighborhood, harnessing the benefits of being proximately located to the Metropolitan Branch Trail as well as the Metrorail.

Vehicular and loading access will be through two internal roadways that intersect Rhode Island Avenue, and through two internal roadways that intersect with 4<sup>th</sup> Street. The internal roadways intersecting public streets will connect to the extension of Bryant Street, an internal roadway which will act as the east-west spine running through the site providing access to all the blocks.

The reconfiguration of internal roadways within the site will improve pedestrian connectivity within and through the site, and create a more welcoming and safer feeling environment.

Within the site, the development will result in new or improved sidewalks along the interior and perimeter of the site. This will be particularly impactful along Rhode Island Avenue, where sidewalks do not meet DDOT standards and along the internal roadways of the site, where no pedestrian facilities currently exist. Pedestrian facilities along Bryant Street and all other internal roadways are expected to meet or exceed DDOT requirements with an emphasis on pedestrian safety and comfort. This includes sidewalks that meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such



as curb extensions and room for outdoor seating. In addition, the construction of an urban plaza at the eastern edge of the site will coincide with proposed improvements to the Metropolitan Branch Trail. The urban plaza will engage directly with the Metropolitan Branch Trail and the Rhode Island Avenue Metrorail station pedestrian access bridge. Pedestrians will be seen as the primary users of the plaza such that automobiles will travel at lower speeds and yield to pedestrians. The combination of low speeds and aesthetically-pleasing design elements creates a pedestrian environment that is safe, functional, and visually appealing.

The development will supply long-term bicycle parking within all blocks of the development, and short-term bicycle parking in and around the perimeter of the site. The applicant will also fund the installation of a Capital Bikeshare station on-site, as well as the operations and maintenance of the station for one year.

### **Multi-Modal Impacts and Recommendations**

#### *Transit*

The site is well served by regional and local transit services such as Metrorail and Metrobus. The site is less than 0.1 miles from the Rhode Island Avenue Metrorail station serving the Red Line. Metrobus stops are located near the site along 4<sup>th</sup> Street, Rhode Island Avenue, Edgewood Street, and at the Rhode Island Avenue Metrorail station.

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

#### *Pedestrian*

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

As a result of the development, pedestrian facilities along the perimeter of the site will be improved, particularly along Rhode Island Avenue. The development will ensure that sidewalks along the interior of the site meet or exceed DDOT width requirements and provide an adequate pedestrian environment. The construction of an urban plaza as well as

improvements to the Metropolitan Branch Trail will further enhance pedestrian facilities within and without the site. In addition, stair connections to the residential development to the north will add connectivity for residents that live north of the site to and through the PUD.

#### *Bicycle*

The site has access to existing on- and off-street bicycle facilities. The Metropolitan Branch Trail travels along the Metrorail Red Line tracks and the 4<sup>th</sup> Street bicycle lanes provide an additional north-south connection. On-site and in conjunction with the construction of Phase 1, an 8-foot cycle track with a 3-foot buffer will be constructed along the east-west roadway that is in place under existing conditions that will link 4<sup>th</sup> Street and the Metropolitan Branch Trail. Proposed improvements to the Metropolitan Branch Trail on behalf of the development are planned for Phase 1, and will further improve bicycle access and connectivity to and from the site.

Under full buildout conditions, a 10-foot-wide cycle track with a 3-foot buffer will be constructed along Bryant Street that will link 4<sup>th</sup> Street and the Metropolitan Branch Trail. A total of 12,300 square feet of private land is being dedicated to provide a public accessible amenity which will greatly improve bicycle connectivity in the area.

The development will supply long-term bicycle parking within all garages of the development, and short-term bicycle parking in and around the perimeter of the site. The applicant will also fund the installation of a Capital Bikeshare station on-site, as well as the operations and maintenance of the Station for one year.

#### *Vehicular*

The proposed development is well-connected to regional roadways such as I-395, primary and minor arterials such as Rhode Island Avenue and North Capitol Street, 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. Due to the phased nature of this development, this analysis included two background conditions, and two future conditions with Phase 1 and full build-out of the site. The delays associated with each analysis scenario 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 concluded that the planned development will not have adverse impacts on the surrounding transportation network.

The analysis concluded that four (4) intersections required mitigation as a result of either Phase 1 or the full buildout of the development. Mitigation measures were proposed as follows:

- *Rhode Island Avenue & Lincoln Road NE*  
This report recommends this intersection be improved with signal timing adjustments to allow greater volumes to move across Lincoln Road NE.
- *Rhode Island Avenue & 4<sup>th</sup> Street NE*  
This report recommends this intersection be improved with signal timing adjustments to allow greater volumes to move across 4<sup>th</sup> Street NE.
- *Channing Street & 4<sup>th</sup> Street NE*  
This report recommends this intersection be improved with a new traffic signal as well as the reconfiguration of the westbound approach to consolidate the Edgewood Commons and 680 Rhode Island Avenue PUD driveways into one approach at full buildout of the development.
- *Franklin Street & 4<sup>th</sup> Street NE*  
This report defers to DDOT's Signal Optimization Project, which plans to improve the levels of service at this intersection.

#### *Summary and Recommendations*

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

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

- The site's close proximity to Metrorail.
- The removal of existing internal roadways and subsequent replacing with new internal roadways provides an upgrade in the urban fabric of the network, fits future planning efforts, and significantly increases the site's porosity for all modes of travel.

- The inclusion of secure long-term bicycle parking spaces within all garages of the development that meet or exceed zoning requirements and the installation of a new Capital Bikeshare Station.
- The creation of approximately 44,000 square feet of green space, 12,500 square feet of public plaza space, 88,500 square feet of internal roadways that are open to the public, and 12,300 square feet of bike trails running through the site.

This report analyzed the potential impacts of the PUD, and concluded that the PUD will not have a detrimental impact to the surrounding transportation network, as long as the project implements the recommendations as follows:

- Signal timing improvements to the intersection of Rhode Island Avenue and Lincoln Road NE.
- Signal timing improvements to the intersection of Rhode Island Avenue and 4<sup>th</sup> Street NE.
- Signal timing improvements to the intersection of Franklin Street and 4<sup>th</sup> Street NE.
- A new traffic signal and consolidation of the westbound driveways at the intersection of Channing Street and 4<sup>th</sup> Street NE.
- Installing/upgrading curb ramps and crosswalks as necessary around the site.
- Implementing the Transportation Demand Management (TDM) plan detailed within the body of this report.
- Installing a Capital Bikeshare station within the development in conjunction with DDOT.



# INTRODUCTION

## PURPOSE OF STUDY

This report reviews the transportation elements of the 680 Rhode Island Avenue PUD. The site, shown in Figure 1 and Figure 2, is located in the Edgewood neighborhood in Northeast DC.

The purpose of this report is to:

1. Review the transportation elements of the development site plan and demonstrate that the site conforms to DDOT's general policies of promoting non-automobile modes of travel and sustainability.
2. Provide information to 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 mitigation measures for minimizing impacts.
- Transit  
This section summarizes the existing and future transit service adjacent to the site, reviews how the project's transit demand will be accommodated, outlines impacts, and presents recommendations as needed.
- Pedestrian Facilities  
This section summarizes existing and future pedestrian access to the site, reviews walking routes to and from the project site, outlines impacts, and presents recommendations as needed.
- Bicycle Facilities  
This section summarizes existing and future bicycle access to the site, reviews the quality of cycling routes to and from the project site, outlines impacts, and presents recommendations as needed.
- Safety/Crash Analysis  
This section reviews the potential safety impacts of the project. This includes a review of crash data at intersections in the study area and a qualitative discussion on how the development will influence safety.
- Summary and Conclusions  
This section presents a summary of the recommended mitigation measures by mode and presents overall report findings and conclusions.

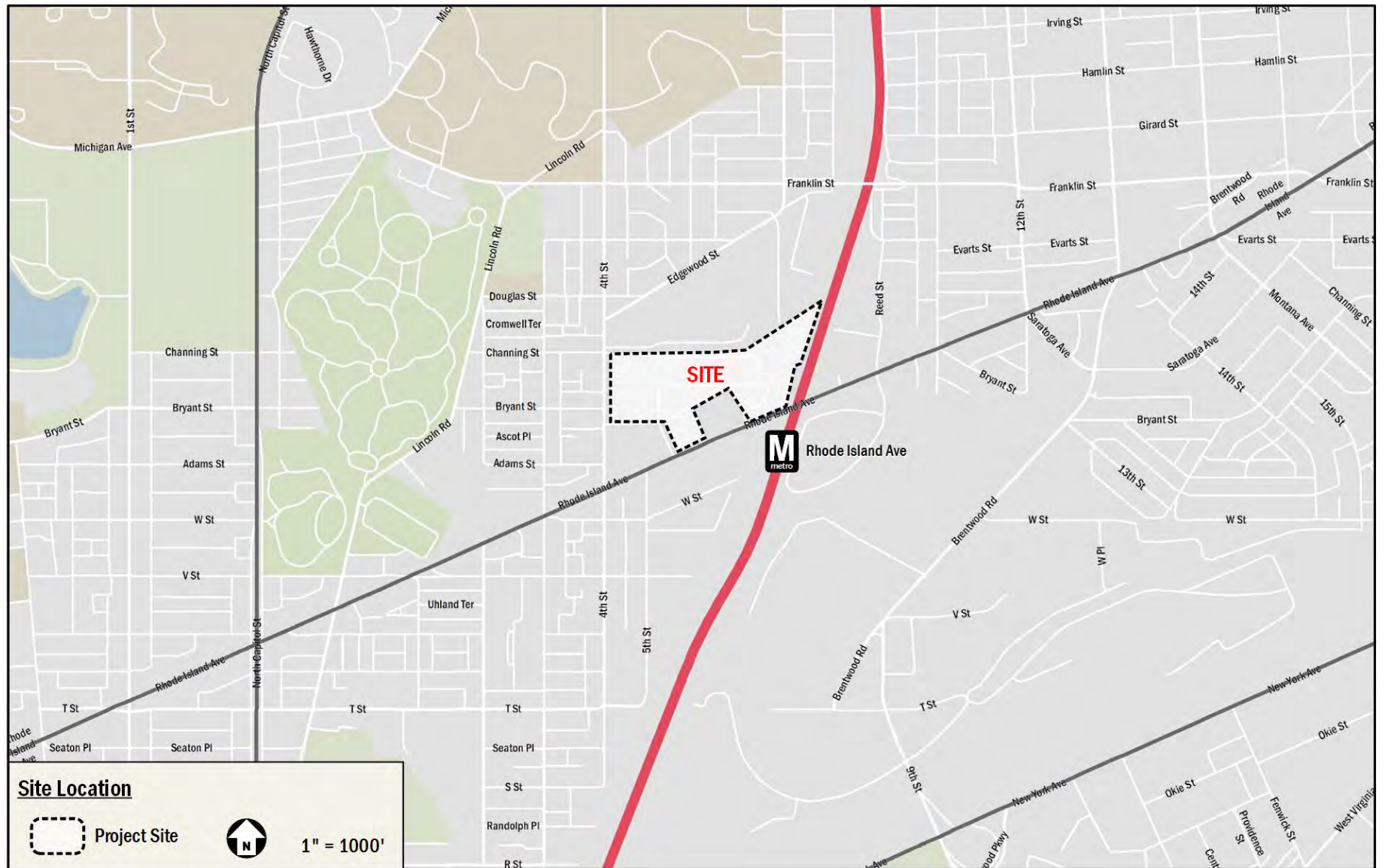


Figure 1: Site Location





Figure 2: Site Aerial



## STUDY AREA OVERVIEW

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

The following conclusions are reached within this chapter:

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

### MAJOR TRANSPORTATION FEATURES

#### Overview of Regional Access

The 680 Rhode Island Avenue site has ample access to regional vehicular- and transit-based transportation options, as shown in Figure 4, that connect the site to destinations within the District, Virginia, and Maryland.

The site is accessible from several interstates and principal arterials such as I-395, North Capitol Street, and Rhode Island Avenue. The interstate and arterials create connectivity to I-695, I-295, and ultimately 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 a half-mile of the site, at which point arterials and local roads can be used to access the site directly.

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

The site is located nearby the Rhode Island Avenue Metrorail station. The proposed development has access to the Red Line which provide connections to areas in the District and

Maryland. The Red Line connects Rockville, MD with Glenmont, MD while providing access to the District core. Of particular importance, the Red Line provides a direct connection to Union Station, which is a hub for commuter rail – such as Amtrak, MARC, and VRE – in addition 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 several local transportation options near the site that serve vehicular, transit, walking, and cycling trips, as shown on Figure 5.

The site is served by a local vehicular network that includes several primary and minor arterials such as Rhode Island Avenue (US-1), 4<sup>th</sup> Street, and 3<sup>rd</sup> Street. In addition, there is an existing network of connector and local roadways that provide access to the site.

The Metrobus system provides local transit service in the vicinity of the site, including connections to several neighborhoods within the District and additional Metrorail stations. As shown in Figure 5, there are 15 routes that service the site. In the vicinity of the site, the majority of routes travel along Rhode Island Avenue. These bus lines connect the site to many areas of the District and suburban Maryland.

There are existing bicycle facilities that connect the site to areas within the District, most notably the Metropolitan Branch Trail, which travels along the Red Line Metrorail tracks and provides a connection to Union Station. Other facilities include bike lanes along 4<sup>th</sup> Street, 12<sup>th</sup> Street, and R Street, which provide north-south and east-west connectivity. A detailed review of existing and proposed bicycle facilities and connectivity is provided in a later section of the report.

In the vicinity of the site, most sidewalks meet DDOT requirements. Anticipated pedestrian routes, such as those to public transportation stops, retail zones, and community amenities, provide well-connected pedestrian facilities. There are some pedestrian barriers in the area that limit the overall connectivity to and from the site and some sidewalks that do not meet DDOT standards; however, background developments may improve upon some of these deficiencies. A



detailed review of existing and proposed pedestrian access and infrastructure is provided in a later section of this report.

Although there are some minor issues, overall the 680 Rhode Island Avenue site is surrounded by an expansive 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, 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 three carshare locations with 13 total vehicles within a quarter-mile of the site. Table 1 breaks down the different location that are made available to the public.

Carsharing is also provided by Car2Go, which provides point-to-point carsharing. 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 the meters or pay stations. Car2Go does not have permanent designated spaces for their vehicles; however availability is tracked through their website, which provides an additional option for car-sharing patrons.

**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. The site location has a walk score of 86 (or “Very Walkable”), a transit score of 73 (or “Excellent Transit”), and a bike score of 71 (or “Very Bikeable”). Figure 3 shows the

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

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

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

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

**FUTURE REGIONAL PROJECTS**

There are a few 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*

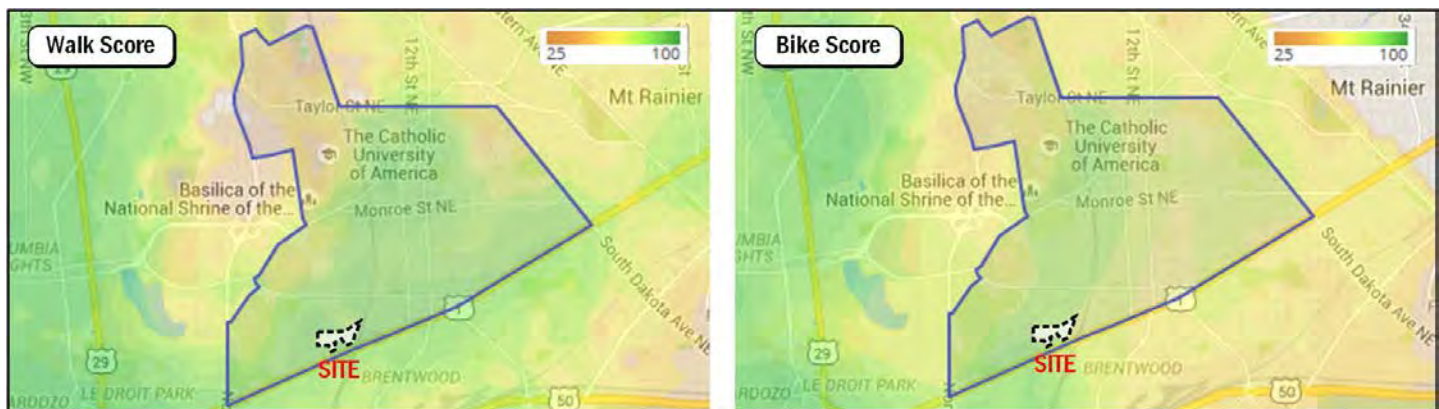
MoveDC is a long-range plan that provides a vision for the future of DC’s transportation system. As the District grows, so must the transportation system, specifically in a way that expands transportation choices while improving the reliability of all transportation modes.

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

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

Carshare Location	Number of Vehicles
<b>Zipcar</b>	
Rhode Island Avenue Metro (RI Avenue Shopping Center)	7 vehicles
Rhode Island Avenue Metro (2350 Washington Place NE)	2 vehicles
<b>Enterprise Carshare</b>	
Rhode Island Avenue Metro	4 vehicles
<b>Total</b>	<b>13 vehicles</b>





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

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

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

*Brentwood Road NE Transportation Study*

The purpose of the DDOT study was to assess needs and citizen concerns on speeding traffic, congestion, and safety in the Brentwood Road area. Recommendations from the study included traffic improvements, such as the installation of a roundabout at Brentwood Road, Bryant Street, and 13<sup>th</sup> Street intersections. Parking improvements, such as increases to off-street church parking at Bryant & 13<sup>th</sup> Streets to free up on-street parking, pedestrian improvements such as the installation of pedestrian countdown signals at various neighborhood intersections were also highlighted. The overall objective taken from the study was to integrate residential areas with commercial areas by providing local residents with transportation facilities to more easily access commercial developments in the area.

*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 area to the north of the proposed development. 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 addresses both the transportation issues, while also revitalizing the surrounding neighborhoods around 12th Street NE.

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, the addition of truck routing signs to reduce the number of heavy-vehicles on residential streets, improving intersections along the corridor to coincide with DDOT's Public Realm Design Manual, improving the pedestrian environment on bridges, and installing multi-space parking meters along major streets.



### *Rhode Island Avenue, NE Streetscape Master Plan*

The *Streetscape Master Plan* was commissioned by DDOT in May of 2014 to evaluate existing conditions along Rhode Island Avenue, NE and develop a conceptual set of streetscape plans that create a pedestrian-friendly environment.

Some of the streetscape challenges along Rhode Island Avenue, NE include a wide roadway cross-section, numerous curb cuts, a lack of buffer between pedestrians and traffic, obstacles and areas of disrepair along sidewalks, and a general auto-oriented atmosphere along the corridor. Enhancements along the corridor are expected to help reverse this perception by improving the overall pedestrian experience.

Amenities to be added throughout Rhode Island Avenue include enhanced paving, site furnishings, lighting improvements, low-impact development strategies, street trees, and other “green” spaces. These amenities are expected to enhance livability, image, safety, sustainability, and commercial viability along the corridor.

A design alternative was recommended by both the community and design teams which allows certain districts of the Rhode Island Avenue corridor to be given a distinct design treatment that is different from the standard DDOT treatment. This includes the Metrorail station area.

### *Brookland-Edgewood Livability Study*

The six-month study was undertaken by DDOT in order to improve the daily quality of life of residents, patrons, and employees that commute to, from, or through the study area. To meet this goal, DDOT analyzed the local street network and identified actions which could be taken to increase safety and improve connectivity and accessibility. The study goals included: (1) Development of a comprehensive approach to traffic calming and operational improvements for all users living in and visiting the area; (2) Identifying specific issues that impact safety and comfort of multimodal users while also accommodating freight and delivery needs; (3) Designing cost-effective and measurable improvements that benefit all users; (4) Investigating and mitigating freight impacts on the area; (5) Emphasizing safety and access improvements around neighborhood facilities including, but not limited to: schools, churches, parks recreation centers, and other key community facilities; and (6) Enhancing comfort and livability for residents and visitors to the project areas. The study recommends improvements for pedestrians (visibility, sidewalks), bicyclists

(additional facilities and bikeshare locations), and overall safety (signal optimization reviews).

### *Roadway Safety Audit: Edgewood Street*

A Road Safety Audit (RSA) was conducted on Edgewood Road NE due to several complaints of traffic safety issues along the 600 block to 800 block of Edgewood Street in 2014. The traffic safety issues, especially related to pedestrian and school children, are a major concern as there are four (4) school campuses in the vicinity of this location. The RSA identified several issues related to traffic safety of pedestrian, bicyclists, motor vehicles, and transit. The RSA recommendations addressing transportation issues pertaining to the traffic safety for all roadway users involved: (1) Changes to curbside management; (2) Relocation of bus stops to better serve the schools; (3) Installation of new traffic signs and school warning signs; (4) Installation of ADA-compliant pedestrian facilities; (5) Installation of new pedestrian crosswalks; and (6) Increasing MPD presence and enforcement of Edgewood Street, particularly during school drop-off and pick-up times.

### *Traffic Safety Study for Franklin Street NE Corridor*

A Traffic Safety Study (TSS) was conducted on Franklin Street NE in 2015 due to several complaints related to vehicular speeding, red light running, damaged street lighting, poor pavement conditions, improperly timed traffic signals, and truck traffic issues from local residents and Advisory Neighborhood Commission (ANC) members, along the Franklin Street corridor. The TSS analyzed traffic data, crash data, and signal operations and developed countermeasures for traffic safety improvements along the corridor. These improvements include upgrading street lighting, installation of ADA-compliant curb ramps, restriping and resurfacing of intersections, and installation of new traffic signal equipment.

### **Planned Developments**

There are several potential development projects in the vicinity of the 680 Rhode Island Avenue site. For the purpose of this analysis, only approved developments expected to be complete prior to the planned development with an origin/destination within the study area were included. A detailed list of the background developments considered and a description of their applicability for incorporation in the study is included in the Technical Attachments. Of the background developments considered, four were ultimately included and are described below. Figure 6 shows the location of these developments in relations to the proposed development.





#### *Brookland Manor*

The redevelopment of eight blocks will include 1,760 residential units and 181,000 square feet of retail. The development was approved by ZC Order 14-18 in June 2015.

Brookland Manor lies outside of the study area, but was included in the analysis as a conservative measure.

#### *Rhode Island Avenue Gateway*

Plans call for 116 affordable/workforce residential units with 5,000 square feet of street-level retail. The development was approved by ZC Order 05-25 in June 2006. A two-year PUD extension was approved by ZC Order 05-25A in August 2008. The development was approved according to BZA Order 18567 in June 2013.

Rhode Island Avenue Gateway lies in the study area and is expected to open before the completion of 680 Rhode Island Avenue and will be included in the analysis.

#### *Brookland Square*

The Brookland Square development is located at 2711 13<sup>th</sup> Street NE and includes 263 residential units. The development is approved according to BZA Orders 17474/A/B/C. The latest BZA Order expired in April 2012.

Brookland Square lies outside of the study area, but was included as to provide a more conservative analysis.

#### *Channing Place*

The redevelopment plan calls for two six-story buildings with a total of 295 residential units and 66 parking spaces.

Channing Place lies in the study area and is expected to open before the completion of the 680 Rhode Island Avenue development. It will be included in the analysis.

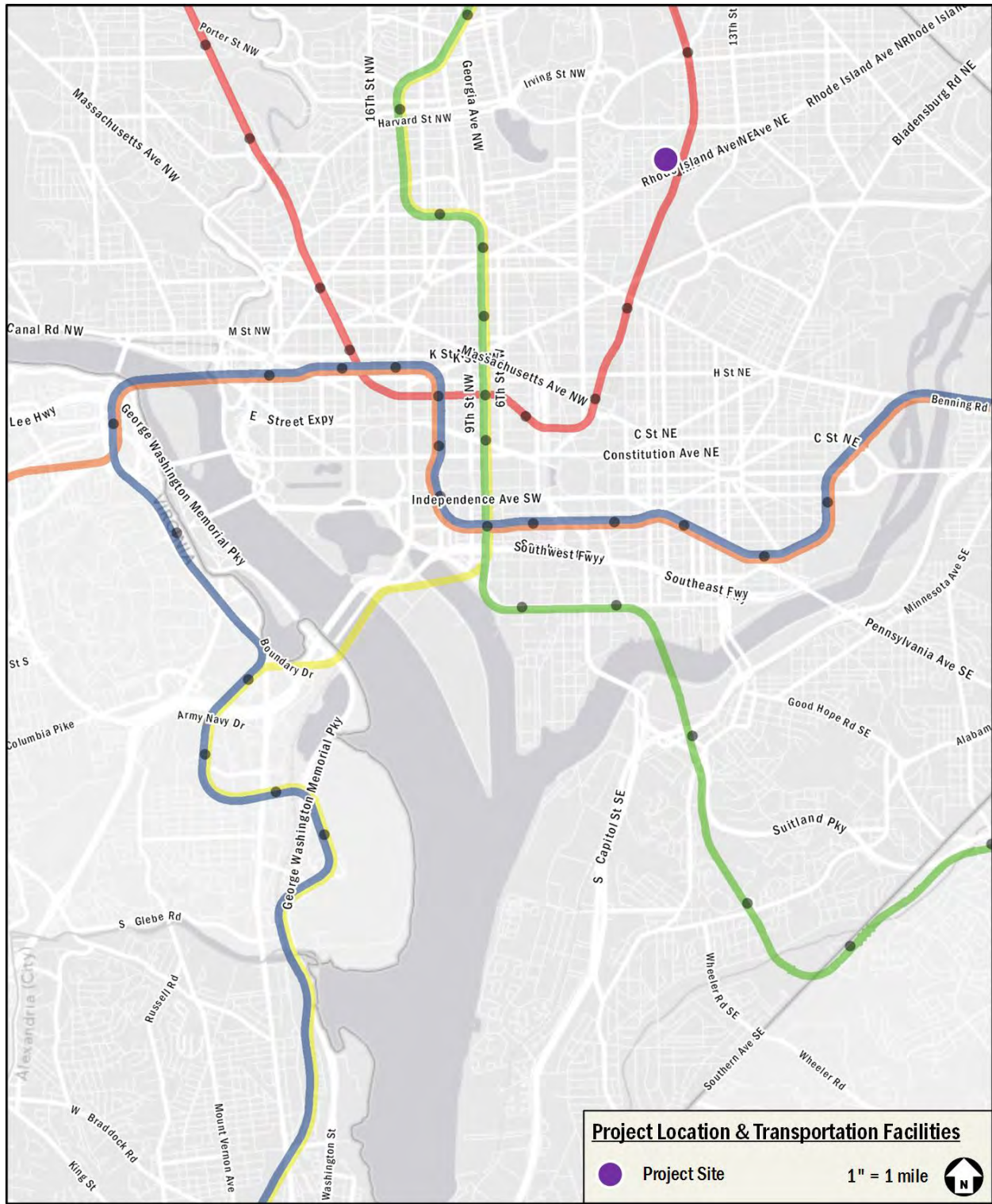


Figure 4: Major Regional Transportation Facilities

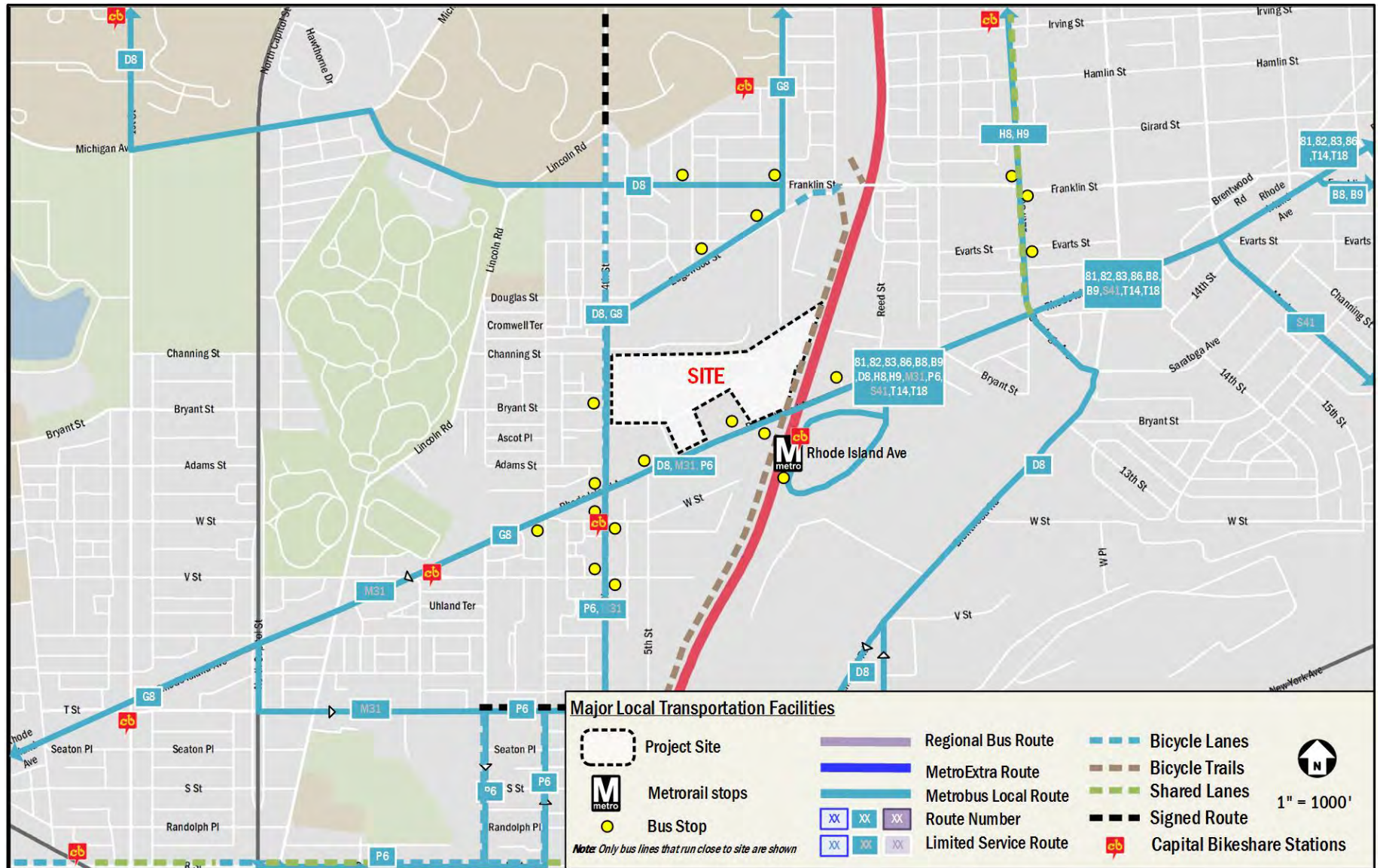


Figure 5: Major Local Transportation Facilities



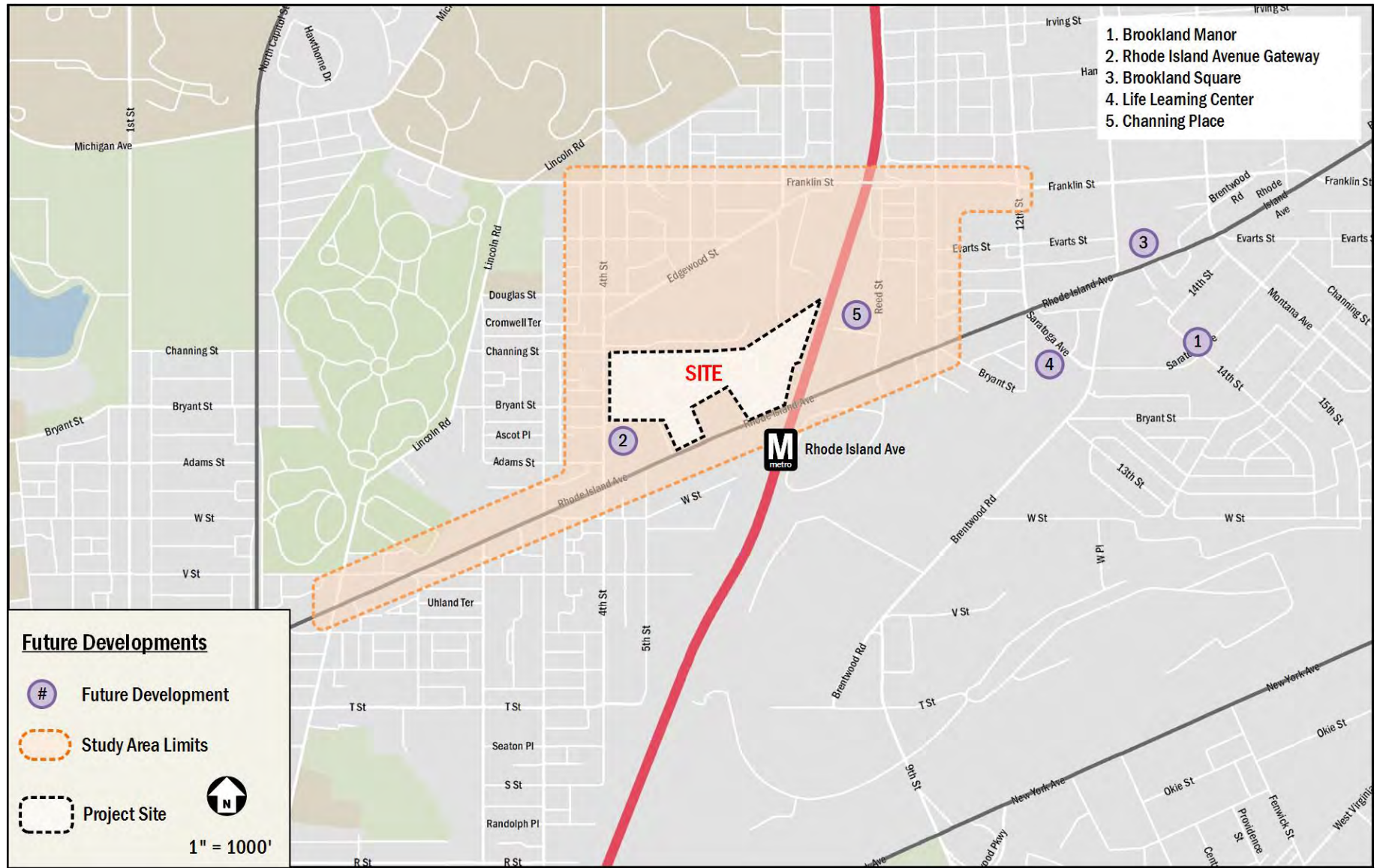


Figure 6: Planned Development Map



## PROJECT DESIGN

This section reviews the transportation components of the 680 Rhode Island Avenue development, including the proposed site plan and access points. It includes descriptions of the site's vehicular access, loading, parking, bicycle, and pedestrian facilities, and Transportation Demand Management (TDM) plan. It supplements the information provided in the site's plan package that accompanied the Zoning Application, which includes several illustrations of site circulation and layout.

The planned development will replace the underutilized strip shopping center and associated surface parking lot with a high-density, mixed-use project with a thriving pedestrian-friendly environment. The project consists of six blocks, eight buildings, and six phases as follows:

- **Phase 1** of the development will be a consolidated PUD and will include Blocks 1A, 1B and 5B. Over the three buildings, representing all of Block 1 and half of Block 5, Phase 1 will include up to 456 residential units, 71,913 square feet of retail, and 23,250 square feet of office space.
- **Phase 2** of the development will include Block 2B. Phase 2 of the development will include a 950 seat movie theatre and 7,160 square feet of retail.
- **Phase 3** of the development will include Block 3. Phase 3 will include 355 dwelling units, 16,040 square feet of retail, and 70,000 square feet of grocery space.
- **Phase 4** will include Block 2A, the second half of Block 2, and is a single structure with up to 297 dwelling units and 19,600 square feet of retail.
- **Phase 5** will include Block 4, a single structure with up to 143 dwelling units and 16,000 square feet of retail.
- **Phase 6** will include Block 5A, the second half of Block 5, and is a single structure with up to 138 dwelling units and 17,685 square feet of retail.
- **Phase 7** will include Block 6, a single structure with up to 78 dwelling units and 8,828 square feet of retail.

Figure 7 shows the phasing of the entire development. Figure 8 shows the development program for Phase 1. Figure 9 shows the development program for Phases 2, 3, and 5, and Figure 10 shows the development program for Phases 4, 6, and 7.

Phase 1 will include interim roadway modifications internal to the site, as well as minor modifications to internal roadways

that intersect Rhode Island Avenue under existing conditions. Existing site and roadway configuration is shown on Figure 11. The proposed interim site and roadway configuration is shown on Figure 12 and the proposed site and roadway configuration for the full buildout is shown on Figure 13.

The PUD takes advantage of the size of the development to reconfigure and enhance the internal roadway network. The existing internal roadway system and surface parking lot is auto-centric, set back from the street, with little neighborhood connectivity. The proposed internal roadway configuration integrates the site with the surrounding neighborhood, harnessing the benefits of being proximately located to the Metropolitan Branch Trail as well as the Metrorail.

### BLOCK OVERVIEW

#### Block 1

Located immediately adjacent to the pedestrian bridge on the eastern portion of the site, Blocks 1A and 1B serve as the eastern gateway to the project and will be constructed as part of Phase 1 of the development, and are seeking consolidated PUD approval. Block 1A is a mixed-use building that includes:

- 212 residential units;
- 20,156 square feet of retail space;
- 127 residential parking spaces in a below-grade parking garage;
- 291 retail parking spaces in a below-grade parking garage (shared with Block 1B);
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- Loading area with one (1) 40-foot berth and one (1) 20-foot service/delivery space to be shared by all uses.

Block 1A is located in the northeastern corner of the site. It will not have street frontage on any public right-of-way. Rather, it will front on the internal roadway network established by the project. Pedestrian access to Block 1A will primarily take place along the urban plaza that is being constructed as part of the development which will be located between Block 1A and Block 1B. Vehicular and bicycle access to the below-grade parking garage and secure bicycle storage facilities will take place on the western edge of the building off an internal roadway. Access to the on-site loading facilities will take place on the northwestern part of the building off an



internal roadway. Figure 8 shows the planned access points for Block 1A.

Block 1B is a mixed-use building that includes:

- 141 residential units;
- 59,921 square feet of retail space;
- 80 residential parking spaces in a below-grade parking garage;
- 291 retail parking spaces in a below-grade parking garage (shared with Block 1A);
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- Loading area with one (1) 40-foot berth and one (1) 20-foot service/delivery space to be shared by all uses.

Block 1B will be located on the southeast corner of the site and will have frontage directly on Rhode Island Avenue. Pedestrian access to the residential component of the building will take place off of the urban plaza on the northern edge of the building, and pedestrian access to the retail component of the building will primarily take place along Rhode Island Avenue. Vehicular and bicycle access to the below-grade parking garage and the secure long-term bicycle spaces will be off of an internal roadway on the western side of Block 1B. Figure 8 shows the planned access points for Block 1B.

Phase 1 of the planned development will include the construction of an urban plaza at the eastern edge of the site which will coincide with proposed improvements to the Metropolitan Branch Trail. The urban plaza will engage directly with the Metropolitan Branch Trail and the Rhode Island Avenue Metrorail station pedestrian access bridge. Pedestrians will be seen as the primary users of the plaza such that automobiles will travel at lower speeds and yield to pedestrians. The combination of low speeds and aesthetically-pleasing design elements creates a pedestrian environment that is safe, functional, and visually appealing. The design elements of the urban plaza are shown on Figure 14.

## Block 2

Located immediately west of Block 1A, Block 2 will serve as part of the retail stronghold that will line the extension of Bryant Street. Block 2 is composed of Block 2A, which will be part of Phase 4, and Block 2B, which will be constructed in Phase 2 of

the development. Block 2B is planned as a mixed-use building and is seeking Stage 1 PUD approval for:

- 950 seat movie theatre;
- 7,160 square feet of retail space;
- 142 parking spaces in a below-grade parking garage to be shared by the retail and theatre uses;
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- Loading area with one (1) 40-foot berth to be shared by all uses.

Like Block 1A, Block 2B will not have frontage on a public right-of-way and will front on the internal roadway network. Pedestrian access to Block 2B will primarily take place along the extension of Bryant Street, which is a pedestrian-friendly environment that links the Metropolitan Branch Trail and 4<sup>th</sup> Street. Vehicular and bicycle access to the below-grade parking garage and the secure long-term bicycle spaces will take place along the eastern part of the building off an internal roadway. Access to the on-site loading facilities will take place on the eastern part of the building off an internal roadway. Figure 9 shows the planned access points for Block 2B.

Block 2A will be located directly to the west of Block 2B. Block 2A is planned as a mixed use building seeking Stage 1 PUD approval for:

- 336 residential units;
- 30,106 square feet of retail space;
- 186 residential parking spaces in a below-grade parking garage;
- 78 retail parking spaces in a below-grade parking garage;
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- Loading area with one (1) 40-foot berth and one (1) 20-foot service/delivery space to be shared by all uses.

Like Block 2B, Block 2A will not have frontage on a public right-of-way and will front on the internal roadway network. Pedestrian access to Block 2A will primarily take place along the extension of Bryant Street. Vehicular and bicycle access to the below-grade parking garage and the secure long-term bicycle spaces will take place along the western part of the building off



an internal roadway. Access to the on-site loading facilities will take place on the western part of the building off an internal roadway. Figure 10 shows the planned access points for Block 2A.

### **Block 3**

Located on the western edge of the site, Block 3 will serve as a major attraction and anchor of the western part of the development, and will be constructed in Phase 3 of the planned development. Block 3 is planned as a mixed-use building and is seeking Stage 1 PUD approval for:

- 368 residential units;
- 82,558 square feet of grocery space;
- 213 residential parking spaces in a below-grade parking garage;
- 480 grocery parking spaces in a below-grade parking garage;
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- Loading area with three (3) 55-foot berths and one (1) 20-foot service/delivery space for the retail and grocery components, and one (1) 40-foot berth and one (1) 20-foot service/delivery space for the residential component.

Block 3 will have frontage directly on 4<sup>th</sup> Street. It will be orientated to have a major presence on 4<sup>th</sup> Street, which will be a significant convenience for the residents of the planned development and adjacent neighborhood. Pedestrian access will primarily take place along Bryant Street. Vehicular and bicycle access to the below-grade parking garage and the secure long-term bicycle spaces will take place along the eastern edge of the building off an internal roadway. Access to the loading berths will be along the northern edge of the building to avoid any pedestrian or vehicular conflicts with the interior roadway. Figure 9 shows the planned access points for Block 3.

### **Block 4**

Located immediately south of Block 3, Block 4 will serve as part of the western gateway to the planned development, and the western edge of the retail zone lining Bryant Street.

Constructed in Phase 5 of the planned development, Block 4 is planned as a mixed-use building and is seeking Stage 1 PUD approval for:

- 163 residential units;
- 19,595 square feet of retail space;
- 69 residential parking spaces in a below-grade parking garage;
- 55 retail parking spaces in a below-grade parking garage;
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- Loading area with one (1) 40-foot berth to be shared by all uses.

Block 4 will have limited frontage along 4<sup>th</sup> Street. Given that, pedestrian access will primarily take place along Bryant Street. Vehicular and bicycle access to the below-grade parking garage and the secure long-term bicycle spaces will take place along 4<sup>th</sup> Street using an existing curb cut. Access to the on-site loading facilities will take place on the eastern edge of the building off an internal roadway. Figure 9 shows the planned access points for Block 4.

### **Block 5**

Located immediately to the east of Block 3, Block 5 will serve as part of the southern gateway to the site, with frontage on Rhode Island Avenue as well as along the internal network. Block 5 is composed of Block 5B, which will be part of Phase 1, and Block 5A, which will be constructed in Phase 6 of the development. Block 5B is planned as a mixed-use building seeking consolidated PUD approval for:

- 131 residential units;
- 5,113 square feet of retail space;
- 23,250 square feet of office space;
- 65 residential parking spaces in a below-grade parking garage;
- 70 retail parking spaces in a below-grade parking garage;
- 23 office parking spaces in a below-grade parking garage;
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- One (1) 40-foot curbside loading area to be shared by all uses.

Block 5B is located on the southern edge of the site and will have frontage on Rhode Island Avenue and the internal roadway network. Pedestrian access to the residential





component of the building will take place along the western edge of the building fronting an internal roadway, and pedestrian access to the office and retail components will take place along Rhode Island Avenue. Vehicular and bicycle access to the below-grade parking garage and the secure long-term bicycle spaces will take place along an internal roadway on the northern edge of the building. Loading will take place in a designated curbside area along an internal roadway on the western edge of the building. Figure 8 shows the planned access points for Block 5B.

Block 5A will be located directly to the north of Block 5B. Block 5A is planned as a mixed use building seeking Stage 1 PUD approval for:

- 164 residential units;
- 17,685 square feet of retail space;
- 83 residential parking spaces in a below-grade parking garage;
- retail parking spaces in a below-grade parking garage;
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- Loading area with one (1) 40-foot berth to be shared by all uses.

Like Block 1A and Block 2, Block 5A will not have frontage on public right-of-way and will front on the internal roadway network. Pedestrian access will primarily take place along Bryant Street. Vehicular and bicycle access to the below-grade parking garage and the secure long-term bicycle spaces will take place along an internal roadway on the southern edge of the building that runs between Block 5B and Block 5A. Access to the on-site loading facilities will take place on the eastern edge of the building off an internal roadway. Figure 10 shows the planned access points for Block 5A.

### **Block 6**

Located immediately to the east of Block 5A and to the west of Block 1B, Block 6 will serve as part of the retail stronghold that lines Bryant Street. Constructed in Phase 7, Block 6 is planned as a mixed-use building and is seeking Stage 1 PUD approvals for:

- 116 residential units;
- 8,828 square feet of retail space;

- 55 residential parking spaces in a below-grade parking garage;
- 33 retail parking spaces in a below-grade parking garage;
- The block will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*; and
- Loading area with one (1) 40-foot berth to be shared by all uses.

Like Block 1A, Block 2, and Block 5A, Block 6 will not have frontage on public right-of-way and will front on the internal roadway network. Pedestrian access will primarily take place along Bryant Street for the retail component, and pedestrian access for the residential component will take place along the eastern edge of the building. Vehicular and bicycle access to the below-grade parking garage and the secure long-term bicycle spaces will take place through the Block 5A below-grade parking garage. Access to the on-site loading facilities will take place on the western edge of the building off an internal roadway. Figure 10 shows the planned access points for Block 6.

## **SITE ACCESS**

### **Pedestrian Access**

Primary pedestrian access to Phase 1 of the 680 Rhode Island Avenue development will be along the urban plaza for Block 1A, along the urban plaza and Rhode Island Avenue for Block 1B, and along Rhode Island Avenue and an internal roadway for block 5B.

While pedestrian access on the eastern half of the site is expected to remain unchanged between Phase 1 and the full buildout, the primary pedestrian access point at the western and southern areas of the development will be improved between conditions, and are thus expected to become more active. Under existing conditions, there is a lack of on-site pedestrian facilities. Under Phase 1, pedestrian facilities will be improved to allow safe and comfortable pedestrian access to Blocks 1A, 1B, and 5B. Figure 15 shows pedestrian facilities as well as expected pedestrian circulation for Phase 1 of the development. These improvements will not extend to other parts of the planned development until the construction of future phases.

Pedestrian facilities along Bryant Street and all other internal roadways are expected to meet or exceed DDOT requirements





with an emphasis on pedestrian safety and comfort. This includes sidewalks that meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as curb extensions and room for outdoor seating. Planned pedestrian facilities and expected circulation for the full buildout of the planned development is shown on Figure 16.

**Bicycle Access**

Bicycle access to Phase 1 of the proposed development will primarily take place through the Metropolitan Branch Trail and the existing bicycle lanes on 4<sup>th</sup> Street. In conjunction with the construction of Phase 1, an 8-foot cycle track with a 3-foot buffer will be constructed along the east-west roadway that is in place under existing conditions that will link 4<sup>th</sup> Street and the Metropolitan Branch Trail. Proposed improvements to the Metropolitan Branch Trail on behalf of the development are planned for Phase 1 will further improve bicycle access and connectivity to and from the site.

Figure 17 shows bicycle facilities as well as expected bicycle circulation for Phase 1 of the development. Planned bicycle facilities and expected circulation for the full buildout of the planned development is shown on Figure 18.

The primary bicycle access points to the site are not expected to radically change between Phase 1 and the full buildout condition.

**Vehicular Access**

Under current conditions, there are four (4) curb cuts that provide vehicular access to the site: two (2) along 4<sup>th</sup> Street and two (2) along Rhode Island Avenue; shown in Figure 11. Along 4<sup>th</sup> Street the northernmost curb cut provides full access to the site, which under existing conditions is mostly used by heavy vehicles, at an unsignalized intersection with free flowing traffic on 4<sup>th</sup> Street. The southernmost curb cut on 4<sup>th</sup> Street allows

**Table 2: Summary of Loading Supply and Demand for Phase 1**

Loading Area	Proposed Loading Facilities	Anticipated Daily Loading Demand
Block 1A	One (1) 40' Loading Berths One (1) 20' Service/Delivery Areas	Four (4) Truck deliveries Four (4) Van deliveries
Block 1B	One (1) 40' Loading Berths One (1) 20' Service/Delivery Areas	Four (4) Truck deliveries Three (3) Van deliveries
Block 5B	One (1) 40' Loading Berth	Four (4) Truck deliveries Six (6) Van deliveries

full access at an unsignalized intersection with free flowing traffic on 4<sup>th</sup> Street. Along Rhode Island Avenue the

westernmost curb cut provides full access to the site at a signalized intersection. The easternmost curb cut along Rhode Island Avenue provides right-in access to southwestbound traffic at an unsignalized intersection with free flowing traffic on Rhode Island Avenue.

Vehicular access to the proposed development will remain mostly unchanged from existing conditions to Phase 1 conditions and is shown in Figure 12. Along Rhode Island Avenue, the westernmost access point will be consolidated to a single segment, and expanded from a single inbound lane and single outbound lane to two outbound lanes and one inbound lane. The easternmost access point along Rhode Island Avenue will be expanded to allow for right-in and right-out access. The location of all curb cuts accessing the site will remain unchanged.

Under full buildout conditions, limited changes will be made to access points on 4<sup>th</sup> Street. The northernmost curb cut on 4<sup>th</sup> Street will become signalized and remain in its current location, but the driveway will be merged with the driveway of the Edgewood Commons development to the north of the site for a more conventional intersection. One (1) new curb cut will be added on 4<sup>th</sup> Street at the signalized intersection of Bryant Street which will align with Bryant Street. This curb cut is expected to process the majority of vehicular traffic seeking to access the site from the west. The southernmost curb cut on 4<sup>th</sup> Street will provide access to the below-grade parking garage of Block 4. The location of the southernmost curb cut on 4<sup>th</sup> Street is expected to remain unchanged from existing conditions.

Figure 13 shows the vehicular access point under full buildout conditions.

**LOADING**

The proposed loading facilities in the PUD should accommodate all delivery demand without detrimental

impacts. Figure 21 and Figure 22 show detailed plans for the loading areas for Phase 1 of the development. As shown, Blocks



1A and 1B will each have on-site loading areas with one (1) 40-foot berth and one (1) 20-foot service/delivery space to be shared by all uses. Block 5B will have one (1) 40-foot curbside loading area to be shared by all uses. Each loading area will provide access corridors to the buildings service elevators, and each building will have designated trash/service areas. Subsequent phases will include detailed loading plans in each application.

Truck routing to and from the site will be focused on designated primary truck routes, such as Rhode Island Avenue, 4<sup>th</sup> Street, 12<sup>th</sup> Street, and North Capitol Street. The only restricted truck routes surrounding the site are Douglass Street west of 4<sup>th</sup> Street, W Street west of 4<sup>th</sup> Street, and 7<sup>th</sup> Street north of Franklin Street. Turning maneuvers into and out of the site for each loading area are included in the Technical Attachments.

The amount of loading expected at the site is estimated as follows:

- As a baseline, it is assumed that there will be three (3) daily truck deliveries at each loading area (covering trash, general shared delivery, and mail).
- Residential loading activity is estimated assuming an expected rental turnover of 18 months, with two (2) trucks per move – one move in and one move out.
- Although the exact nature of individual retail spaces is unknown at this time, it is expected that general retail stores will generate an additional two (2) deliveries per day in addition to the baseline shared deliveries.
- Office loading activity is estimated assuming 15 van/UPS deliveries and three (3) 30' truck deliveries per week per building. The site is expected to only have one individual office area.

Using these estimates, the anticipated loading activity for each loading area is shown in Table 2. Subsequent phases will include detailed loading analysis in the Stage 2 PUD process.

The Applicant is seeking variance relief from the loading requirements of 11 DCMR § 2201.1. Table 3 outlines the required and planned loading facilities for each block of the proposed development.

The office component of the development does not meet the requirements to provide loading areas as it encompasses less

than 10 percent of the gross square footage of the development.

The loading facilities provided in Phase 1 of the development will be sufficient to accommodate the demand generated by Phase 1 of the development. It should be noted that during Phase 1 of the development some temporary “pop-up” retail may occupy space on Block 2b. This retail is expected to be served by curbside loading and/or loading facilities in the adjacent Block 1a building.

## PARKING

The parking provided by the PUD should accommodate all parking needs on site.

### On-Site Parking

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

- Residential  
1 space per 2 dwelling units
- Retail  
1 space per 300 square feet of retail space in excess of 3,000 square feet
- Office  
1 space per 600 square feet of office space in excess of 2,000 square feet
- Grocery  
1 space per 300 square feet of grocery space in excess of 3,000 square feet
- Theatre  
1 space per 600 square feet of theatre space

Table 4 outlines the required and planned parking for the development. Overall, the development will exceed the amount of parking required by zoning. As for individual parcels that fail to meet the amount of parking required by zoning, abundant parking will be found on the reconfigured surface parking lot during interim conditions and approximately 66 on-street parking spaces will be available after the full buildout on Bryant Street. Furthermore, the proximity to Metrorail and the Metropolitan Branch Trail, as well as a robust Transportation Demand Management (TDM) plan will reduce auto dependency and the overall parking demand of the development. No



additional parking is planned for Metrorail-only users and/or commuters.

It should be noted that some “popup” retail is expected to occupy Parcel 2b after the first phase of construction. The parking needs for this retail space will be accommodated in the garages associated with the first phase.

### **On-Street Parking**

Even though the proposed development is greatly exceeding the required amount of parking for the overall development, an inventory of available on-street and off-street parking within one block of the site was conducted, as requested by DDOT, and is shown on Figure 23. Within one block of the site there are 224 Residential Permit Parking (RPP) spaces, 94 non-RPP or unrestricted parking spaces, 3 metered spaces, and one off-street public parking facility with 509 spaces.

The large amount of parking provided by the PUD should ensure that there is little parking spill-over onto adjacent neighborhood streets.

## **BICYCLE AND PEDESTRIAN FACILITIES**

### **Bicycle Facilities**

The PUD will meet or exceed the amount of bicycle parking that is required by Zoning Regulations and the *DC Zoning Regulation and Bicycle Commuter and Parking Expansion Act of 2007*.

As discussed previously, the site will be greatly improved by a cycle track that links the bicycle lanes on 4<sup>th</sup> Street to the west of the site and the Metropolitan Branch Trail to the east of the site in both the interim and full buildout conditions.

### **Pedestrian Facilities**

As discussed previously, pedestrian facilities will be improved greatly throughout the site. Under existing conditions, there is a lack of on-site pedestrian facilities. Under Phase 1, pedestrian facilities will be improved to allow safe and comfortable pedestrian access to Blocks 1A, 1B, and 5B including additional connectivity directly to and from the residential development to the north. Figure 15 shows pedestrian facilities as well as expected pedestrian circulation for Phase 1 of the development. These improvements will not extend to other parts of the planned development until the construction of future phases.

Pedestrian facilities along Bryant Street and all other internal roadways are expected to meet or exceed DDOT requirements with an emphasis on pedestrian safety and comfort. This includes sidewalks that meet or exceed the width requirements, crosswalks at all necessary locations, curb ramps with detectable warnings, and additional design elements such as curb extensions and room for outdoor seating. Planned pedestrian facilities and expected circulation for the full buildout of the planned development is shown on Figure 16.

## **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 680 Rhode Island Avenue development is based on the DDOT expectations for TDM programs. The Applicant proposes the following TDM measures:

- The Applicant will place and fund the operations and maintenance for one year of a Capital Bikeshare Station.
- The Applicant will unbundle the cost of residential parking from the cost of lease or purchase.
- The Applicant will identify TDM Leaders (for planning, construction, and operations) at the residential and office buildings. The TDM Leaders will work with residents in the building to distribute and market various transportation alternatives and options.
- The Applicant will provide TDM materials to new residents in the Residential Welcome Package materials.
- The Applicant will install Transportation Information Center Displays (kiosks or screens) within the lobbies of the residential multi-family buildings and the community serving buildings, containing information related to local transportation alternatives.
- The Applicant will provide each unit’s incoming residents for the first two years with either a one-year membership to Capital Bikeshare or a one-year membership to a Carsharing service.
- The Applicant will provide bicycle repair stations within the bicycle rooms in the development





Figure 7: Project Phasing



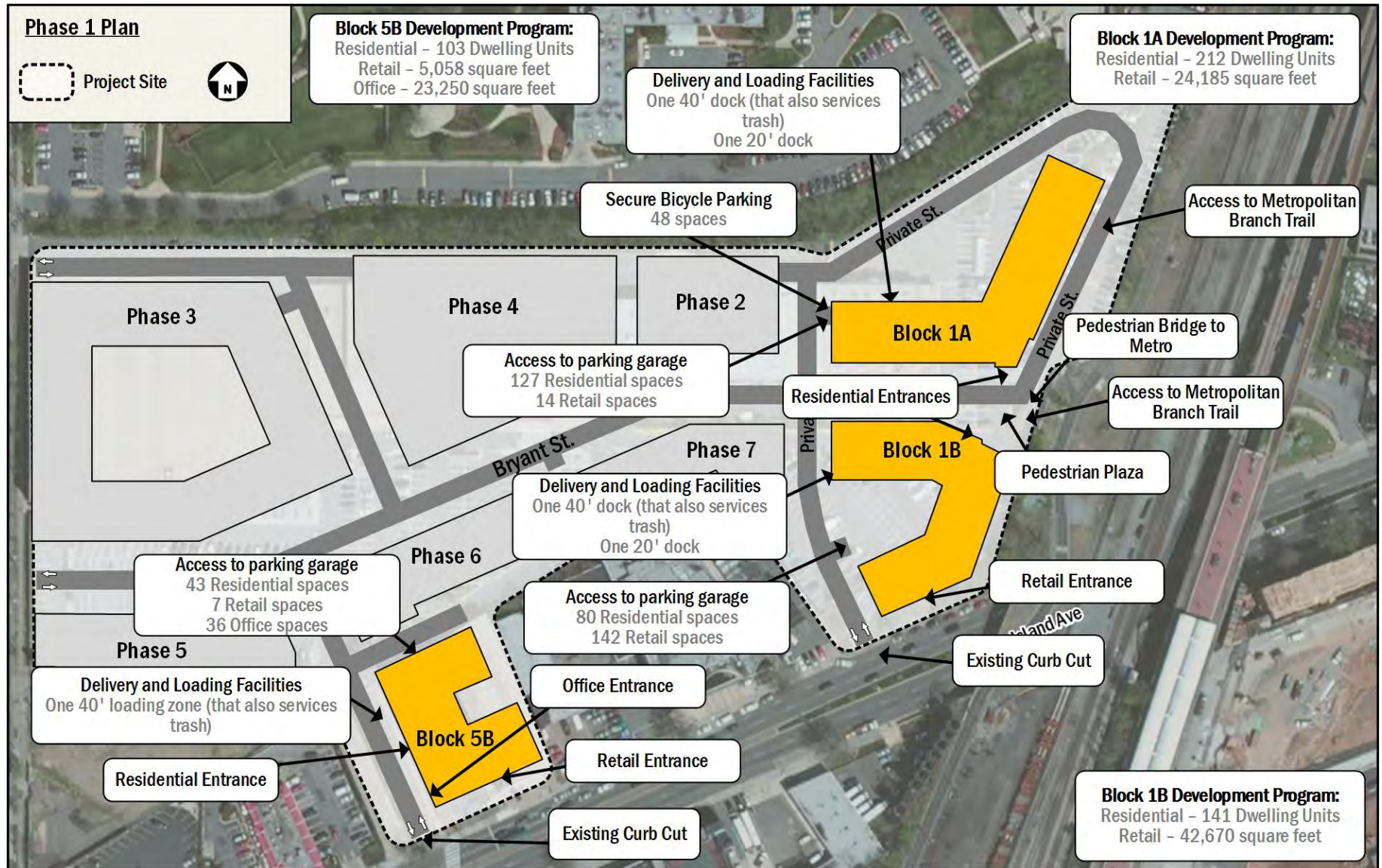


Figure 8: Phase 1 Program



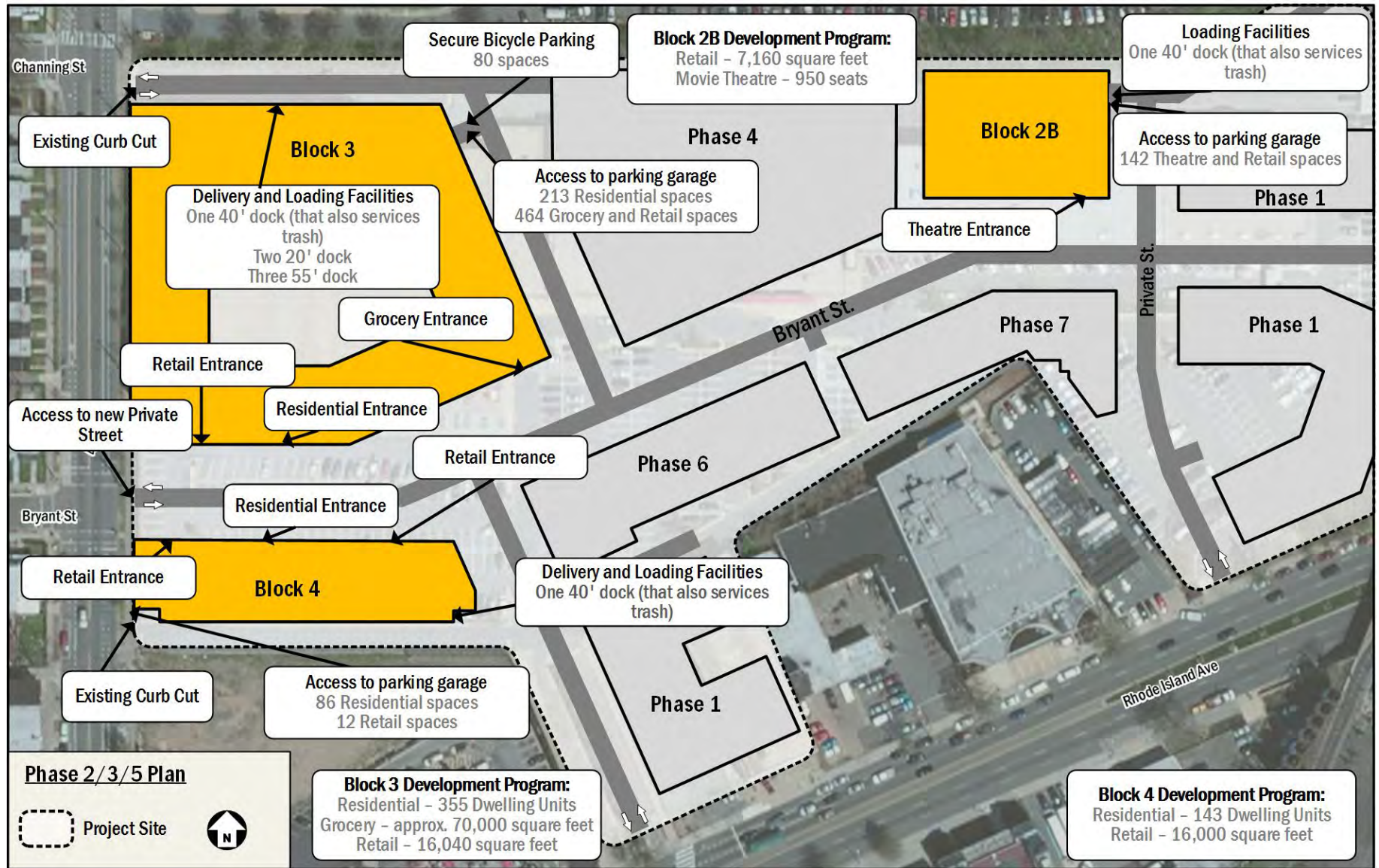


Figure 9: Phase 2, 3, 5 Program



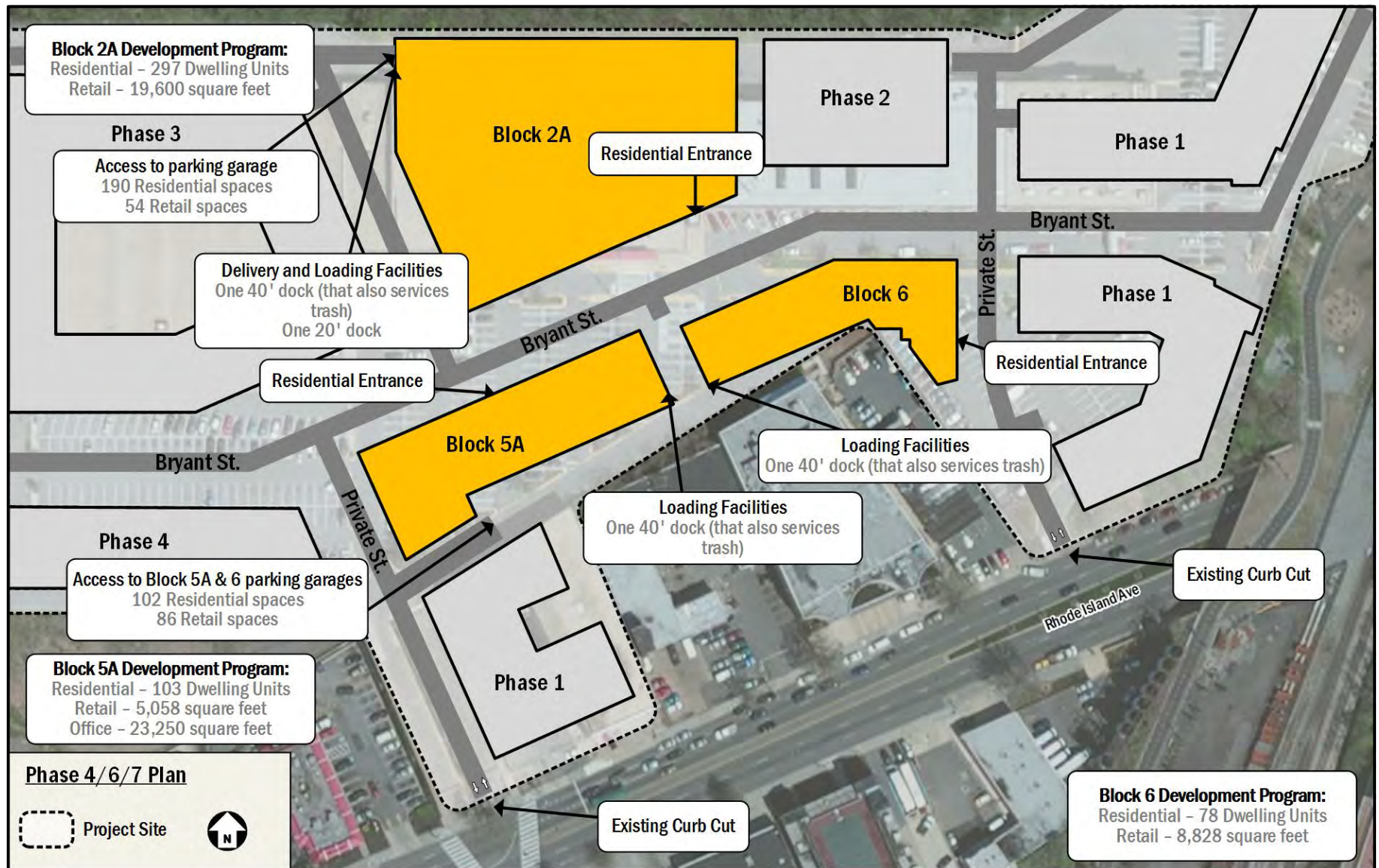


Figure 10: Phase 4, 6, 7 Program





Figure 11: Existing Roadway Configuration



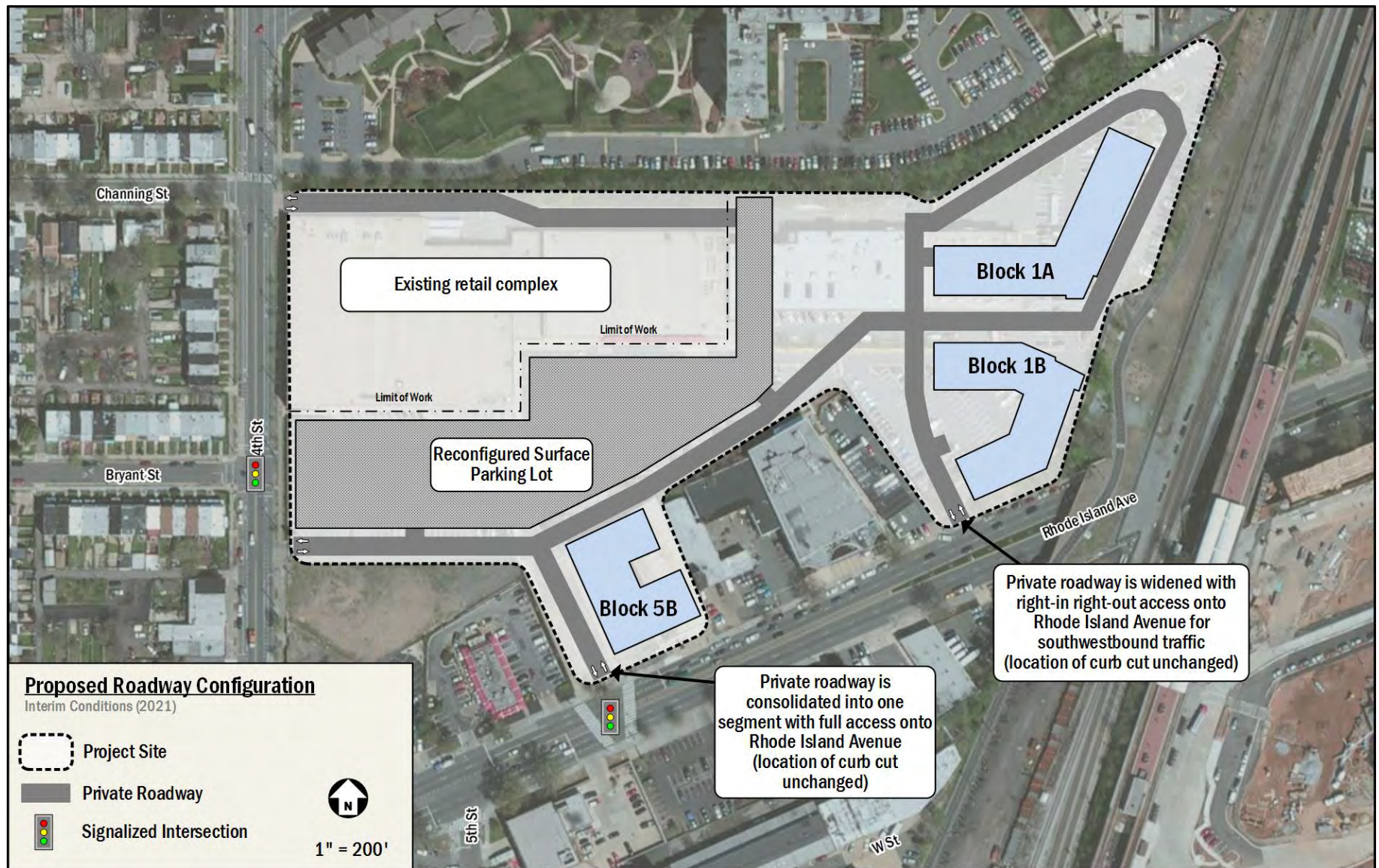


Figure 12: Proposed Roadway Configuration (Interim Buildout)





Figure 13: Proposed Roadway Configuration (Full Buildout)





Figure 14: Urban Plaza Design





Figure 15: Pedestrian Facilities and Circulation (Interim Condition)





Figure 16: Pedestrian Facilities and Circulation (Full Buildout)





Figure 17: Bicycle Facilities and Circulation (Interim Condition)



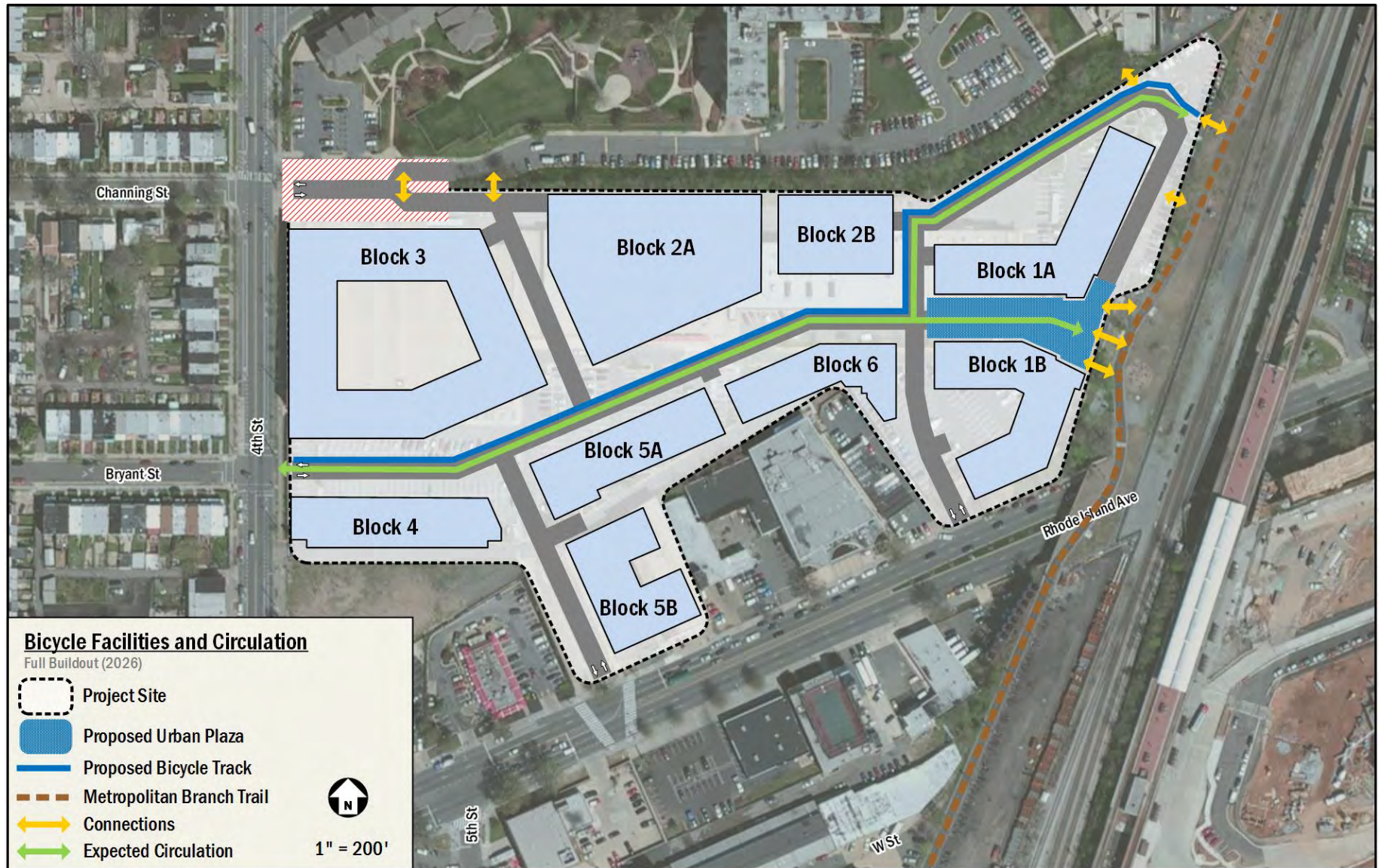


Figure 18: Bicycle Facilities and Circulation (Full Buildout)





Figure 19: Vehicular Facilities and Circulation (Interim Condition)





Figure 20: Vehicular Facilities and Circulation (Full Buildout)



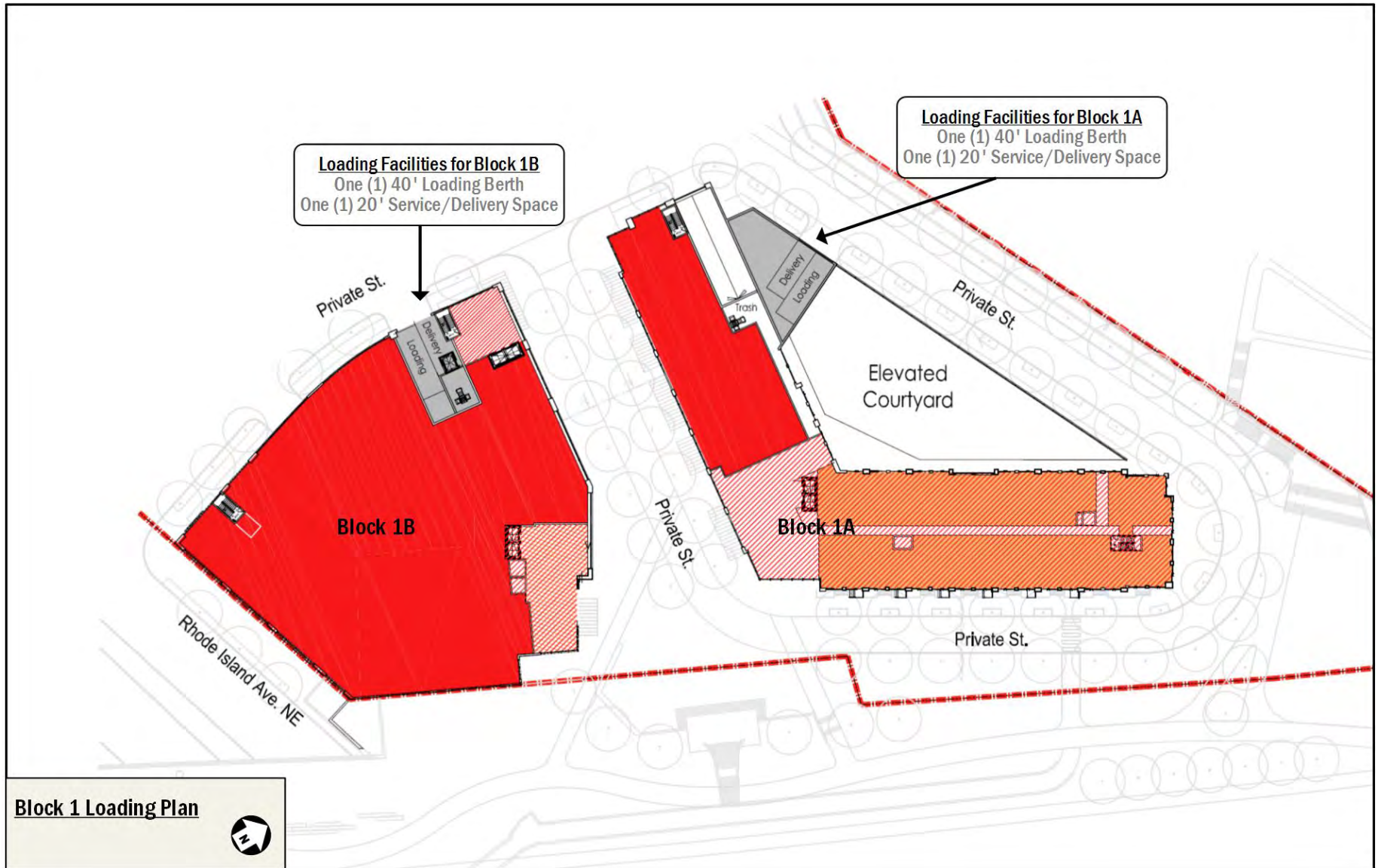


Figure 21: Block 1 Loading Plan

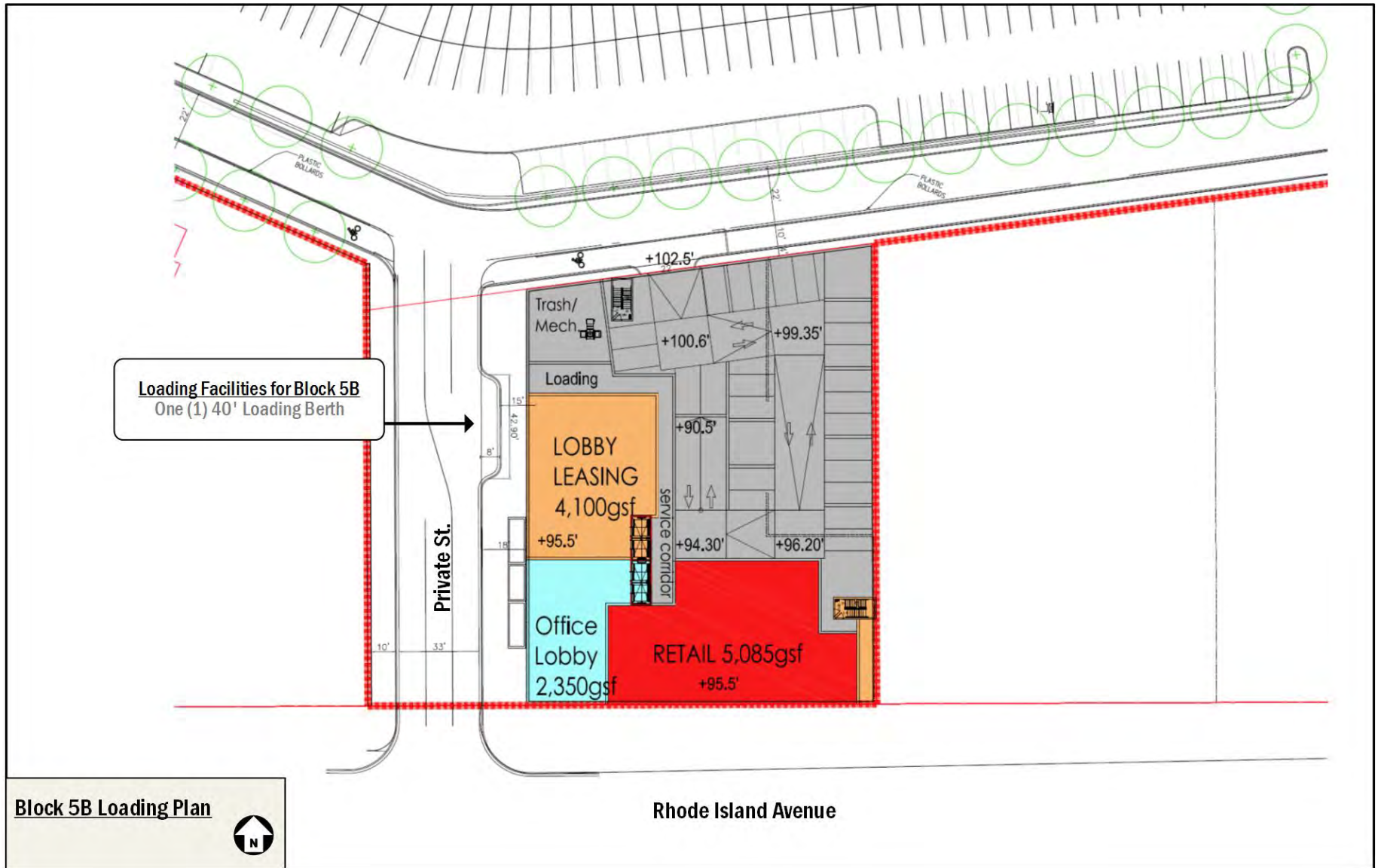


Figure 22: Block 5B Loading Plan



**Table 3: Review of Loading Facilities by Block**

Block	Use	Berth	Platform	Service/Delivery
Block 1A	Residential	1 @ 55'	1 @ 200 sf	1 @ 20'
	Retail	2 @ 30'	2 @ 100 sf	1 @ 20'
	Total Required	1 @ 55' and 2 @ 30'	1 @ 200 sf and 2 @ 100 sf	2 @ 20'
	Total Provided	1 @ 40'	1 @ 200 sf	1 @ 20'
Block 1B	Residential	1 @ 55'	1 @ 200 sf	1 @ 20'
	Retail	1 @ 55' and 1 @ 30'	1 @ 200 sf and 1 @ 100 sf	1 @ 20'
	Total Required	2 @ 55' and 1 @ 30'	2 @ 200 sf and 1 @ 100 sf	2 @ 20'
	Total Provided	1 @ 40'	1 @ 200 sf	1 @ 20'
Block 2A	Residential	1 @ 55'	1 @ 200 sf	1 @ 20'
	Retail	1 @ 30'	1 @ 100 sf	
	Total Required	1 @ 55' and 1 @ 30'	1 @ 200 sf and 1 @ 100 sf	1 @ 20'
	Total Provided	1 @ 40'	1 @ 200 sf	1 @ 20'
Block 2B	Theatre	1 @ 30'	1 @ 100 sf	1 @ 20'
	Retail	1 @ 30'	1 @ 100 sf	
	Total Required	2 @ 30'	2 @ 100 sf	1 @ 20'
	Total Provided	1 @ 40'	1 @ 200 sf	
Block 3	Residential	1 @ 55'	1 @ 200 sf	1 @ 20'
	Retail	1 @ 30'	1 @ 100 sf	
	Grocery	1 @ 55' and 1 @ 30'	1 @ 200 sf and 1 @ 100 sf	1 @ 20'
	Total Required	2 @ 55' and 2 @ 30'	2 @ 200 sf and 2 @ 100 sf	2 @ 20'
	Total Provided	3 @ 55' and 1 @ 40'	2 @ 200 sf	2 @ 20'



Block	Use	Berth	Platform	Service/Delivery
Block 4	Residential	1 @ 55'	1@200 sf	1 @ 20'
	Retail	1 @ 30'	1 @ 100 sf	
	Total Required	1 @ 55' and 1 @ 30'	1 @ 200 sf and 1 @ 100 sf	1 @ 20'
	Total Provided	1 @ 40'	1 @ 200 sf	
Block 5A	Residential	1 @ 55'	1@200 sf	1 @ 20'
	Retail	1 @ 30'	1 @ 100 sf	
	Total Required	1 @ 55' and 1 @ 30'	1 @ 200 sf and 1 @ 100 sf	1 @ 20'
	Total Provided	1 @ 40'	1 @ 200 sf	1 @ 20'
Block 5B	Residential	1 @ 55'	1@200 sf	1 @ 20'
	Retail	1 @ 30'	1 @ 100 sf	1 @ 20'
	Office	N/A	N/A	N/A
	Total Required	1 @ 55' and 1 @ 30'	1 @ 200 sf and 1 @ 100 sf	2 @ 20'
Total Provided	1 @ 40'			
Block 6	Residential	1 @ 55'	1 @ 200 sf	1 @ 20'
	Retail	1 @ 30'	1 @ 100 sf	
	Total Required	1 @ 55' and 1 @ 30'	1 @ 200 sf and 1 @ 100 sf	1 @ 20'
	Total Provided	1 @ 40'	1 @ 200 sf	1 @ 20'





**Table 4: Review of Parking Supply by Block**

Block	Use	Zoning Requirement	Planned Supply
Block 1A	Residential	106 spaces	127 spaces
	Retail	71 spaces	14 (shared with retail of Block 1B)
	Total	177 spaces	141 spaces
Block 1B	Residential	71 spaces	80 spaces
	Retail	132 spaces	142 (shared with retail of Block 1A)
	Total	203 spaces	212 spaces
Block 2A	Residential	149 spaces	189 spaces
	Retail	55 spaces	55 spaces
	Total	204 spaces	244 spaces
Block 2B	Theatre	45 spaces	142 spaces
	Retail	14 spaces	(shared with theatre)
	Total	59 spaces	142 spaces
Block 3	Residential	178 spaces	213 spaces
	Retail	44 spaces	464 spaces
	Grocery	224 spaces	(shared with retail)
	Total	446 spaces	677 spaces
Block 4	Residential	72 spaces	86 spaces
	Retail	44 spaces	12 spaces
	Total Provided	116 spaces	98 spaces
Block 5A	Residential	69 spaces	55 spaces
	Retail	49 spaces	49 spaces
	Total Provided	95 spaces	86 spaces
Block 5B	Residential	52 spaces	43 spaces
	Retail	7 spaces	7 spaces
	Office	36 spaces	36 spaces
	Total Provided	95 spaces	86 spaces
Block 6	Residential	39 spaces	47 spaces
	Retail	20 spaces	37 spaces
	Total Provided	59 spaces	84 spaces
On-Street Parking (along Bryant Street)			approx. 66 spaces
Overall Development		1477 spaces	1854 spaces

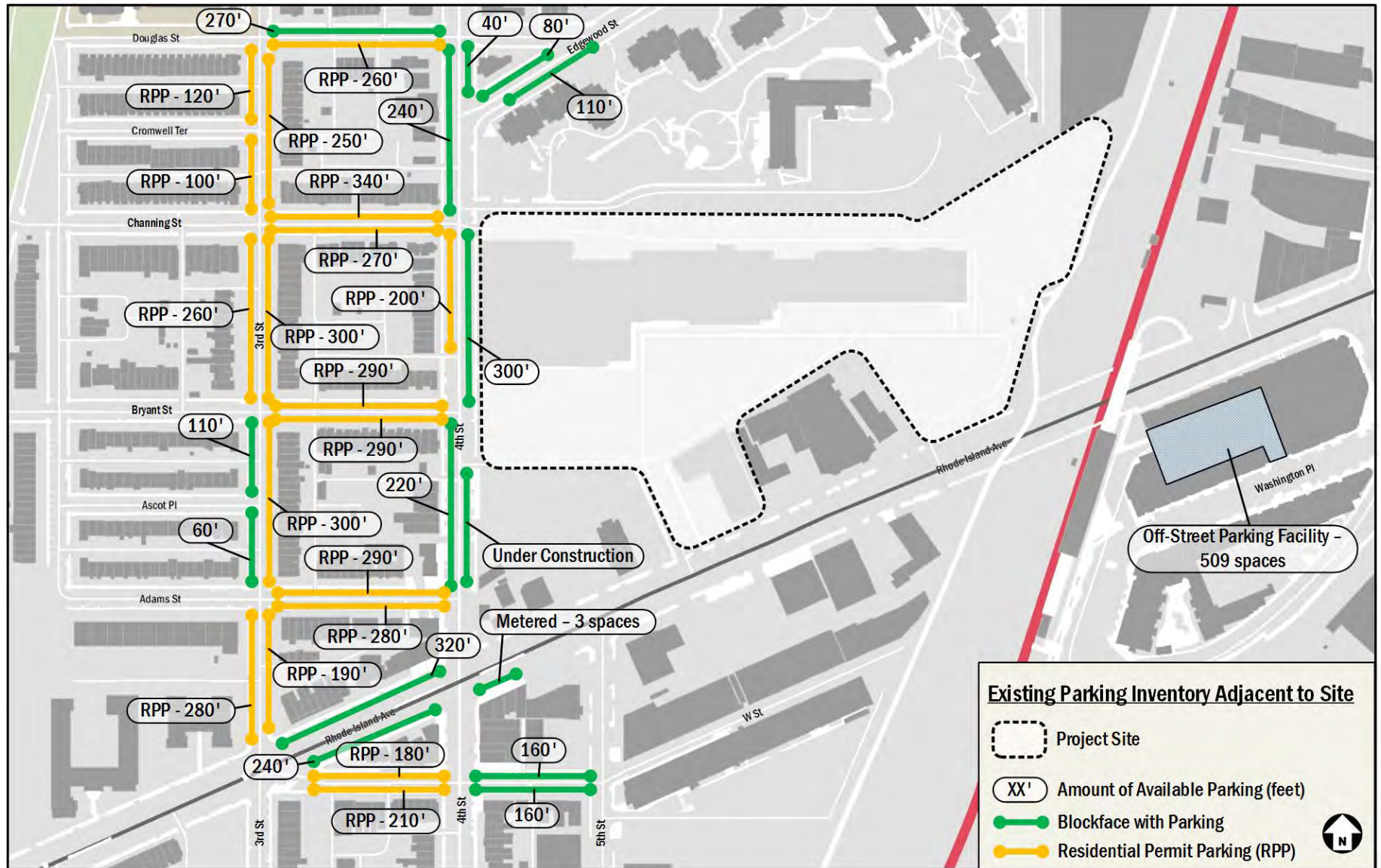


Figure 23: Parking Inventory Adjacent to Site



## TRIP GENERATION

This section outlines the transportation demand of the proposed 680 Rhode Island Avenue project. It summarizes the projected trip generation of the site by mode, which forms the basis for the chapters that follow.

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

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

Retail trip generation was calculated based on ITE land use 820, Shopping Center. Mode splits for the retail portion of the site were based on information contained in WMATA's 2005 *Development-Related Ridership Survey* and mode splits used for retail uses of nearby developments that have recently been studied.

Grocery trip generation was calculated based on ITE land use 850, Supermarket. Mode splits for the grocery component of the site were based on similar assumption to that of the retail use, with a higher auto share due to grocery stores attracting trips from further away than neighborhood-serving retail.

Office trip generation was calculated based on ITE land use 710, General Office Building. Due to the small scale of office space the ITE rate for General Office Building was used in lieu of the equation. Mode split for the office component was based on census data for employees that travel to the site and data for office sites from WMATA's *Development-Related Ridership Study*.

Theatre trip generation was calculated based on ITE land use code 445, Multiplex Movie Theatre, splitting trips into different modes using assumptions derived from WMATA's 2005 *Development-Related Ridership Survey* and mode splits for

theatre uses of similar developments that have recently been studied.

Turning movement counts were collected for existing use of the site.

The mode split assumptions for all land uses within the development is summarized in Table 5. A summary of the multimodal trip generation for Phase 1 is shown on Table 6. Multi-modal trip generation for the overall development is provided in Table 7 for both peak hours. Detailed calculations are included in the Technical Appendix.

**Table 5: Summary of Mode Split Assumptions**

Land Use	Mode			
	Auto	Transit	Bike	Walk
Residential	45%	40%	5%	10%
Retail	35%	40%	10%	15%
Grocery	55%	20%	10%	15%
Office	50%	35%	5%	10%
Theatre	40%	40%	5%	15%



**Table 6: Phase 1 Multi-Modal Trip Generation Summary**

Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto	Apartments	22 veh/hr	84 veh/hr	106 veh/hr	89 veh/hr	48 veh/hr	137 veh/hr
	Retail	15 veh/hr	9 veh/hr	24 veh/hr	45 veh/hr	49 veh/hr	94 veh/hr
	Office	16 veh/hr	2 veh/hr	18 veh/hr	3 veh/hr	15 veh/hr	18 veh/hr
	Existing	-45 veh/hr	-36 veh/hr	-81 veh/hr	-52 veh/hr	-61 veh/hr	-113 veh/hr
	<b>Total</b>	<b>8 veh/hr</b>	<b>59 veh/hr</b>	<b>67 veh/hr</b>	<b>85 veh/hr</b>	<b>51 veh/hr</b>	<b>136 veh/hr</b>
Transit	Apartments	22 ppl/hr	85 ppl/hr	107 ppl/hr	89 ppl/hr	48 ppl/hr	137 ppl/hr
	Retail	30 ppl/hr	19 ppl/hr	49 ppl/hr	91 ppl/hr	99 ppl/hr	190 ppl/hr
	Office	13 ppl/hr	2 ppl/hr	15 ppl/hr	2 ppl/hr	11 ppl/hr	13 ppl/hr
	<b>Total</b>	<b>65 ppl/hr</b>	<b>106 ppl/hr</b>	<b>171 ppl/hr</b>	<b>182 ppl/hr</b>	<b>158 ppl/hr</b>	<b>340 ppl/hr</b>
Bike	Apartments	3 ppl/hr	11 ppl/hr	14 ppl/hr	11 ppl/hr	6 ppl/hr	17 ppl/hr
	Retail	7 ppl/hr	5 ppl/hr	12 ppl/hr	23 ppl/hr	25 ppl/hr	48 ppl/hr
	Office	2 ppl/hr	0 ppl/hr	2 ppl/hr	0 ppl/hr	2 ppl/hr	2 ppl/hr
	<b>Total</b>	<b>12 ppl/hr</b>	<b>16 ppl/hr</b>	<b>28 ppl/hr</b>	<b>34 ppl/hr</b>	<b>33 ppl/hr</b>	<b>67 ppl/hr</b>
Walk	Apartments	5 ppl/hr	21 ppl/hr	26 ppl/hr	22 ppl/hr	12 ppl/hr	34 ppl/hr
	Retail	11 ppl/hr	7 ppl/hr	18 ppl/hr	34 ppl/hr	37 ppl/hr	71 ppl/hr
	Office	4 ppl/hr	0 ppl/hr	4 ppl/hr	1 ppl/hr	3 ppl/hr	4 ppl/hr
	<b>Total</b>	<b>20 ppl/hr</b>	<b>28 ppl/hr</b>	<b>48 ppl/hr</b>	<b>57 ppl/hr</b>	<b>52 ppl/hr</b>	<b>109 ppl/hr</b>





**Table 7: Full Buildout Multi-Modal Trip Generation Summary**

Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto	Apartments	63 veh/hr	249 veh/hr	312 veh/hr	259 veh/hr	139 veh/hr	398 veh/hr
	Retail	40 veh/hr	25 veh/hr	75 veh/hr	120 veh/hr	130 veh/hr	256 veh/hr
	Grocery	81 veh/hr	50 veh/hr	131 veh/hr	168 veh/hr	161 veh/hr	329 veh/hr
	Office	16 veh/hr	2 veh/hr	18 veh/hr	3 veh/hr	15 veh/hr	18 veh/hr
	Theatre	0 veh/hr	0 veh/hr	0 veh/hr	11 veh/hr	20 veh/hr	30 veh/hr
	Existing	-187 veh/hr	-152 veh/hr	-339 veh/hr	-218 veh/hr	-255 veh/hr	-473 veh/hr
	<b>Total</b>	<b>13 veh/hr</b>	<b>174 veh/hr</b>	<b>197 veh/hr</b>	<b>343 veh/hr</b>	<b>210 veh/hr</b>	<b>557 veh/hr</b>
Transit	Apartments	63 ppl/hr	250 ppl/hr	313 ppl/hr	260 ppl/hr	140 ppl/hr	400 ppl/hr
	Retail	80 ppl/hr	50 ppl/hr	152 ppl/hr	243 ppl/hr	263 ppl/hr	518 ppl/hr
	Grocery	53 ppl/hr	32 ppl/hr	85 ppl/hr	109 ppl/hr	104 ppl/hr	213 ppl/hr
	Office	13 ppl/hr	2 ppl/hr	14 ppl/hr	2 ppl/hr	11 ppl/hr	14 ppl/hr
	Theatre	0 ppl/hr	0 ppl/hr	0 ppl/hr	24 ppl/hr	43 ppl/hr	67 ppl/hr
	<b>Total</b>	<b>209 ppl/hr</b>	<b>334 ppl/hr</b>	<b>564 ppl/hr</b>	<b>638 ppl/hr</b>	<b>561 ppl/hr</b>	<b>1212 ppl/hr</b>
Bike	Apartments	8 ppl/hr	31 ppl/hr	39 ppl/hr	32 ppl/hr	17 ppl/hr	50 ppl/hr
	Retail	20 ppl/hr	13 ppl/hr	38 ppl/hr	61 ppl/hr	66 ppl/hr	130 ppl/hr
	Grocery	26 ppl/hr	16 ppl/hr	42 ppl/hr	54 ppl/hr	52 ppl/hr	106 ppl/hr
	Office	2 ppl/hr	0 ppl/hr	2 ppl/hr	0 ppl/hr	2 ppl/hr	2 ppl/hr
	Theatre	0 ppl/hr	0 ppl/hr	0 ppl/hr	3 ppl/hr	5 ppl/hr	8 ppl/hr
	<b>Total</b>	<b>56 ppl/hr</b>	<b>60 ppl/hr</b>	<b>121 ppl/hr</b>	<b>150 ppl/hr</b>	<b>142 ppl/hr</b>	<b>296 ppl/hr</b>
Walk	Apartments	16 ppl/hr	62 ppl/hr	78 ppl/hr	65 ppl/hr	35 ppl/hr	100 ppl/hr
	Retail	30 ppl/hr	19 ppl/hr	57 ppl/hr	92 ppl/hr	99 ppl/hr	195 ppl/hr
	Grocery	40 ppl/hr	24 ppl/hr	64 ppl/hr	81 ppl/hr	78 ppl/hr	160 ppl/hr
	Office	4 ppl/hr	0 ppl/hr	4 ppl/hr	1 ppl/hr	3 ppl/hr	4 ppl/hr
	Theatre	0 ppl/hr	0 ppl/hr	0 ppl/hr	9 ppl/hr	16 ppl/hr	25 ppl/hr
	<b>Total</b>	<b>90 ppl/hr</b>	<b>105 ppl/hr</b>	<b>203 ppl/hr</b>	<b>248 ppl/hr</b>	<b>231 ppl/hr</b>	<b>484 ppl/hr</b>



## TRAFFIC OPERATIONS

This section provides a summary of an analysis of the existing and future roadway capacity in the study area. Included is an analysis of potential vehicular impacts of the 680 Rhode Island Avenue project and a discussion of potential improvements.

The purpose of the capacity analysis is to:

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

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

1. 2015 Existing Conditions
2. 2021 Future Conditions without the development (2021 Background)
3. 2021 Future Conditions with Phase 1 of the development (2021 Future)
4. 2026 Future Conditions with Phase 1 of the development (2026 Background)
5. 2026 Future Conditions with Full Buildout of the development (2026 Future)

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

The following conclusions are reached within this chapter:

- The majority of intersections operate at an acceptable level of service during all analysis scenarios for both the morning and afternoon peak hours.
- There are three study intersection that operate at unacceptable levels of service as a result of the proposed development.
- Mitigation measures were analyzed and discussed for the three intersections, which greatly improve their overall operations.
- Overall, this report concludes that the project will not have a detrimental impact to the surrounding transportation network.

## STUDY AREA, SCOPE, & METHODOLOGY

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

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

### Capacity Analysis Scenarios

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

Specifically, the roadway capacity analysis examined the following scenarios:

1. 2015 Existing Conditions
2. 2021 Future Conditions without the development (2021 Background)
3. 2021 Future Conditions with Phase 1 of the development (2021 Future)
4. 2026 Future Conditions with Phase 1 of the development (2026 Background)
5. 2026 Future Conditions with Full Buildout of the development (2026 Future)

### Study Area

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



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

1. Rhode Island Avenue & Lincoln Road NE
2. Rhode Island Avenue & 2<sup>nd</sup> Street NE
3. Rhode Island Avenue & 3<sup>rd</sup> Street NE
4. Rhode Island Avenue & W Street NE
5. Rhode Island Avenue & 4<sup>th</sup> Street NE
6. Rhode Island Avenue & 5<sup>th</sup> Street NE
7. Rhode Island Avenue NE & western Rhode Island Avenue Center Driveway
8. Rhode Island Avenue NE & eastern Rhode Island Avenue Center Driveway
9. Rhode Island Avenue & Reed Street NE
10. Rhode Island Avenue & 10<sup>th</sup> Street NE
11. 4<sup>th</sup> Street & W Street NE
12. 4<sup>th</sup> Street & Block 4 Driveway
13. 4<sup>th</sup> Street & Bryant Street NE
14. 4<sup>th</sup> Street & Channing Street NE
15. 4<sup>th</sup> Street & Cromwell Terrace NE
16. 4<sup>th</sup> Street NE & Douglas Street NE
17. 4<sup>th</sup> Street & Franklin Street NE
18. Franklin Street & 6<sup>th</sup> Street NE
19. Edgewood Street & 7<sup>th</sup> Street NE
20. Franklin Street & 7<sup>th</sup> Street NE
21. Franklin Street & 10<sup>th</sup> Street NE
22. Franklin Street & 12<sup>th</sup> Street NE
23. Lincoln Road & Bryant Street NE
24. Intersection of Private Streets (Future)
25. Intersection of Private Streets (Future)
26. Intersection of Private Streets (Future)

Figure 24 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 Wednesday, June 17, 2015, Tuesday, September 29, 2015, Tuesday December 1, 2015, and Tuesday, December 15, 2015.

The results of these traffic counts are included in the Technical Attachments. The existing peak hour traffic volumes are shown on Figure 25 and Figure 26. For all intersections the individual morning and afternoon peak hours were used.

### 2021 Background Traffic Volumes (without the project)

The traffic projections for the 2021 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.

**Table 8: Summary of Background Development Trip Generation (up to 2021)**

Background Development	ITE Land Use Code Trip Generation, 9th Ed.	Quantity	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Rhode Island Avenue Gateway	Based on approved TIS		10	36	46	34	20	54
Brookland Square	Based on approved TIS		12	48	60	47	26	73
Channing Place	220 Apartment Non-Auto Reduction: 70%	295 dwelling units	30	118	148	117	63	180
			-21	-83	-104	-82	-44	-126
<b>Total Trips</b>			<b>9</b>	<b>35</b>	<b>44</b>	<b>35</b>	<b>19</b>	<b>54</b>
<b>Net Background Site Trips</b>			<b>31</b>	<b>119</b>	<b>150</b>	<b>116</b>	<b>65</b>	<b>181</b>





Based on these criteria, and as discussed previously, three developments were included in the 2021 Background scenario. These developments are:

1. Rhode Island Avenue Gateway
2. Brookland Square
3. Channing Place

Existing studies were available for all developments except Channing Place. For Channing Place, trip generation was calculated based on the Institute of Transportation Engineers' *Trip Generation Manual*, 9th Edition, with mode splits based on those used for similar developments in the Brookland neighborhood. Trip distribution assumptions for the background development was based on those determined for the 680 Rhode Island Avenue development and altered where necessary, based on anticipated travel patterns. Mode split and trip generation assumptions for the background developments are shown in Table 8.

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 Metropolitan Washington Council of Government's (MWCOC) currently adopted regional transportation model, comparing the difference between the year 2015 and 2020 model scenarios. The growth rates observed in this model served as a basis for analysis assumptions, and where negative growth was observed, a conservative 0.10 percent annual growth rate was applied to the roadway. The applied growth rates are shown in Table 9.

The traffic volumes generated by the inherent growth along the network were added to the existing traffic volumes in order to

**Table 9: Applied Annual and Total Growth Rates**

Road & Direction	Proposed Annual Growth Rate		Total Growth between 2015 and 2021		Total Growth between 2015 and 2026	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Edgewood Street NE - NEB	0.50%	0.50%	3.0%	3.0%	5.6%	5.6%
Edgewood Street NE - SWB	1.00%	0.50%	6.2%	3.0%	11.6%	5.6%
4th Street NE - NB	2.00%	0.10%	12.6%	0.6%	24.3%	1.1%
4th Street NE - SB	0.10%	0.25%	0.6%	1.5%	1.1%	2.8%
Rhode Island Avenue NE - NEB	0.10%	0.10%	0.6%	0.6%	1.1%	1.1%
Rhode Island Avenue NE - SWB	0.10%	0.10%	0.6%	0.6%	1.1%	1.1%
Franklin Street NE - EB	0.75%	0.50%	4.6%	3.0%	8.6%	5.6%
Franklin Street NE - WB	1.00%	0.25%	6.2%	1.5%	11.6%	2.8%

establish the 2021 Background traffic volumes. The traffic volumes for the 2021 Background conditions are shown on Figure 27 and Figure 28.

*2021 Future Traffic Volumes (with the Phase 1 of the PUD)*

The 2021 Future traffic volumes consist of the 2021 Background volumes with the addition of the traffic volumes generated by Phase 1 of the proposed development (site-generated trips) and the removal of 24 percent of the existing trips (representing the removal of 43,000 sf of the 180,000 sf of existing retail). Thus, the 2021 Future traffic volumes include traffic generated by: the existing volumes, background developments, the inherent growth on the study area roadways, and Phase 1 of the proposed project.

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

The residential trip distribution was significantly influenced by the CTPP TAZ flow data for drivers commuting from the site's TAZ, and adjusted based on traffic volumes and patterns. The origins of outbound and destinations of inbound residential vehicular trips were the below-grade parking garages in Block 1A, Block 1B, and Block 5B.

The retail distribution was mostly based on locations and proximity of other retail centers, with some influence on the CTPP TAZ flow data for drivers commuting to the site's TAZ (representing retail employees on that drive). Thus, the retail trip distribution is weighted more towards nearby residential areas than on regional origins. The origins of outbound and



destinations of inbound retail vehicular trips were the below-grade parking garages of Block 1A, Block 1B, and Block 5B.

The office distribution was significantly influenced by the CTPP TAZ flow data for drivers commuting to the site's TAZ and adjusted based on traffic volumes and patterns. The origin outbound and destination of inbound trips was the below-grade parking garage of Block 5B.

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 29 for outbound trips and on Figure 30 for inbound trips.

Existing site-generated trips were removed throughout the network of study intersections using the same distribution assumptions as the project's site-generated retail trips. Under Phase 1 conditions, 24 percent of the existing site-generated trips were removed, representing 42,000 sf of the 180,000 sf of existing retail space that will be removed during Phase 1 of the project. Since Phase 1 will mostly redevelop the eastern part of the site, the majority of existing trips being removed were from the eastern site driveway on Rhode Island Avenue first, followed by an equal removal of existing site-generated trips at the western site driveway on Rhode Island Avenue and the southern site driveway along 4<sup>th</sup> Street.

The traffic volumes for the 2021 Future scenario were calculated by adding the development-generated traffic volumes to the 2021 Background traffic volumes and removing 24 percent of existing site-generated trips as described above. Thus, the future condition with Phase 1 of the proposed development scenario includes traffic generated by: existing volumes, background developments through the year 2021, inherent growth on the network, and Phase 1 of the proposed 680 Rhode Island Avenue development. The Phase 1 site-generated traffic volumes are shown on Figure 35 and Figure 36 and the 2021 Future traffic volumes are shown on Figure 37 and Figure 38.

*2026 Background Traffic Volumes (with Phase 1 of the PUD)*

The traffic projections for the 2026 Background conditions consist of the 2021 Future volumes with additional regional background growth and planned developments. These background growth rates were applied to thru movements at study area intersections. The peak hour traffic volumes for the 2026 Background conditions are on Figure 41 and Figure 42.

As discussed previously, The Brookland Manor development is expected to open between Phase 1 and the full buildout of the proposed development, and is thus being added as an additional background development in the 2026 Background conditions.

An approved study was available for the Brookland Manor development. Mode split and trip generation assumptions for Brookland Manor is summarized in Table 10.

The traffic volumes generated by the inherent growth along the network were added to the 2021 Future traffic volumes in order to establish the 2026 Background traffic volumes. The traffic volumes for the 2026 Background conditions are shown on Figure 41 and Figure 42.

*2026 Future Traffic Volumes (with full buildout of the PUD)*

The 2026 Future traffic volumes consist of the 2026 Background volumes with the addition of the traffic volumes generated by the full buildout of the proposed development (site-generated trips), the removal of all the existing site-generated trips, and the addition of the traffic from the Edgewood Commons development to the northern site driveway on 4<sup>th</sup> Street. Thus, the 2026 Future traffic volumes include traffic generated by: existing volumes, background developments, inherent growth on the study area roadways, and full buildout of the proposed project.

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

**Table 10: Summary of Background Development Trip Generation (2021 to 2026)**

Background Development	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Brookland Manor	Based on approved TIS					
	173	372	545	543	400	943
	<b>Net Background Site Trips</b>					
	173	372	545	543	400	943



Residential trip distribution assumptions remain the same as in the 2021 Future scenario, with residential trips being routed to and from the below-grade parking garages in each block.

Retail trip distribution assumptions remain the same as the 2021 Future scenario, with retail trips being routed to and from the below-grade parking garages in each block.

Office trip distribution assumptions remain the same as the 2021 Future scenario, with office trips being routed to and from the below-grade parking garage of Block 5B.

Grocery trip distribution assumptions were mostly based from the location of other grocery stores, with some influence on the CTPP TAZ flow data for drivers commuting to the site's TAZ (representing grocery employees that drive). Thus, the grocery trip distribution is weighted more towards nearby residential areas and less on regional origins. The origins of outbound and destinations of inbound retail vehicular trips were the below grade parking garage of Block 3.

The movie theatre trip distribution assumptions were mostly based on the location of other movie theatres, with some influence on the CTPP TAZ flow data for drivers commuting to the site's TAZ (representing employees that drive). Thus, the movie theatre trip distribution is weighted more towards nearby residential areas and less on regional origins. The origins of outbound and destinations of inbound retail vehicular trips were the below-grade parking garage of Block 2B.

In order to properly analyze how the project's driveways will operate under the full buildout of the development, existing site-generated trips were not removed, but instead "zeroed out" at the following intersections:

- Rhode Island Avenue NE & western Rhode Island Avenue Center Driveway
- Rhode Island Avenue NE & eastern Rhode Island Avenue Center Driveway
- 4<sup>th</sup> Street NE & Block 4 Driveway
- 4<sup>th</sup> Street & Bryant Street NE

This approach allows the above intersections to be analyzed as they will operate, with the development's volumes that are predicted to flow through them.

The traffic volumes for the 2026 Future scenario were calculated by adding the development-generated traffic

volumes to the 2026 Background traffic volumes and removing the 2015 existing site-generated trips. Thus, the future condition with the full buildout of the proposed development scenario includes traffic generated by: existing volumes, background developments through the year 2026, inherent growth on the network, and the full buildout of the proposed 680 Rhode Island Avenue development. The site-generated traffic volumes are shown on Figure 43 and Figure 44 and the 2026 Future traffic volumes are shown on Figure 45 and Figure 46.

### **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 31 and Figure 32.

#### *2021 Background Geometry and Operations Assumptions (without the project)*

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 future scenario.

#### *2021 Future Geometry and Operations Assumptions (with Phase 1 of the PUD)*

The geometry and operations assumed in the 2021 Future conditions are based on the 2021 Background conditions with the changes to the site's internal roadway network incorporated, as shown previously in Figure 12. Along Rhode Island Avenue, the westernmost access point will be





consolidated to a single segment, and expanded from a single inbound lane and single outbound lane to two outbound lanes and one inbound lane. The easternmost access point along Rhode Island Avenue will be expanded to allow for right-in and right-out access. The location of all curb cuts accessing the site will remain unchanged.

No changes to signal timing were made.

Lane configurations and traffic controls for the 2021 Future conditions are shown in Figure 33 and Figure 34.

#### *2026 Background Geometry and Operations Assumptions (with Phase 1 of the PUD)*

The geometry and operations assumed in the 2026 Background conditions are the same as the 2021 Future conditions. No background improvements were included in the scenario.

#### *2026 Future Geometry and Operations Assumptions (with full buildout of the PUD)*

The geometry and operations assumed in the 2026 Future conditions are based on the 2026 Background conditions with the changes to the site's internal roadway network incorporated, as shown previously in Figure 13. Under full buildout conditions, limited changes will be made to access points on 4<sup>th</sup> Street. The intersection of 4<sup>th</sup> Street and Channing Street will be signalized, and within the site, the Edgewood Commons access driveway will be merged with a site driveway. The location of the northernmost curb cut on 4<sup>th</sup> Street will remain unchanged. One (1) new curb cut will be added on 4<sup>th</sup> Street at the signalized intersection of Bryant Street which will align Bryant Street. The southernmost curb cut on 4<sup>th</sup> Street will provide access to the below-grade parking garage of Block 4. The location of the southernmost curb cut on 4<sup>th</sup> Street is expected to remain unchanged.

Signal timing changes were made at the intersection of Bryant Street and 4<sup>th</sup> Street to reflect the extension of Bryant Street as a private street into the site. The signal timing for the added westbound approach mirrors the eastbound approach's signal timing under existing conditions.

Signal timings for the new signal at the intersection of 4<sup>th</sup> Street and Channing Street were copied from the intersection of 4<sup>th</sup> Street and Bryant Street.

Lane configurations and traffic controls for the 2026 Future conditions are shown in Figure 39 and Figure 40.

## VEHICULAR ANALYSIS RESULTS

### Intersection Capacity Analysis

Intersection capacity analyses were performed for the five 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* (HCM) 2000 methodology.

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

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

Table 11 shows the results of the capacity analyses, including LOS and average delay per vehicle (in seconds) for the Existing, 2021 Background, 2021 Future, 2026 Background, and 2026 Future scenarios. The capacity analysis results are shown on Figure 47 and Figure 48 for the morning peak hour, and Figure 49 and Figure 50 for the afternoon peak hour.

The majority of study intersections operate at acceptable conditions during the morning and afternoon peak hours for the Existing, 2021 Background, 2021 Future, 2026 Background, and 2026 Future scenarios. However, five (5) intersections operate under unacceptable conditions during one or more peak hour:

- Rhode Island Avenue & Lincoln Road NE
- Rhode Island Avenue & 4<sup>th</sup> Street NE



- Franklin Street & 4<sup>th</sup> Street NE
- Franklin Street & 7<sup>th</sup> Street NE
- Franklin Street & 12<sup>th</sup> Street NE

**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 intersections, only the 95<sup>th</sup> percentile queue is reported for each lane group (including free-flowing left turns and stop-controlled movements) based on the HCM calculations.

Table 12 shows the queuing results for the study area intersections. Several of the study intersections have a lane group that exceeds its storage length during at least one peak hour in all of the study scenarios. These intersections are as follows:

- Rhode Island Avenue & Lincoln Road NE
- Rhode Island Avenue & 3<sup>rd</sup> Street NE
- Rhode Island Avenue & 4<sup>th</sup> Street NE
- Rhode Island Avenue & 5<sup>th</sup> Street NE
- Rhode Island Avenue & western Rhode Island Avenue Center Driveway
- Rhode Island Avenue & Reed Street NE
- Rhode Island Avenue & 10<sup>th</sup> Street NE
- 4<sup>th</sup> Street & Edgewood Street NE
- Franklin Street & 4<sup>th</sup> Street NE
- Franklin Street & 7<sup>th</sup> Street NE
- Franklin Street & 12<sup>th</sup> Street NE

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

**Mitigations**

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 or F at an intersection or along an approach in the future conditions with the proposed development where one does not exist in the existing or

background conditions. The development is also considered to have an impact if there is an increase in delay at any approach or the overall intersection operating under LOS E or F of greater than 5 seconds, when compared to the background condition. Following these guidelines there are impacts to three intersections as a result of the development. Mitigation measures were tested at this intersection and the following conclusions were made:

- Rhode Island Avenue & Lincoln Road NE  
Under the 2026 Future conditions, the overall delay at the intersections is expected to degrade to LOS F, and the 95% queue is expected to increase by more than 150 feet during the afternoon peak hour in comparison to the 2026 Background conditions without the development.

The intersection can be improved by adjusting signal timings such that the northbound and southbound approaches receive more green time. This resolves both the queuing and the LOS issues at this intersection.

- Rhode Island Avenue & 4<sup>th</sup> Street NE  
Under the 2026 Future conditions, the overall delay at the intersection is expected to degrade to LOS E during the afternoon peak hour.

The intersection can be improved by adjusting signal timings such that the northbound and southbound approaches receive more green time.

- Channing Street & 4<sup>th</sup> Street NE  
Under the 2026 Future conditions, the site driveway and adjacent Edgewood Commons driveway are expected to be consolidated into a single westbound approach to the intersection. An examination of peak hour warrants (as noted in the Appendix) reveals that a traffic signal may be warranted at this location upon full buildout of the PUD.

- Franklin Street & 4<sup>th</sup> Street NE  
Under the 2026 Future conditions, the overall delay at the intersection is expected to degrade to LOS E during the morning peak hour.

As previously mentioned, DDOT is planning on implementing traffic signal optimization along Franklin Street at intersections between Michigan Avenue and South Dakota Avenue as part of the *Traffic Safety Study for*



*Franklin Street NE Corridor*, which will improve the operations of this intersection.

Of note, the degradation of LOS at this intersection is due in part to assumptions agreed upon with DDOT during the scoping process for this report. Routing assumptions led high volumes to be routed to North Capitol Street as northbound left turns at this intersection. The actual operations of this intersections would potentially see vehicles routed as thru volumes rather than turning left to access North Capitol Street, thereby improving LOS at this intersection. As such, no mitigations are recommended at this intersection as part of this report.



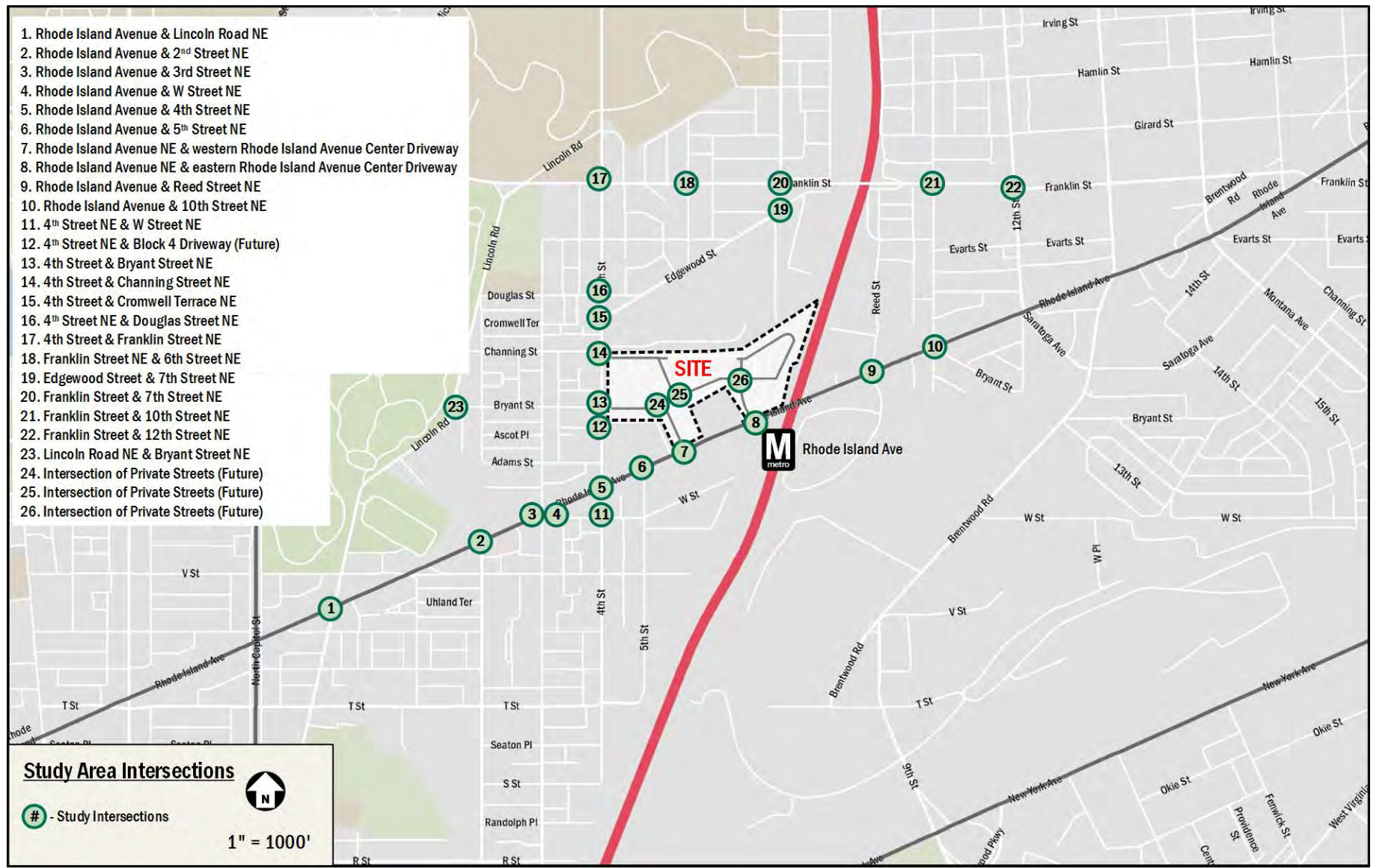


Figure 24: Study Area

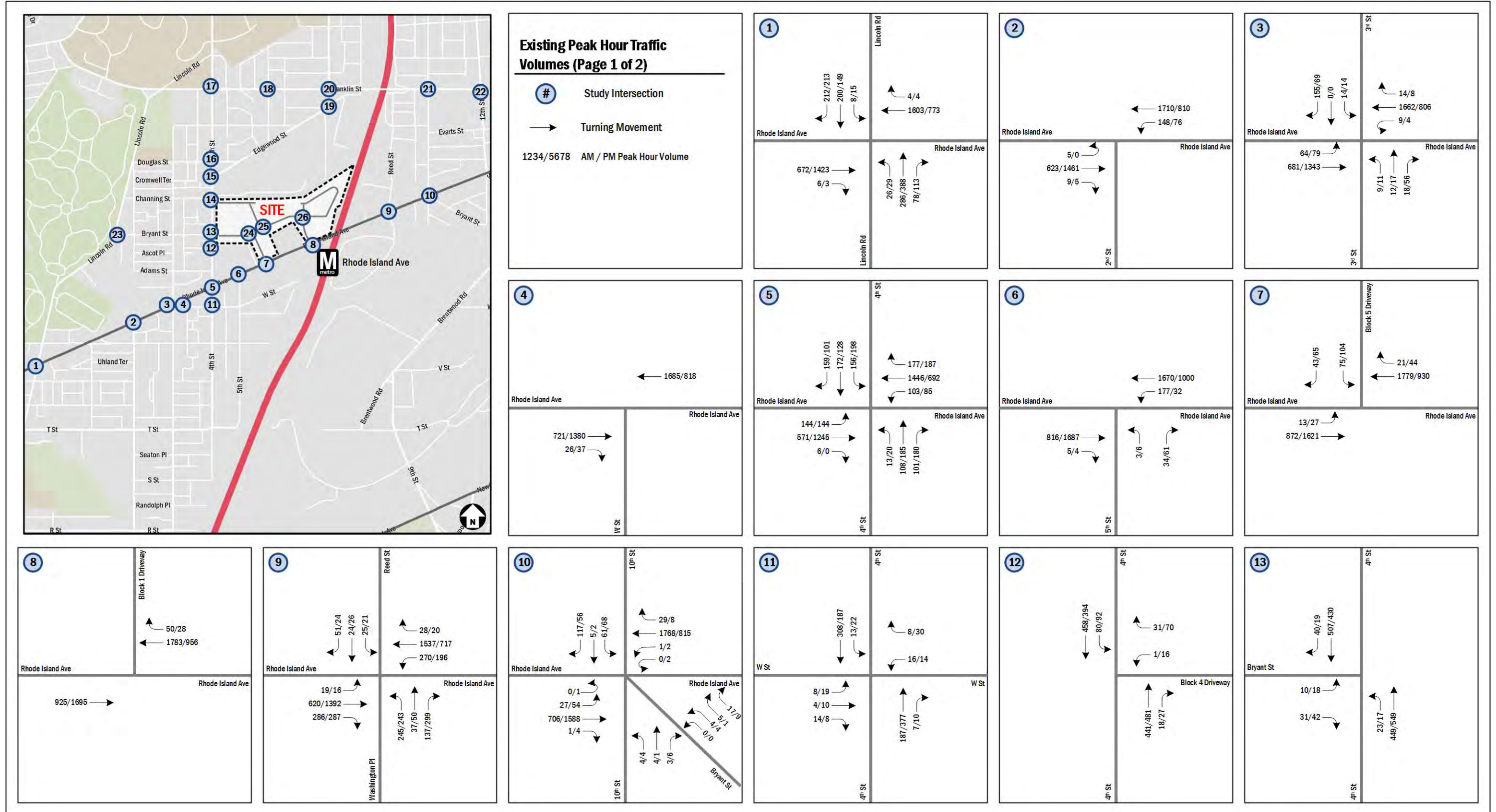


Figure 25: Existing Peak Hour Traffic Volumes (1)



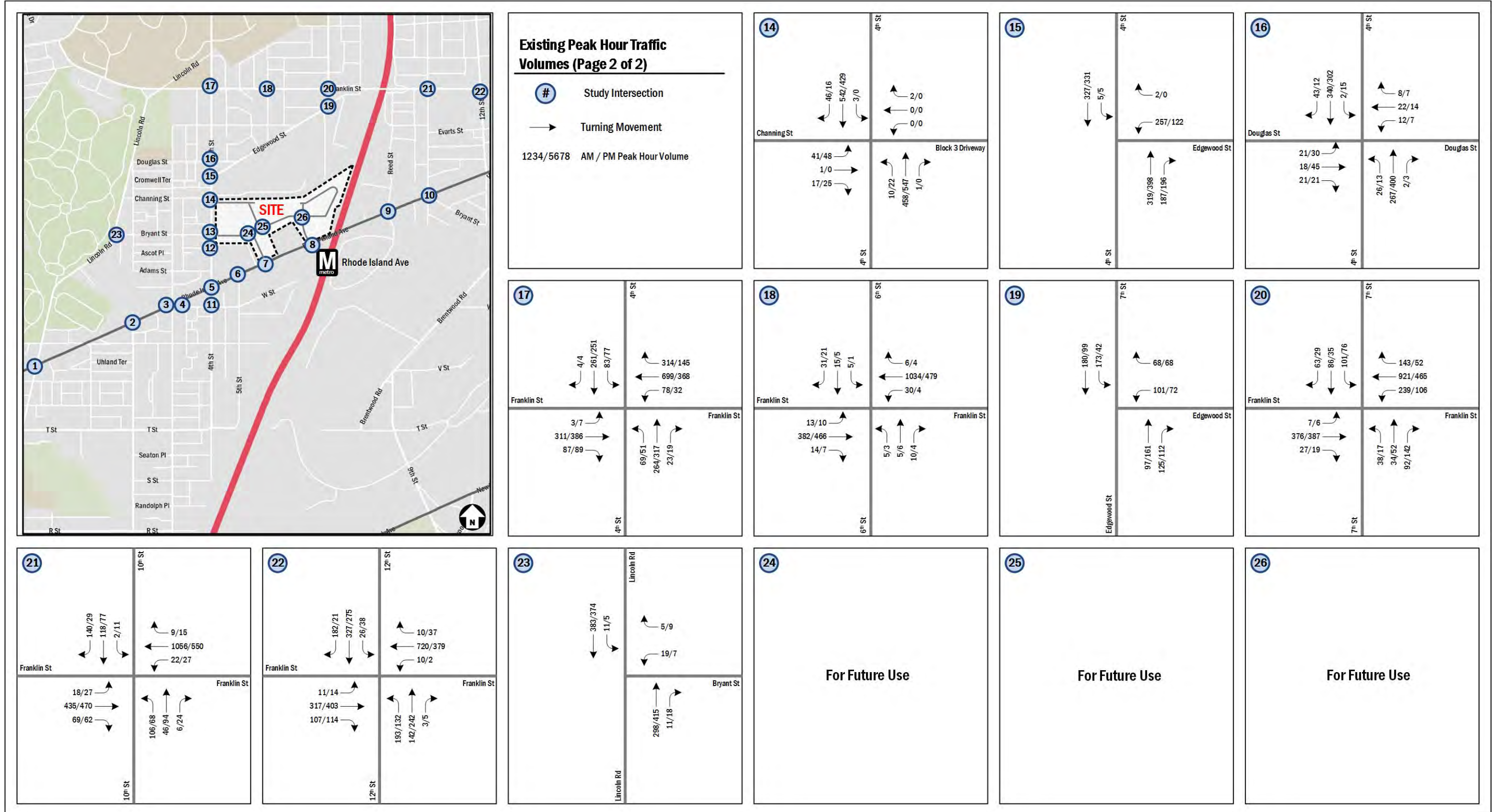


Figure 26: Existing Peak Hour Traffic Volumes (2)

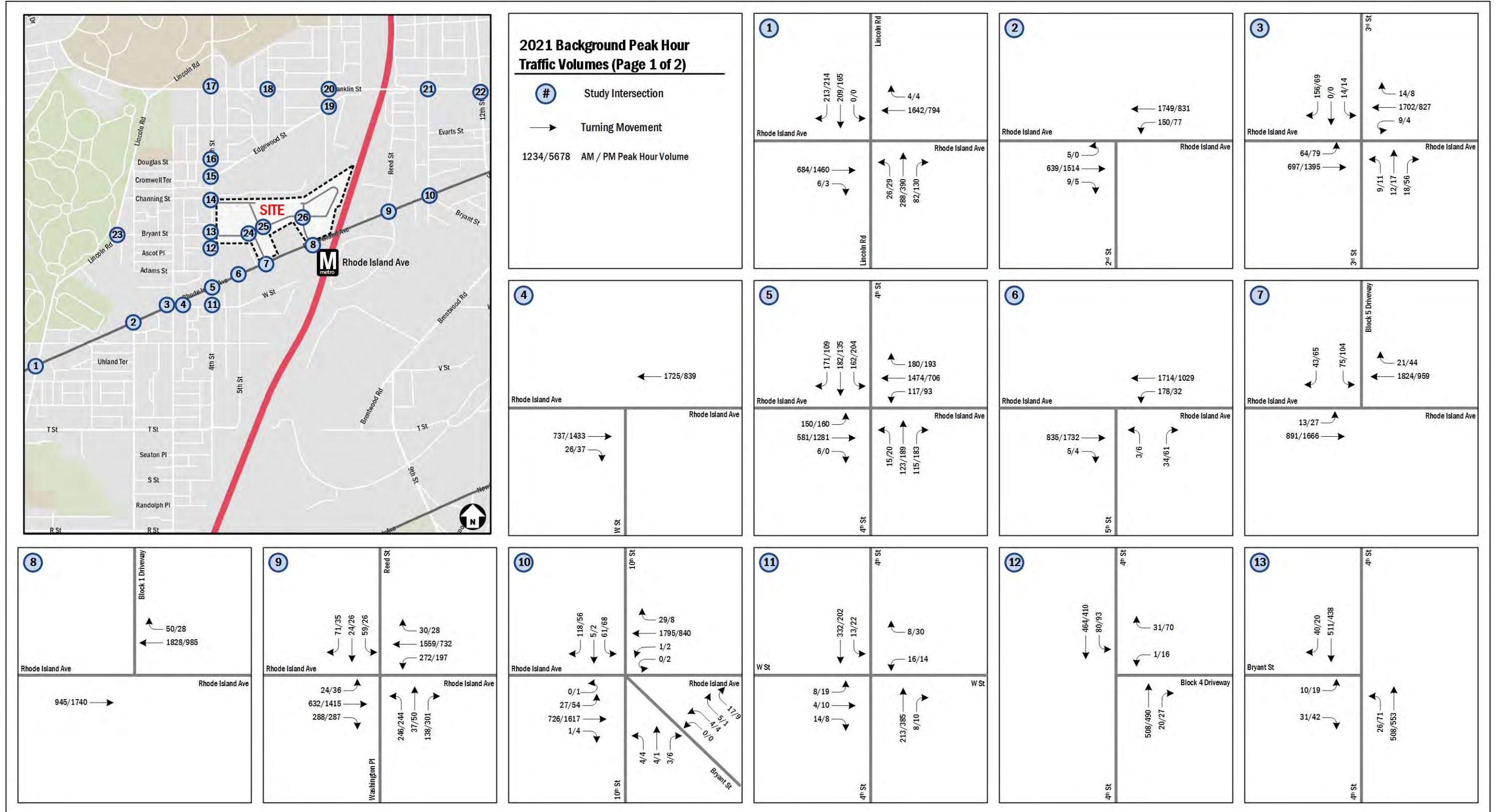


Figure 27: 2021 Background Peak Hour Traffic Volumes (1)



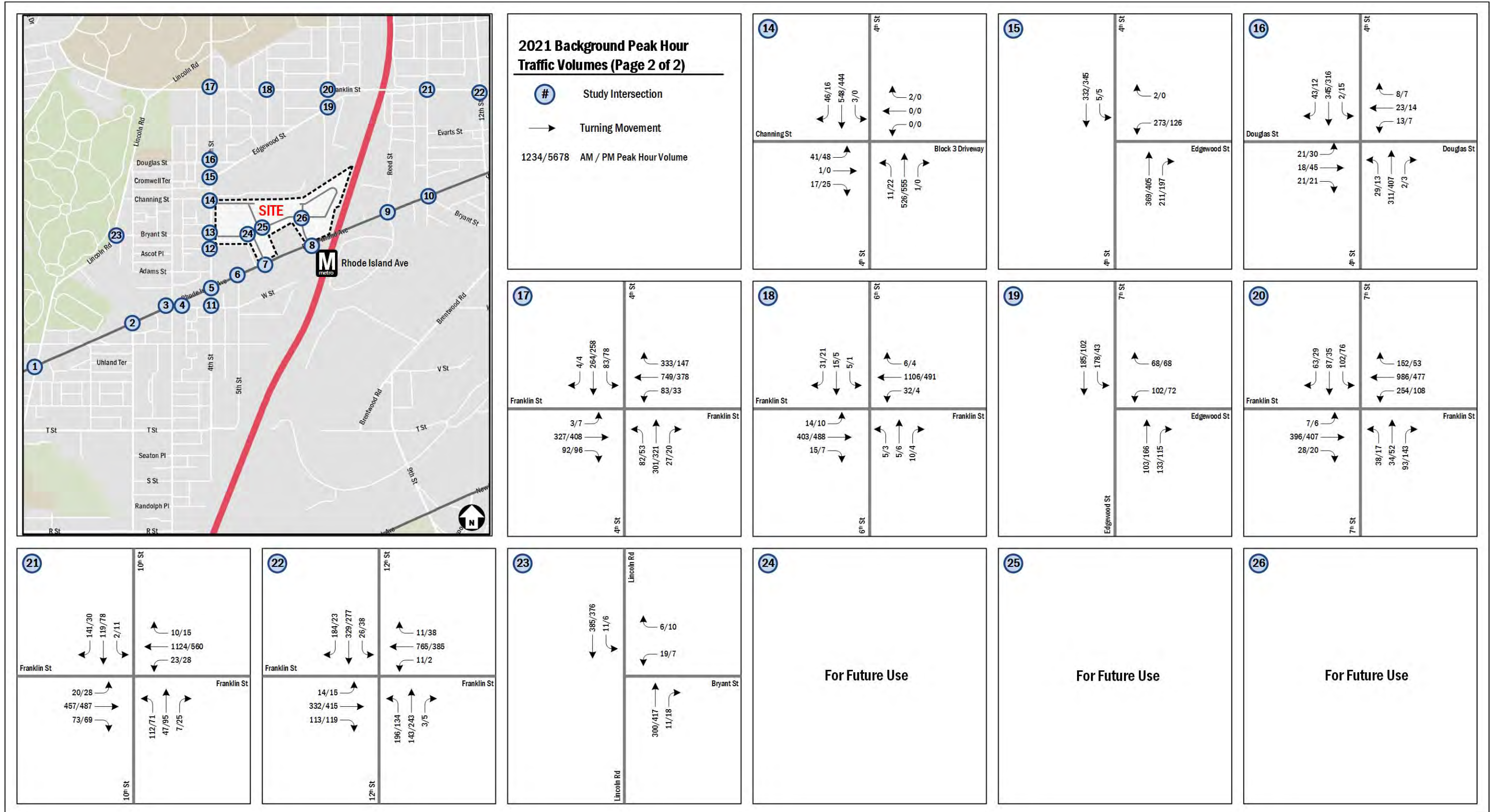


Figure 28: 2021 Background Peak Hour Traffic Volumes (2)



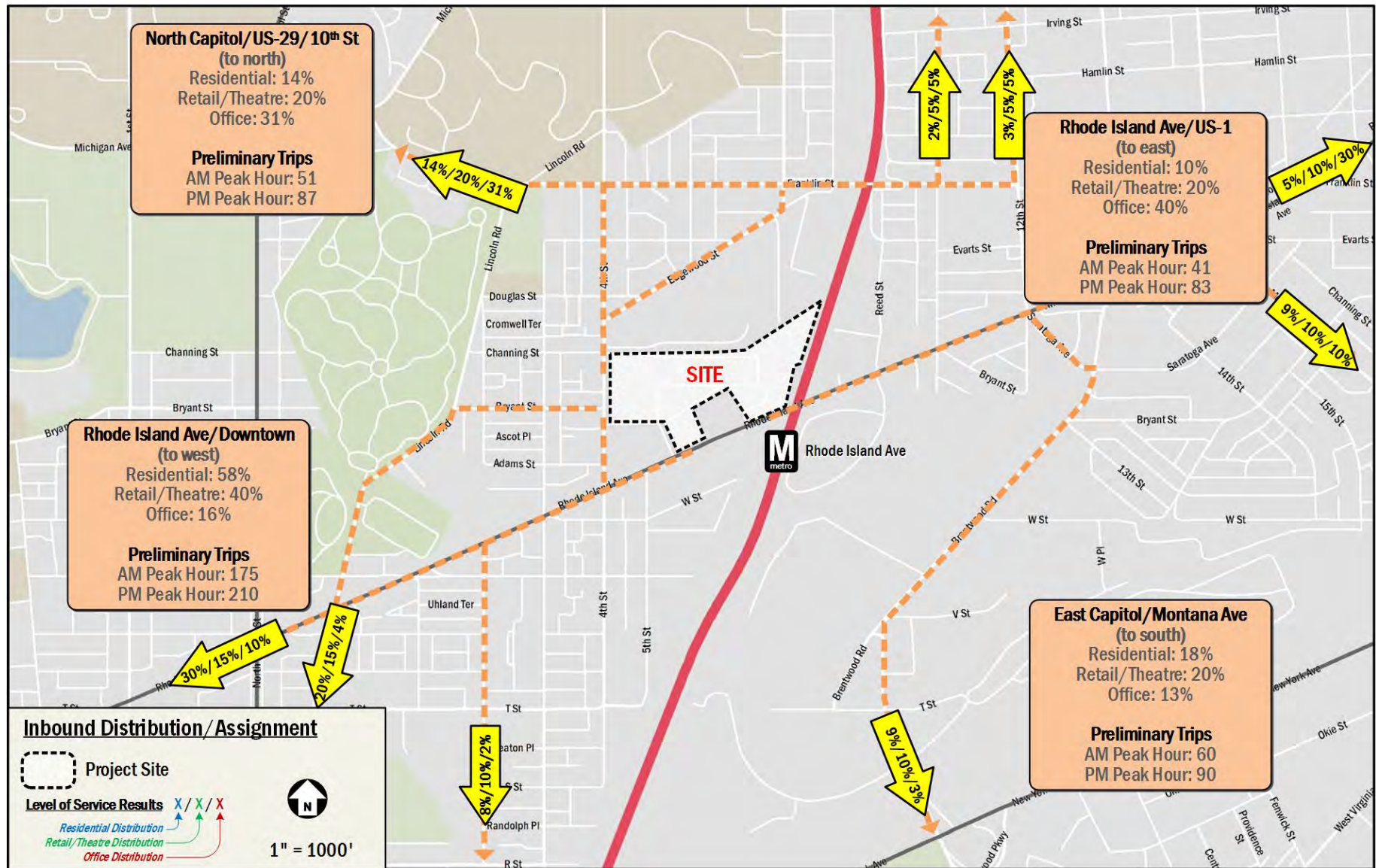


Figure 29: Outbound Trip Distribution and Routing



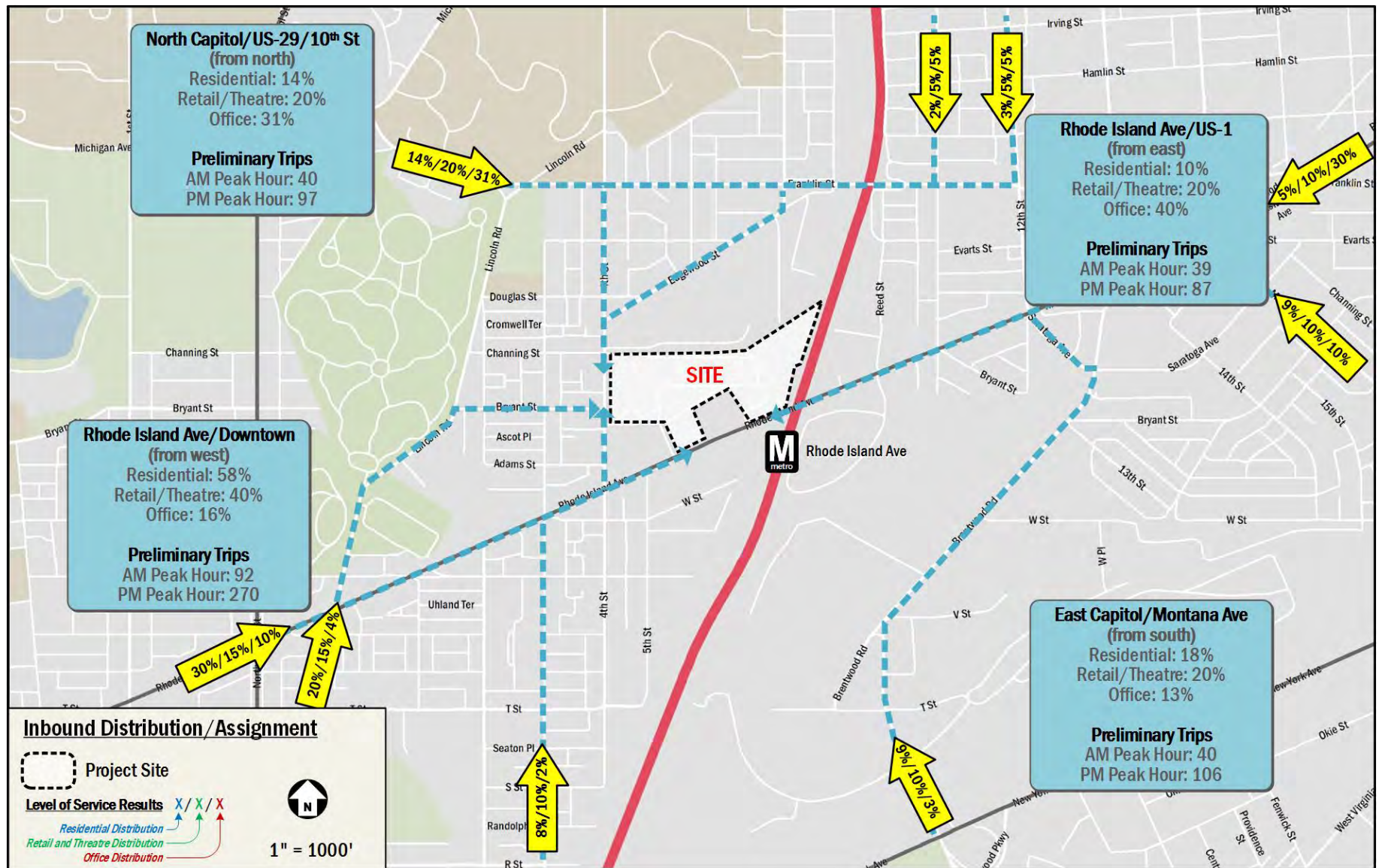


Figure 30: Inbound Trip Distribution and Routing



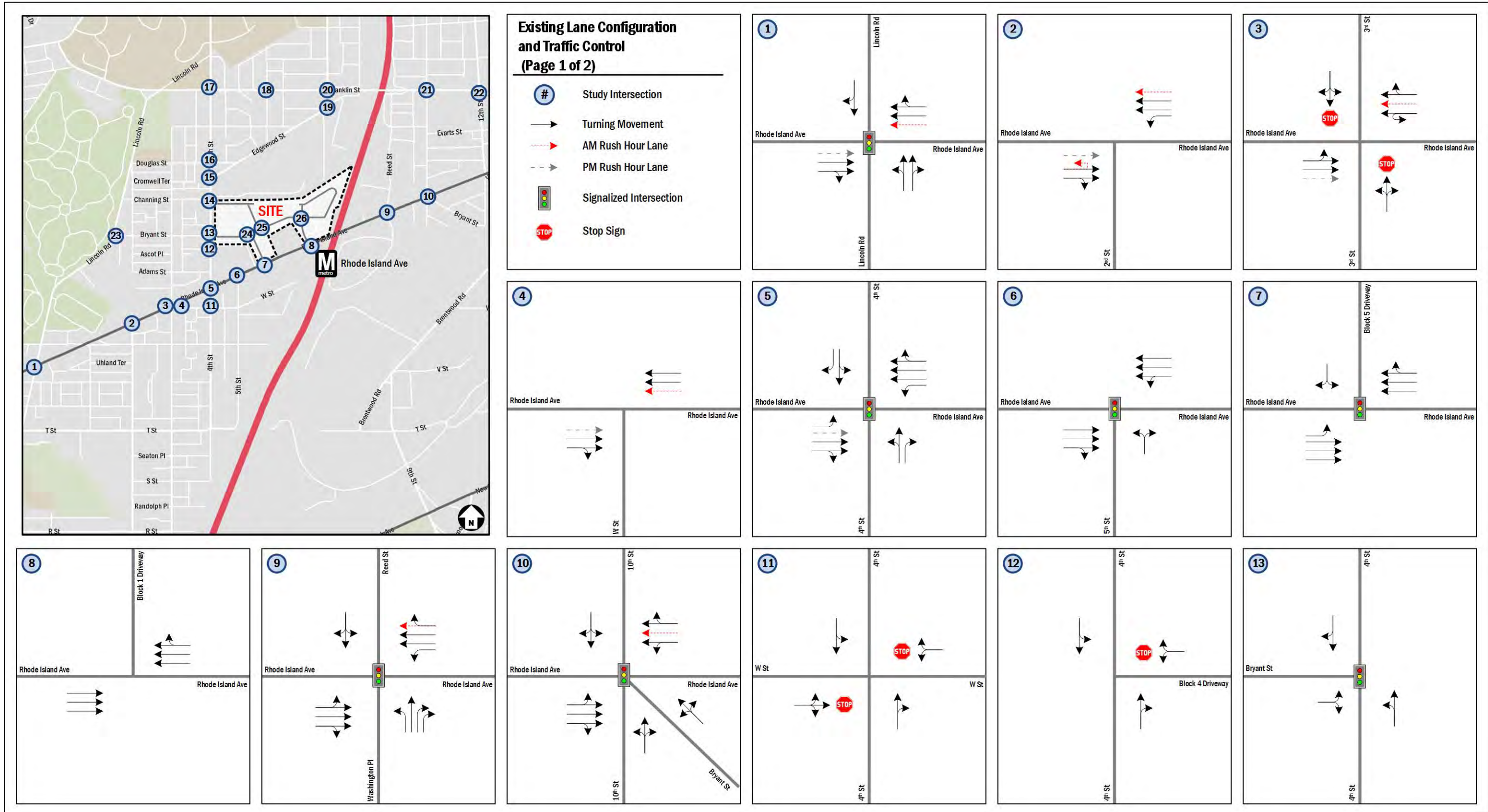


Figure 31: Current Lane Configuration and Traffic Control (1)



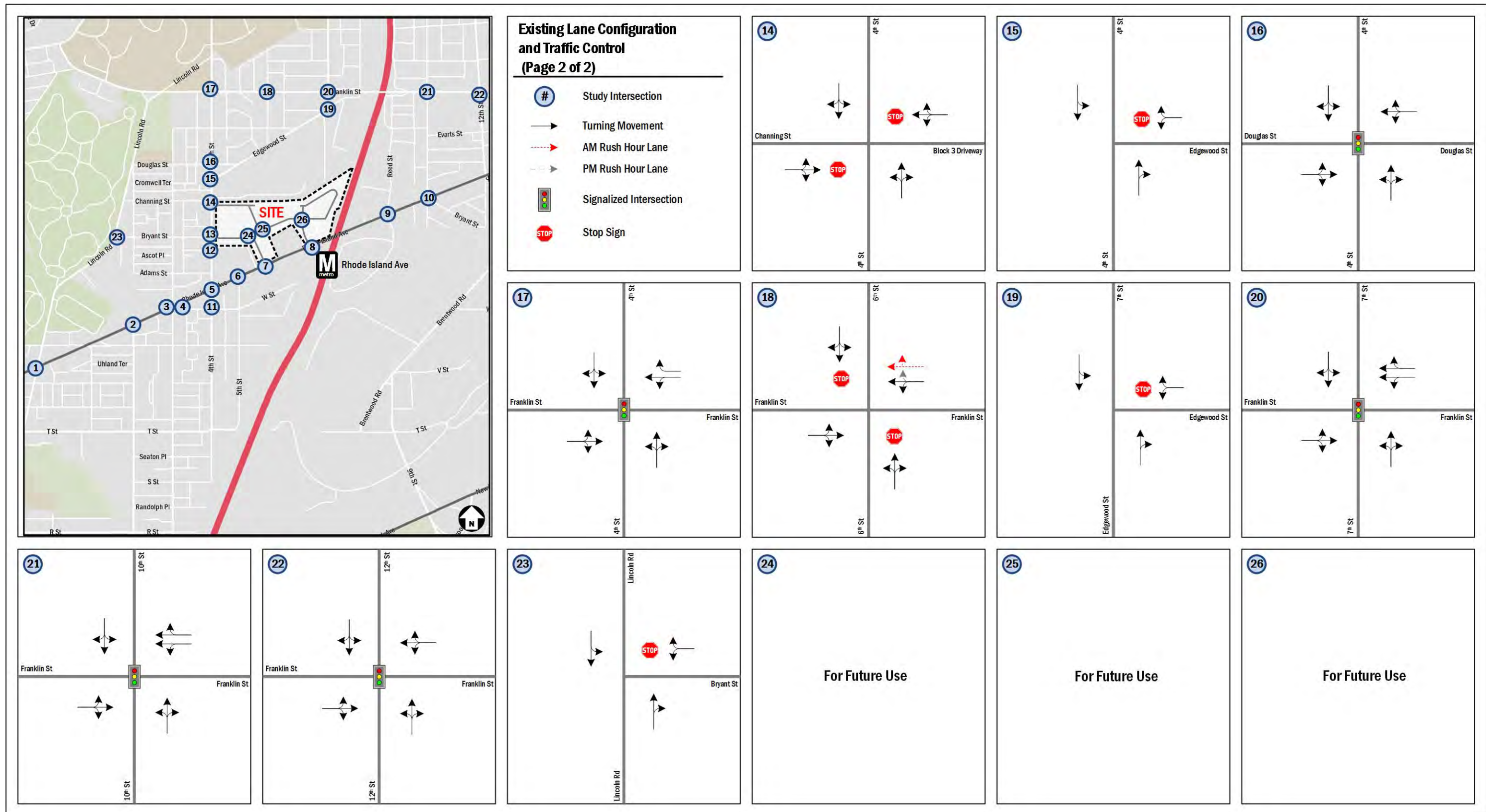


Figure 32: Current Lane Configuration and Traffic Control (2)

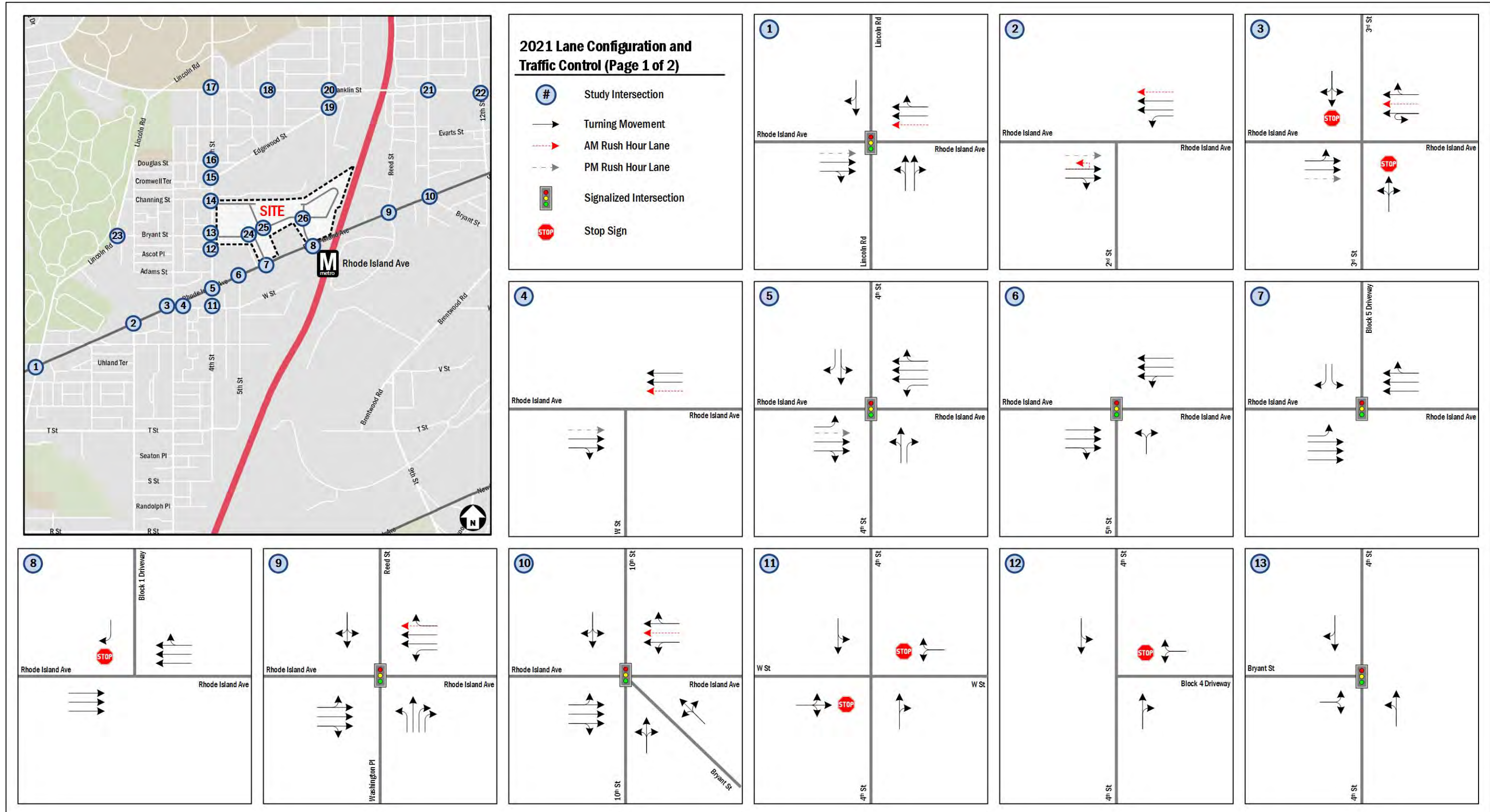


Figure 33: 2021 Lane Configuration and Traffic Control (1)



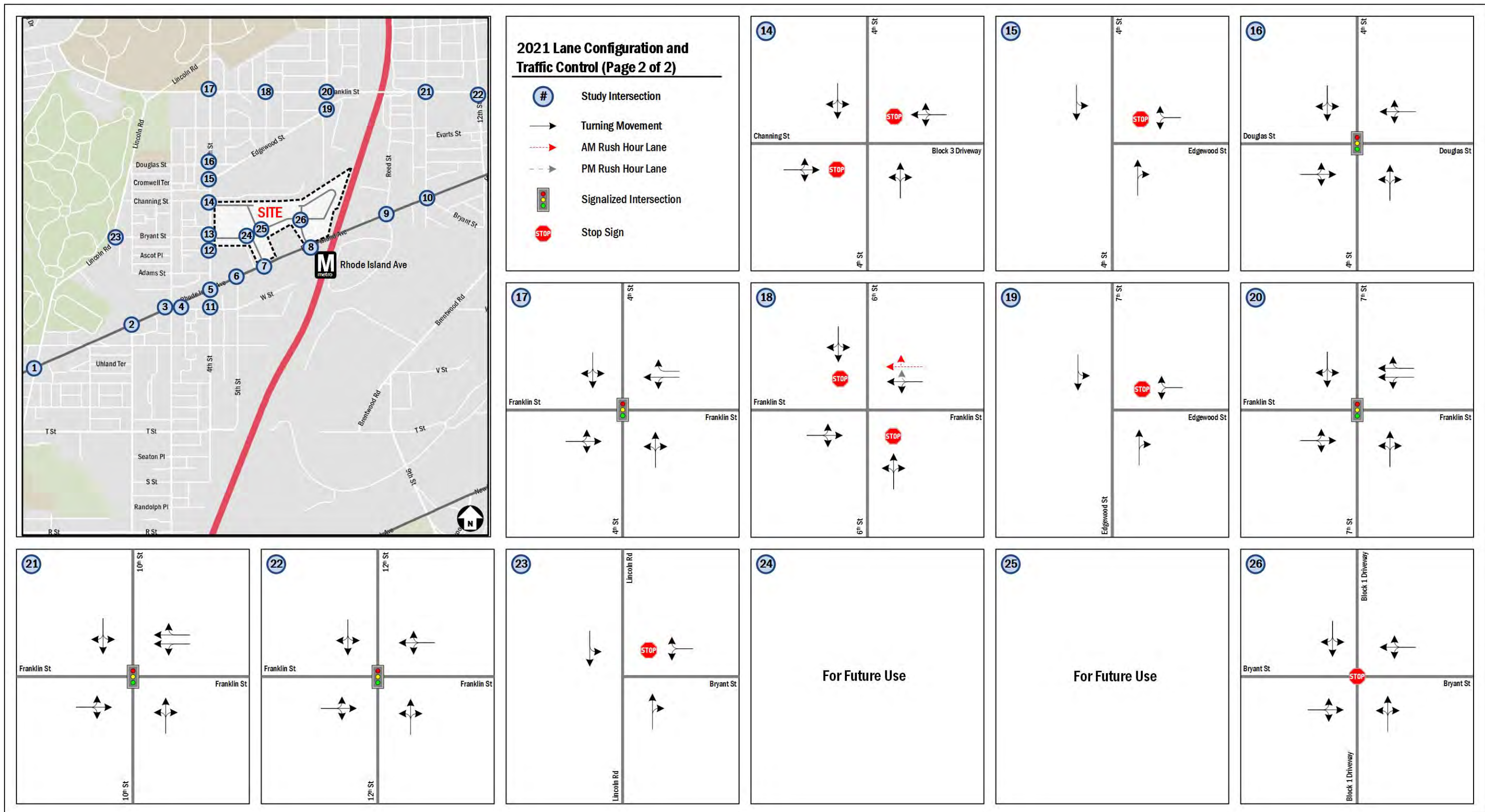


Figure 34: 2021 Lane Configuration and Traffic Control (2)