Comprehensive Transportation Review

Wesley Campus Plan

Washington, DC

April 29, 2022

GOROVE SLADE
Transportation Planners and Engineers

Prepared by:

GOROVE SLADE
Transportation Planners and Engineers

1140 Connecticut Ave NW
Suite 1010
Washington, DC 20036
T 202.296.8625

225 Reinekers Lane
Suite 750
Alexandria, VA 22314
T 703.721.3044

4144 Legato Road
Suite 650
Fairfax, VA 22033
T 703.787.9595

4951 Lake Brook Drive
Suite 250
Glen Allen, VA 23060
T 804.362.0578

www.goroveslade.com

CONTENTS

LIST OF FIGURES

LIST OF TABLES

Executive Summary

This report presents a Comprehensive Transportation Review (CTR) for the Wesley Campus Plan at the Wesley Theological Seminary (WTS) campus.

The purpose of this CTR is to evaluate whether the project will generate a detrimental impact to the transportation network surrounding the site. This evaluation is based on a technical comparison of the Existing Conditions, Background Conditions, and Total Future Conditions. This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network assuming the proposed site design elements are implemented.

Proposed Project

The development site location is within the WTS campus, which is generally bounded by University Avenue NW to the west, Massachusetts Avenue NW to the north, and the American University (AU) campus to the east and south. The portion of the site to be redeveloped includes the Old President's House, a surface parking lot and two (2) student housing and administration buildings.

The proposed project includes replacement of the Old President's House and removing the surface parking lot and existing buildings to construct a new student housing building containing approximately 215 dwelling units, 1,535 square feet of retail spaces, and 350 below-grade parking spaces.

The proposed student housing building will be for WTS and AU students and may also house immediate families, faculty and staff and building employees. The housing building will not otherwise serve the general public.

Multimodal Overview

Trip Generation

The Wesley Campus Plan is expected to generate new trips within the surrounding transportation network across all transportation modes during the morning and afternoon peak hours. However, with the implementation of a Transportation Demand Management (TDM) plan as part of the project, the resulting new trips generated by the project will not have a detrimental impact on the transportation network. The multimodal trip generation for the proposed project is as follows:

- AM Peak Hour: 14 vehicles/hour, 39 transit riders/hour, four (4) bicycle trips/hour, and 19 walking trips/hour.
- PM Peak Hour: 33 vehicles/hour, 90 transit riders/hour, 10 bicycle trips/hour, and 45 walking trips/hour.

Transit

The site is located 1.1 miles from the Tenleytown-AU Metro station on the Red Line and is served by local bus routes.

The site is expected to generate a manageable amount of transit trips, and the existing service can accommodate these new trips.

Pedestrian

The site is surrounded by a generally adequate pedestrian network. Despite some incidences of missing sidewalks, curb ramps, and crosswalks on minor streets near the project site, there are generally adequate pedestrian facilities along primary walking routes between the site and major local destinations.

The site is expected to generate a manageable amount of pedestrian trips, and the existing pedestrian facilities can accommodate these new trips.

Bicycle

The site is proximate to several on-street bicycle facilities, including the bike lanes on New Mexico Avenue NW and Van Ness Street NW, and the on-street signed bike routes on 42nd and 43rd Streets NW. Using these facilities, bicyclists have access to several off-street bike facilities, such as the Rock Creek Trail and the Klingle Valley Trail.

Several planned and proposed bicycle projects will improve bicycle access to the site, including protected bike lanes on Massachusetts Avenue NW, Nebraska Avenue NW, and New Mexico Avenue NW.

The project will include long-term bicycle parking inside the building and short-term bicycle parking along the perimeter of the site that meets zoning requirements.

The site is expected to generate a manageable amount of bicycle trips, and the existing bicycle facilities can accommodate these new trips.

Vehicular

The site is accessible via Massachusetts Avenue NW, a principal arterial which connects the site to expressways within the District such as the Southeast Freeway (I-695), the Southwest Freeway (I-395), and the Anacostia Freeway (DC-295). These

expressways connect with the Capital Beltway (I-495) and other regional Interstates.

To identify the project's impact on the transportation network, future conditions were analyzed with and without the project. Intersection analyses were performed to calculate the average delays and queues for vehicles at each of the study intersections. These average delays and queues were compared to the acceptable levels of delay and queue impacts set by DDOT standards to determine if the project will negatively impact the study area.

Further, future conditions with the proposed development were analyzed under the following two scenarios:

- Existing Access: University Avenue egress driveway remains open to site egress traffic during peak periods, consistent with existing conditions. The driveway already does not allow inbound site traffic, other than delivery vehicles.
- Proposed Access: University Avenue egress driveway closed to egress site traffic during AM and PM peak periods, except for delivery vehicles that would still be permitted to use the driveway.

The analysis concluded that one (1) intersection would meet DDOT's delay-related threshold for mitigation under the Existing Access scenario and no intersections under the Proposed Access scenario.

After exploring options for mitigating impacts at this intersection, this report recommends implementing a robust Transportation Demand Management (TDM) plan consistent with DDOT's Baseline Plan as a mitigation measure.

Safety Recommendations

A qualitative review of the crash data available through the DDOT-maintained and publicly-available "Crashes in DC" database was performed to identify study intersections, if any, in which conditions for vehicles, pedestrians, and bicyclists may be improved.

Based on a review of facilities in the area and relevant crash data, two (2) intersections were identified for further evaluation. Recommendations for these intersections, presented for DDOT's consideration and not for the Applicant to complete as part of the proposed project, are summarized below:

Massachusetts Avenue and Wesley Circle NW

Installation of the planned protected bike lanes along Massachusetts Avenue NW would improve conditions for bicyclists and pedestrians. Further, a safety audit should be performed as part of DDOT's Traffic Safety Assessment program.

Massachusetts Avenue and Glover Gate/Katzen Driveway NW

Installation of the planned protected bike lanes along Massachusetts Avenue NW would improve conditions for bicyclists and pedestrians. Further, a safety audit should be performed as part of DDOT's Traffic Safety Assessment program.

Transportation Demand Management (TDM) Plan

Per the DDOT CTR guidelines, the goal of implementing TDM measures is to reduce the number of single occupancy vehicles and vehicle ownership within the District. The promotion of various programs and existing infrastructure includes maximizing the use of transit, bicycle, and pedestrian facilities. DDOT has outlined expectations for TDM measures in the CTR guidelines, and this project is proposing to implement a TDM plan consistent with these guidelines based on the expected impact of the project, as discussed in the Project Design section of this report.

Summary

This report concludes that the Wesley Campus Plan will not have a detrimental impact on the surrounding transportation network assuming the proposed site design elements are implemented.

The project has several positive design elements that minimize potential transportation impacts, including but not limited to the following:

- The site's proximity to transit service and bicycle infrastructure;
- The site's location within a generally adequate pedestrian network along major walking routes;
- The site's loading facility design, which maintains loading activity within private property and provides loading circulation that ensures head-in/head-out truck movements are performed from the public roadway network;
- The inclusion of secure long-term bicycle parking spaces that meet zoning requirements;

- The inclusion of short-term bicycle parking spaces within the site that meet zoning requirements; and
- A TDM plan that reduces the demand of single-occupancy, private vehicles during peak period travel times and shifts single-occupancy vehicular demand to off-peak periods.

Introduction

This report is a Comprehensive Transportation Review (CTR) reviewing the transportation aspects of the Wesley Campus Plan. The site, shown in Figure 1 and Figure 2, is located at Square 1600 and Lot 0819 within the Wesley Theological Seminary (WTS) campus in the Spring Valley neighborhood of Washington, DC. The site is currently zoned RA-1.

The project site is currently improved with a surface parking lot and two (2) student housing and administration buildings. The proposed project includes removing the surface parking lot and existing buildings, replacing them with a new building containing student housing and retail space with below grade parking.

The proposed project also includes closing the existing University Avenue egress driveway to traffic during the AM and PM peak periods, except for delivery vehicles that would still be permitted to use the driveway. This is identified as the Proposed Access condition, and is presented in further detail within the report.

The proposed student housing building will be for WTS and AU students and may also house immediate families, faculty and staff and building employees. The housing building will not otherwise serve the general public.

Purpose of Study

The purpose of this report is to:

- Review the transportation elements of the proposed project and demonstrate that it conforms to DDOT's general policies of promoting non-automobile modes of travel;
- Provide information to DDOT and other agencies on how the proposed project will impact the local transportation network, accomplishing this by identifying the potential trips generated by the proposed project on all major modes of travel and where these trips will be distributed on the network;
- Determine whether the proposed project will lead to adverse impacts on the local transportation network; and
- Propose design elements and Transportation Demand Management (TDM) measures as necessary to mitigate any potential adverse impacts to the transportation network.

Project Summary

The site location is within the WTS campus, which is generally bounded by University Avenue NW to the west, Massachusetts Avenue NW to the north, and the American University (AU) campus to the east and south. The portion of the site to be redeveloped is currently occupied by a surface parking lot and two (2) student housing and administration buildings.

The proposed project includes removing the surface parking lot and existing buildings, replacing them with a new student housing building containing approximately 215 dwelling units, 1,535 square feet of retail space, and 350 below-grade parking spaces.

Pedestrian access to the project is proposed to be located at several entrances on the northern edge of the development along the WTS driveway.

Bicycle access will be provided from the WTS driveways on Massachusetts Avenue and University Avenue. The site is located approximately 0.5 miles northwest of the bike lanes on New Mexico Avenue NW and 0.5 miles southwest of the on-street signed routes on 42nd and 43rd Streets NW. The project will meet zoning requirements by providing at least 62 long-term bicycle parking spaces inside the building and at least 12 short-term bicycle parking spaces on exterior racks. The nearest Capital Bikeshare station is located 0.2 miles east of the site at Ward Circle.

Vehicular access to the proposed garage will be provided via the internal site circulation with public road access on the northern edge of the site at Massachusetts Avenue.

Loading and deliveries will occur within an internal loading area accessed from the internal site circulation drive via with public road access on the northern edge of the site at Massachusetts Avenue. The proposed loading facilities will accommodate the project's loading needs, maintain loading activity within private property, and provide loading circulation that ensures head-in/head-out truck movements are performed to and from the public roadway network.

No new curb cuts within public space are proposed as part of the project. All vehicular access will remain from existing access locations at the two-way WTS driveway entrance/exit at Massachusetts Avenue NW and the one-way WTS driveway exit at University Avenue NW. The WTS driveway exit at University

Avenue NW is one-way outbound for all vehicles except WTS food service trucks, for which two-way traffic is permitted. Under the Existing Access scenario, this arrangement will not change, and under the Proposed Access scenario, the WTS driveway exit at University Avenue NW would be closed during the AM and PM peak periods, except for delivery vehicles that would still be permitted to use the driveway.

Study Contents

This report contains nine (9) chapters as follows:

- Study Area Overview
  This chapter reviews the transportation characteristics of the area surrounding the proposed project.
- Project Design
  This chapter reviews the transportation components of the proposed project, including site access and circulation, loading and trash operations, parking, and bicycle and pedestrian facilities.
- Travel Demand Assumptions
  This chapter outlines the travel demand and projected trip generation of the proposed project.
- Traffic Operations
  This chapter 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 and presents mitigation measures for minimizing impacts as needed.
- Transit Facilities
  This chapter summarizes the existing and future transit service adjacent to the site and reviews how the project's transit demand will be accommodated.
- Pedestrian Facilities
  This chapter summarizes existing pedestrian access to the site, reviews walking routes to and from the proposed project, and reviews how the project's pedestrian demand will be accommodated.
- Bicycle Facilities
  This chapter summarizes existing and future bicycle access to the site and reviews how the project's bicycle demand will be accommodated.
- Safety Analysis
  This chapter summarizes the potential safety impacts of the project. This includes a qualitative review of existing and proposed safety features surrounding the site.
- Summary and Conclusions
  This chapter presents overall findings and conclusions.

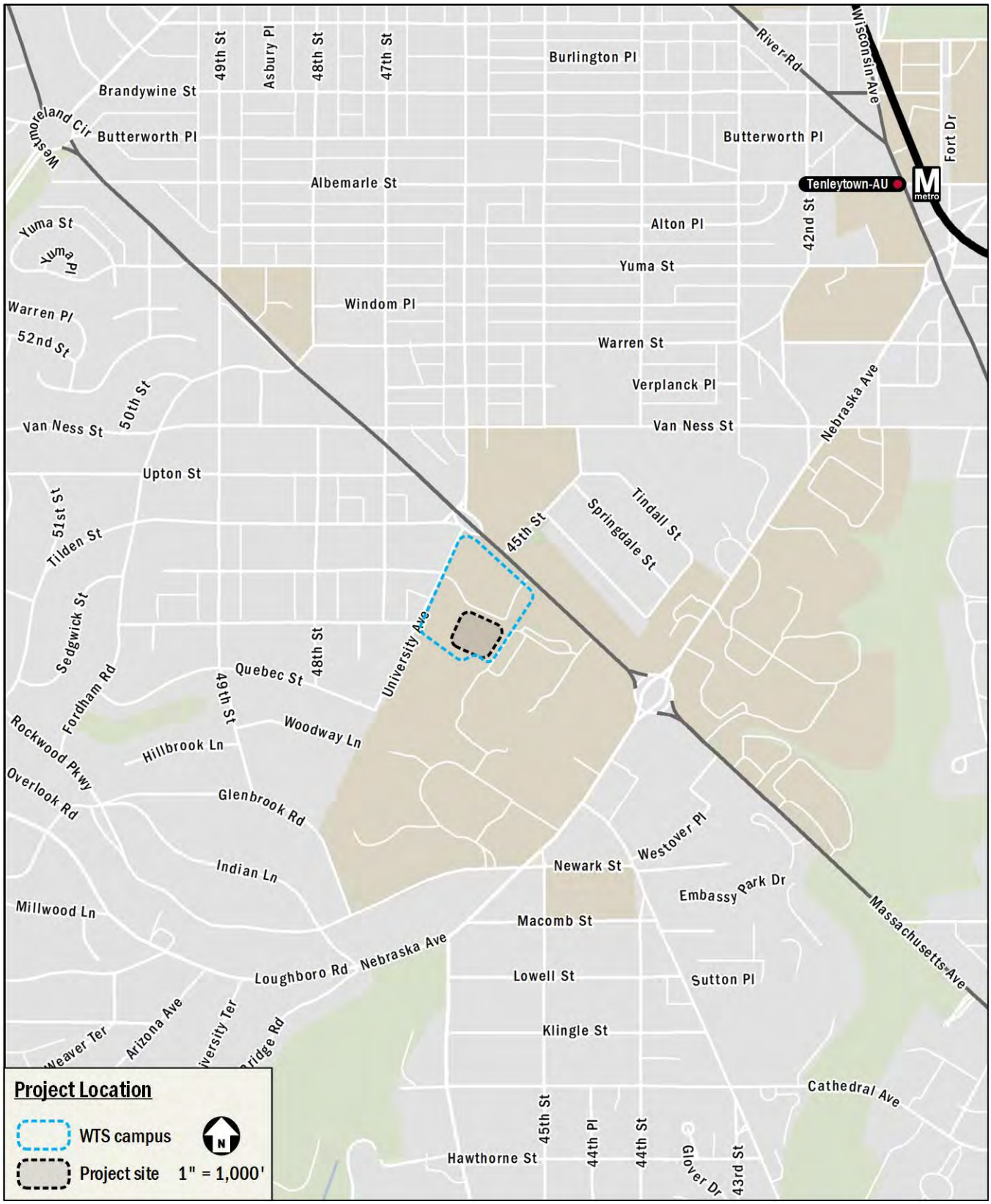

Figure 1: Site Location

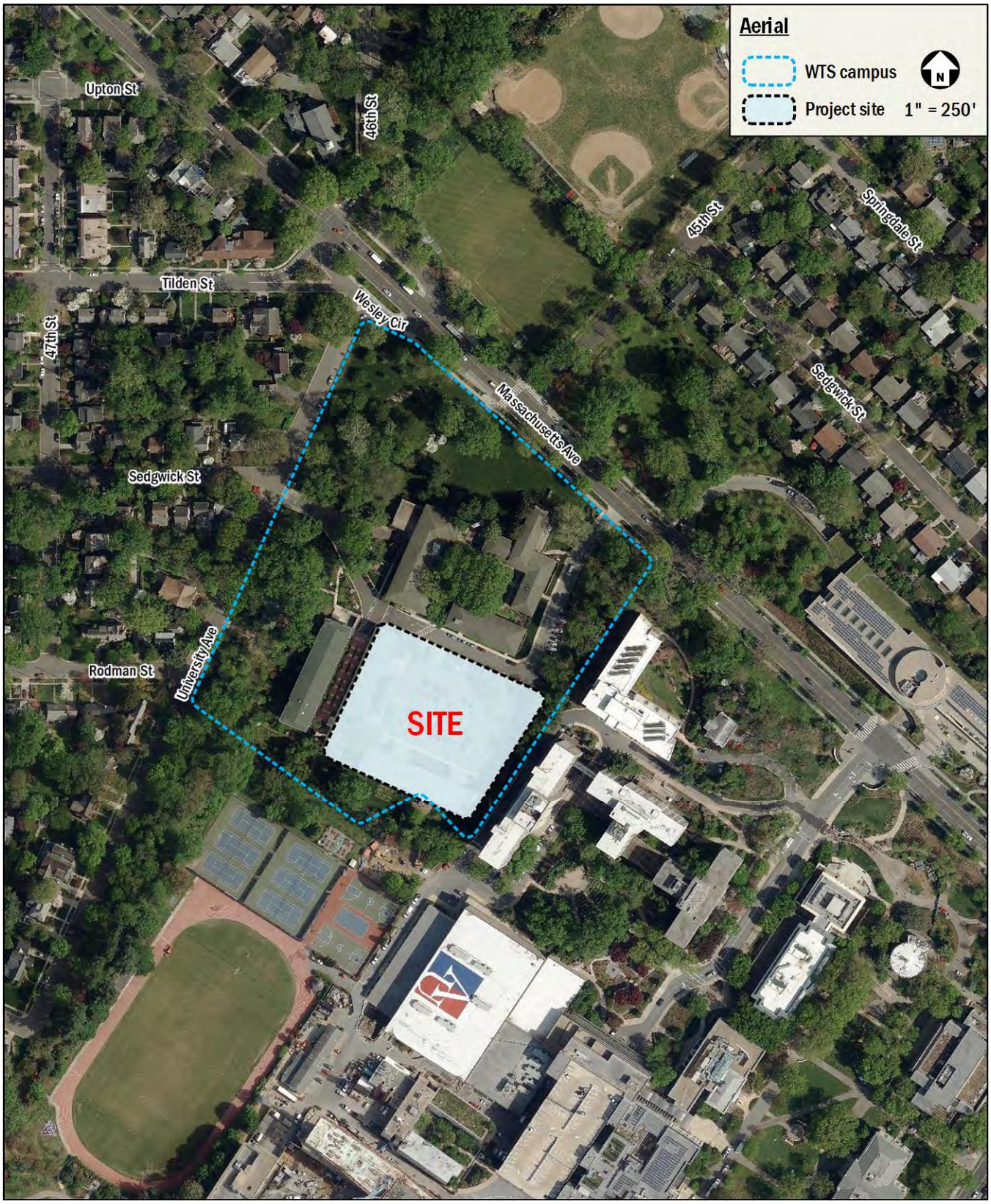

Figure 2: Site Aerial

Study Area Overview

This chapter reviews the major transportation characteristics of the study area and future local and regional projects.

This chapter concludes:

- The site is surrounded by an extensive regional and local transportation system connecting it to the rest of the District and surrounding areas;
- The site is served by bus and rail transit providing service to local and regional destinations;
- The site is accessible to several shared mobility options, including car-sharing, Capital Bikeshare, and personal mobility devices;
- There are several on-street bicycle facilities near the site, with several nearby bicycle improvements planned or proposed;
- The existing pedestrian infrastructure surrounding the site provides a mostly adequate walking environment, particularly along anticipated major walking routes; and
- There are several nearby District-wide and local planning initiatives whose goals are supported by the proposed project.

Major Transportation Features

Overview of Regional Access

As shown in Figure 4, the site has ample access to regional vehicular and transit options that connect the site to destinations within the District, Maryland, and Virginia.

The site is accessible via Massachusetts Avenue NW, a principal arterial which connects the site to expressways within the District such as the Southeast Freeway (I-695), the Southwest Freeway (I-395), and the Anacostia Freeway (DC-295). These expressways connect with the Capital Beltway (I-495) and other regional Interstates.

The site is located 1.1 miles from the Tenleytown-AU Metro station on the Red Line, which travels between the Glenmont and Shady Grove stations by way of downtown Washington, DC.

Overall, the site has ample access to regional roadways and transit options, allowing convenient travel between the site and regional destinations.

Overview of Local Access

There are a variety of major local transportation facilities near the site that serve vehicular, transit, walking, and cycling trips, as shown on Figure 5.

For vehicular trips, the site is accessible via Massachusetts Avenue NW, a principal arterial which connects the site to expressways within the District such as the Southeast Freeway (I-695), the Southwest Freeway (I-395), and the Anacostia Freeway (DC-295). These expressways connect with the Capital Beltway (I-495) and other regional Interstates.

For transit trips, Metrobus and AU Shuttle services provide service in the vicinity of the site, including connections to several neighborhoods within the District and the Tenleytown-AU Metro station. As shown in Figure 5, there are several bus routes serving the site, with multiple bus stops serving these routes located within a half-mile of the site. These bus routes connect the site to many areas of Washington, DC, including several Metro stations where transfers can be made to reach areas in the District, Virginia, and Maryland. A detailed review of all bus routes and transit stops within a half-mile walk of the site is provided in a later chapter of this report.

For bicycle trips, the site is located approximately 0.5 miles northwest of the bike lanes on New Mexico Avenue NW and 0.5 miles southwest of the on-street signed routes on 42nd and 43rd Streets NW. Using these facilities, bicyclists have access to several other regional bicycle facilities. To accommodate bicyclists, the project will provide on-site bicycle facilities as discussed in detail in the Project Design chapter. A detailed review of existing and proposed bicycle facilities and connectivity is provided in the Bicycle Facilities chapter of this report.

Anticipated pedestrian routes such as those to transit stops, schools, and community amenities, provide adequate pedestrian facilities; however, there are a few sidewalks nearby that do not meet DDOT width standards, as well as several missing curb ramps and crosswalks at minor intersections. The site area is free of major barriers to pedestrian connectivity. A detailed review of existing and future pedestrian access and infrastructure is provided in the Pedestrian Facilities chapter of this report.

Carsharing

Two (2) carsharing companies provide service in the District: Zipcar and Free2Move. Both services are private companies that provide registered users access to a variety of automobiles. Of these, Zipcar has designated spaces for their vehicles. The nearest Zipcar location to the site is located near the intersection of Massachusetts Avenue and Embassy Park Drive NW, approximately 0.7 miles southeast of the site.

Carsharing is also provided by Free2Move, which provides point-to-point carsharing. Free2Move currently has a fleet located within areas of the District and Arlington County. Free2Move 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. Free2Move does not have permanent designated spaces for their vehicles; however, availability is tracked through their website and mobile phone application, which provides an additional option for car-sharing patrons.

Bikeshare and Shared Mobility

The Capital Bikeshare program provides an additional bicycle option for residents, staff, and visitors of the proposed project. The program has placed over 500 bikeshare stations across the Washington, DC metropolitan area with over 4,500 bicycles in the fleet.

In addition to Capital Bikeshare, eight (8) electric-assist scooter (e-scooter) and electric-assist bicycle (e-bike) companies provide Personal Mobility Device (PMD) service in the District: Bird, Lime, Lyft, Razor, Skip, Spin, Helbiz, and JUMP. These PMDs are provided by private companies that give registered users access to a variety of e-scooter and e-bike options. These devices are used through each company-specific mobile phone application. Many PMDs do not have designated stations where pick-up/drop-off activities occur like with Capital Bikeshare; instead, many PMDs are parked in public space, most commonly in the "furniture zone" (the portion of sidewalk between where people walk and the curb, often where other street signs, street furniture, trees, parking meters, etc. are found). Currently, PMD pilot/demonstration programs are underway in Arlington County, the District, Fairfax County, the City of Alexandria, and Montgomery County.

Walk Score and Bike Score

Walkscore.com is a website that provides scores and rankings for walking, biking, and transit conditions within neighborhoods of the District. Based on this website, the site has a walk score of 57 (or "Somewhat Walkable"), a transit score of 42 (or "Some Transit"), and a bike score of 47 (or "Somewhat Bikeable"). Figure 3 shows the site's location within a heat map for walkability and bikeability. The following conclusions can be made based on the data obtained from Walkscore.com:

- The site is situated in a somewhat walkable location where some errands can be accomplished on foot;
- The site is situated in an area with a moderate amount of transit; and
- The site is situated in a somewhat bikeable area with minimal bike infrastructure.

The Wesley Campus Plan will directly improve the neighborhood's pedestrian and bike accessibility by ensuring sidewalks on the project site meet DDOT standards and by providing new short- and long-term bicycle parking facilities.

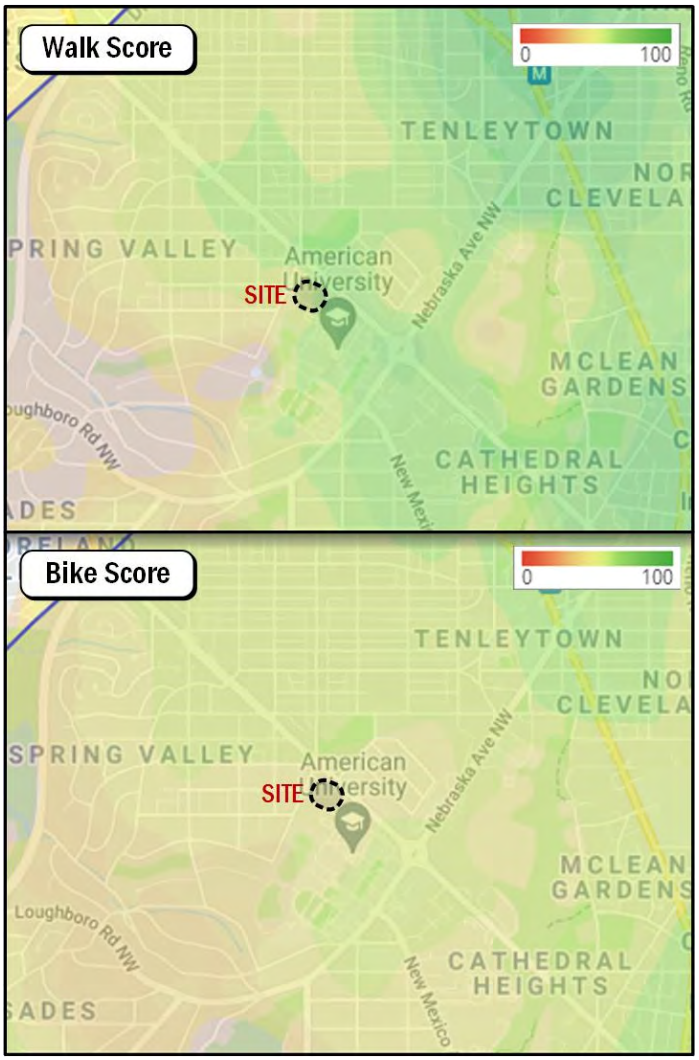

Figure 3: Walk Score and Bike Score

Future Projects

There are several District initiatives located in the vicinity of the site. These planned and proposed projects are summarized below.

Planning Documents

The following is a review of District-wide or neighborhood-level planning documents which relate to the proposed project.

MoveDC

MoveDC is the District's long-range transportation plan, which provides a framework of goals and policies that will guide transportation decisions in the District over a 25-year period. The *MoveDC* plan is oriented around the goals of safety, mobility, management and operations, enjoyable spaces, equity, project delivery, and sustainability.

Included in *MoveDC* are Mobility Priority Network maps for bicycles, surface transit, and freight. These maps do not identify specific projects or improvements, but are intended to guide future decisions about which projects will be selected and developed. In direct relation to the proposed Project, the Mobility Priority Network maps identify the following:

- Bicycle improvements along Massachusetts Avenue NW, Nebraska Avenue NW, Arizona Avenue NW, Loughboro Road NW, 49th Street NW, Albermarle Street NW, Glenbrook Road NW, and Rockwood Parkway NW.

Vision Zero Action Plan

DDOT's *Vision Zero Action Plan* is the implementation strategy of DC's Vision Zero Initiative, which commits to reaching zero fatalities and serious injuries to travelers of DC's transportation system by the year 2024. The *Action Plan* is based on DC interagency workgroups, public input, local transportation data and crash statistics, and national and international best practices. Workgroups identified the guiding themes for the *Vision Zero Action Plan* and the goals of the DC government. The *Action Plan* focuses on the following themes:

- Create Safe Streets
- Protect Vulnerable Users
- Prevent Dangerous Driving
- Be Transparent and Responsive

Strategies within each theme assign lead and supporting agencies responsible for the planning and implementation of each program. The plan also calls for partners external to District government to ensure accountability and aid in implementation.

While the *Vision Zero Action Plan* does not propose any location-specific actions that relate to the proposed project, the proposed project supports DC's overall Vision Zero goals by not creating any new curb cuts from public space, by providing new short- and long-term bicycle parking facilities, and by ensuring sidewalks along the site's perimeter meet DDOT standards and provide a safe, attractive pedestrian experience.

Sustainable DC 2.0 Plan

Sustainable DC is the District of Columbia's major planning effort to make DC the most sustainable city in the nation. It proposes a variety of sustainability goals, targets, and actions related to the built environment, transportation, and other topics.

The 2019 iteration of the plan, the *Sustainable DC 2.0 Plan*, includes the following proposed action which is supported by the proposed project.

- Expand safe, connected infrastructure for pedestrians and cyclists.
- Reduce greenhouse gas emissions and air pollution from the transportation sector.

The Wesley Campus Plan will support these actions by not creating any new curb cuts from public space, by providing new short- and long-term bicycle parking facilities, and by ensuring sidewalks along the site's perimeter meet DDOT standards and provide a safe, attractive pedestrian experience.

Capital Bikeshare Development Plan

DDOT's *Capital Bikeshare Development Plan* was originally released in 2016 to guide the continued growth of Capital Bikeshare in the District of Columbia. The most recent update of the *Development Plan* was released in 2020 and includes the following:

- A planned station at Turtle Park, 0.2 miles from the site;
- A proposed station at Quebec Street and 48th Street NW, 0.4 miles from the site; and
- A proposed station at 47th Street and Warren Street NW, 0.5 miles from the site.

Rock Creek Far West Livability Study

This is an ongoing DDOT study to evaluate the transportation network within the study area, bound by Massachusetts Avenue, Whitehaven Street, Whitehaven Parkway, Archbold Parkway, Foundry Branch Valley Park, the Potomac River, and the DC/Maryland border, to identify opportunities for a safer and more accessible multimodal network.

The study's primary objectives are to:

- Develop a comprehensive approach to traffic calming and operational improvements for all users living in and visiting the area;
- Identify specific issues that impact safety and comfort of pedestrians, bicyclists, transit users, and motorists, while also accommodating freight and delivery needs;
- Design cost-effective and measurable system improvements that benefit all users;
- Emphasize safety and access improvements around neighborhood facilities including but not limited to schools, parks, recreation centers, transit stops, and other key community facilities; and
- Enhance comfort and livability for residents and visitors to the project area.

Wesley Campus Plan (2012)

This is the currently adopted Campus Plan for Wesley Theological Seminary. It was submitted in 2012 as an amendment to the 2006 Campus Plan, and its approval was valid through June 30, 2021.

The 2012 Campus Plan amended and extended the original 2006 Campus Plan, maintaining levels of student, faculty, and staff but substantially reducing the previously approved new construction. Under the 2012 Campus Plan, existing campus facilities were maintained without demolition and several previously approved new buildings were eliminated from plans. The only addition to the campus was a new three-story, 76-bed residence hall. Additionally, the two existing residential buildings were renovated, surface parking was increased, and other campus enhancements were made.

The Seminary is currently assembling a new Campus Plan amendment consisting of a new administrative building replacing the Old President's House, as well as a new student housing building, which is the subject of this CTR.

American University Campus Plan (2021)

This is American University's recently adopted 10-year Campus Plan, encompassing the main AU campus, the Tenley Campus, and several smaller AU facilities. The Campus Plan outlines anticipated site development, vehicle parking, and Transportation Demand Management (TDM) strategies for the campus. It proposes some development on campus, an increase in the student cap from 13,600 to 14,380 students, an increase in the employee population cap from 2,900 to 3,350, and an increase of the on-site vehicle parking inventory from 2,701 to 3,000 spaces.

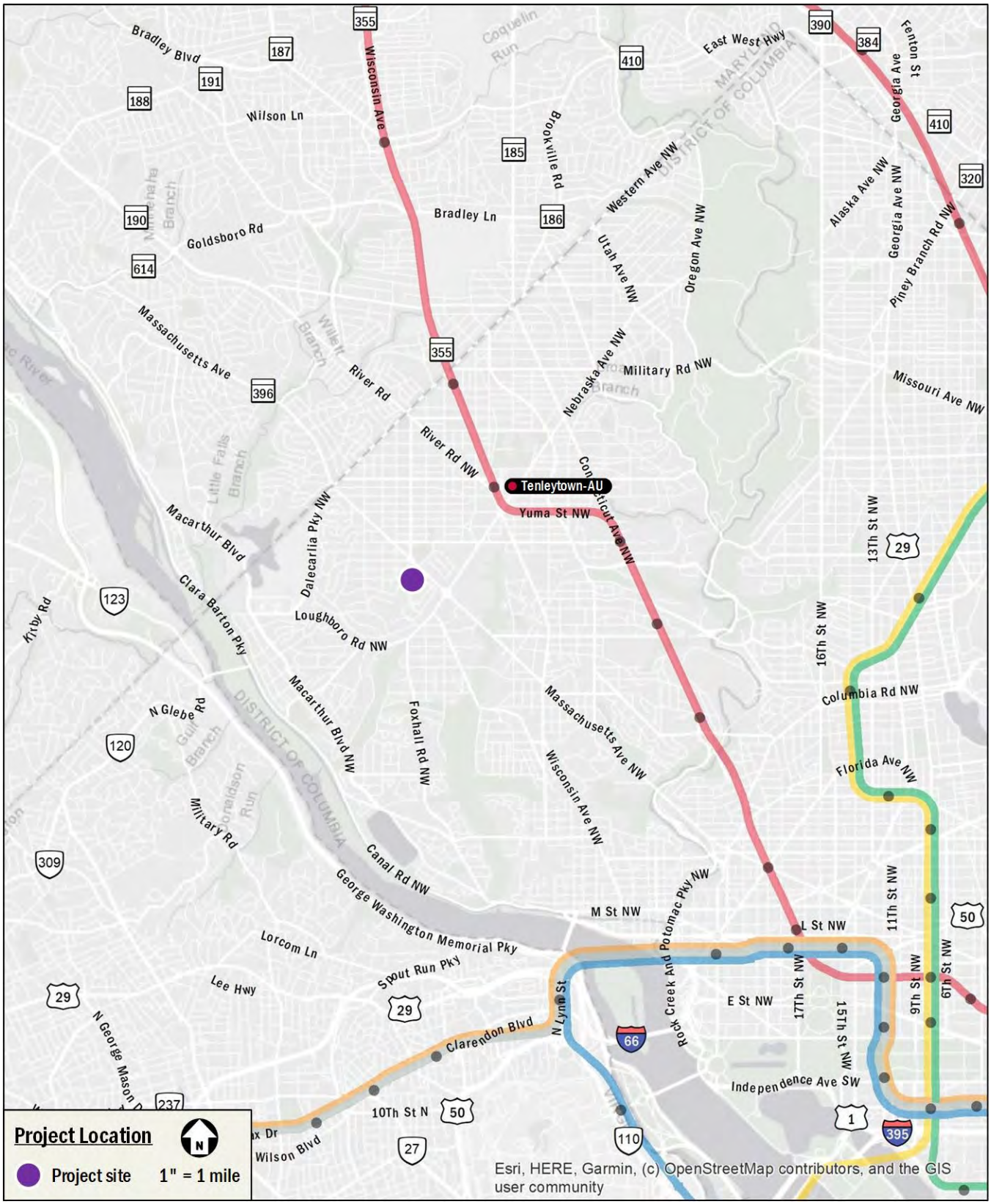

Figure 4: Major Regional Transportation Facilities

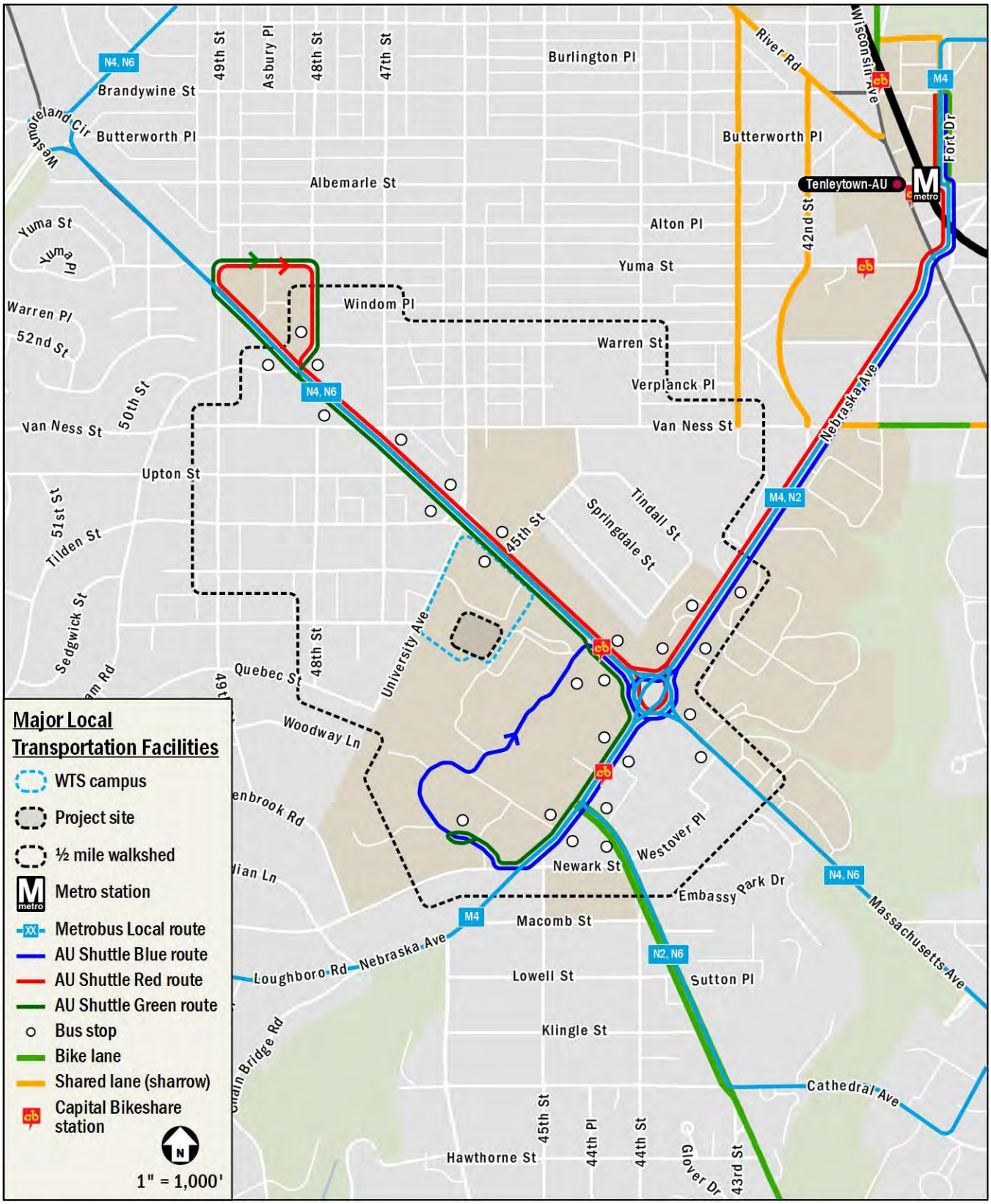

Figure 5: Major Local Transportation Facilities

Project Design

This section reviews the transportation components of the Wesley Campus Plan, including the proposed site plan and access points. It includes descriptions of the site's vehicular access, pick-up/drop-off operations, parking, and pedestrian and bicycle accommodations.

The development site located within the WTS campus, which is generally bounded by University Avenue NW to the west, Massachusetts Avenue NW to the north, and the American University (AU) campus to the east and south. The portion of the site to be redeveloped is currently occupied by a surface parking lot and two (2) student housing and administration buildings. The proposed project includes removing the surface parking lot and existing buildings, replacing them with a new student housing building containing approximately 215 dwelling units, 1,535 square feet of retail space, and 350 below-grade parking spaces.

A detailed site plan is shown on Figure 6.

Site Access and Circulation

Pedestrian Access

Pedestrian access is proposed to be provided via separate residential and retail entrances accessed from the internal driveway within WTS.

Pedestrian access to the site is shown on Figure 6.

Bicycle Access

Bicycle access is proposed to be provided via the garage ramp from the WTS driveway that will lead to a bike storage room in Level 1 of the garage. The project will meet zoning requirements by providing at least 62 long-term bicycle parking spaces inside the building and at least 12 short-term bicycle parking spaces on exterior racks within the site. The exact location of the short-term bicycle parking spaces is still to be determined.

The locations of these facilities are shown on Figure 6.

Vehicular Access

Vehicular access to the proposed garage entrance will be provided via a connection to the internal driveway within the WTS campus with public road access at University Avenue and/or Massachusetts Avenue. No new curb cuts from public space are proposed as part of this project.

Regarding vehicular access locations from public streets, there are two (2) scenarios presented in this report. In the Existing Access scenario, inbound and outbound traffic will be provided from the two-way WTS driveway entrance/exit at Massachusetts Avenue NW, and the one-way WTS driveway exit at University Avenue NW will be remain open to outbound traffic only. This is consistent with existing vehicular circulation patterns on the WTS campus.

In the Proposed Access scenario, the Massachusetts Avenue NW driveway connection will remain unchanged. However, the one-way WTS driveway exit at University Avenue NW will be closed to traffic during the AM (6:30-7:30 AM) and PM (4:00-7:00 PM) peak periods, except for delivery vehicles that would still be permitted to use the driveway.

These two scenarios are presented for reference and comparison, but the Applicant is planning to implement the Proposed Access scenario.

Figure 6 shows the location of the vehicular access points for the parking garage, pick-up/drop-off area, and loading facilities.

Pick-up/Drop-off Operations

An internal curbside pick-up/drop-off area is proposed along the WTS campus driveway adjacent to the proposed new building. The pick-up/drop-off area is shown on Figure 6.

Loading and Trash

Loading

The proposed loading facilities will accommodate all loading activity and delivery demand for the proposed project without any detrimental impact to the surrounding transportation network. DDOT standards stipulate that truck movements be accommodated without back-in movements through public space. The Wesley Campus Plan has been designed to accommodate all loading activity and associated backing maneuvers within the site. Truck turning diagrams using AutoTURN are provided in the Technical Attachments.

Loading and deliveries will occur in an internal loading area accessed from the existing WTS campus driveway. The proposed loading facilities will accommodate the project's loading needs, maintain loading activity within private property, and provide loading circulation that ensures head-in/head-out truck movements are performed from the public roadway network.

The loading area will include one (1) 30’ x 12’ loading berth and one (1) 20’ x 10’ service/delivery space, satisfying ZR16 regulations.

Truck routing to and from the site will be focused on Massachusetts Avenue NW, a designated primary truck route.

Loading access and circulation is shown on Figure 6.

Trash

Trash for the project will be accommodated using trash receptacles within the loading areas. No trash will be stored in public space.

Parking

The WTS site is currently served by 174 surface parking spaces. The proposed developed will displace 143 of the existing surface parking spaces and will include 350 parking spaces within a garage. As a result, the total parking on site will be 381 parking spaces (31 surface + 350 garage).

The net change in parking as a result of the project is therefore 207 net additional spaces.

Because the primary land use is student housing, there is no suitable parking standard from either ZR16 or DDOT’s Preferred Parking Rates to compare the proposed supply to. Per Subtitle C § 701.5, college/university land uses should provide parking as set forth in the approved Campus Plan. The 2006 Zoning Order from the approved Wesley Theological Seminary Campus Plan states that at least 200 parking spaces are to be maintained on campus.

Of the 350 garage spaces, 105 spaces will be reserved for general WTS campus use (not for residents of the new building). This number is in keeping with existing conditions; therefore, no net new parking is proposed for non-resident WTS usage.

The existing residential building being removed provides 90 beds for WTS use. The new 215 du building will provide a total of 659 beds. 90 of those beds will be for WTS use to replace the 90 beds being removed. Therefore, the new residential building will provide approximately 569 beds for non-WTS residents.

With 207 net new parking spaces and 569 net new beds, the effective parking ratio for those net new beds is 0.36 spaces per net new bed.

It should also be noted that because the proposed residential building is for WTS and AU students only, its parking supply will function primarily as long-term vehicle storage and is not expected to generate significant peak hour vehicle trips, as is typical of more traditional residential parking facilities.

The parking garage’s location and access points within the site are shown on Figure 6.

Bicycle Facilities

The Wesley Campus Plan will meet 2016 Zoning Regulations requirements for long-term and short-term bicycle parking. Per the Zoning Regulations, the project is required to provide the following bicycle facilities:

- Long-Term Bicycle Parking Spaces (62 required)
  - One (1) space per 3 dwelling units
  - One (1) space per 10,000 SF of retail space
- Short-Term Bicycle Parking Spaces (11 required)
  - One (1) space per 20 dwelling units
  - One (1) space per 3,500 SF of retail space

The project will meet or exceed zoning requirements by providing at least 62 long-term bicycle parking spaces inside the garage and at least 12 short-term bicycle parking spaces on exterior racks within the site. The exact location of the short-term bicycle parking spaces is still to be determined. The long-term bicycle spaces will adhere to Subtitle C § 805.9 of DC’s zoning requirements, as well as DDOT’s Bike Parking Guide, which stipulate that long-term spaces be located indoors in a parking garage or bike storage room, and that at least 50 percent of required long-term spaces be placed horizontally on the floor or ground, without bicycles being suspended.

Pedestrian Facilities

The Wesley Campus Plan will ensure pedestrian facilities along the site’s WTS driveway frontage meet DDOT and ADA standards. The Applicant is also coordinating with American University (AU) on options to maintain the existing pedestrian connection between the two campuses, located on the east side of the project site.

Transportation Demand Management

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

The TDM plan for the proposed project is based on zoning regulations in addition to DDOT expectations for TDM programs for developments of this type and size. As such, the applicant proposes the following TDM measures for the project.

- Unbundle the cost of vehicle parking from the lease for each residential unit and charge a minimum rate based on the average market rate within a quarter mile. Only hourly, daily, weekly, or monthly rates will be charged. Free parking, validation, or discounted rates will not be offered.
- Identify Transportation Coordinators for the planning, construction, and operations phases of development. The Transportation Coordinators will act as points of contact with DDOT, goDCgo, and Zoning Enforcement.
- Will provide Transportation Coordinators' contact information to goDCgo, conduct an annual commuter survey of employees on-site, and report TDM activities and data collection efforts to goDCgo once per year.
- Transportation Coordinators will develop, distribute, and market various transportation alternatives and options to the residents, including promoting transportation events (i.e., Bike to Work Day, National Walking Day, Car Free Day) on property website and in any internal building newsletters or communications.
- Transportation Coordinators will receive TDM training from goDCgo to learn about the TDM conditions for this project and available options for implementing the TDM Plan.
- Provide residents who wish to carpool with detailed carpooling information and will be referred to other carpool matching services sponsored by the Metropolitan Washington Council of Governments (MWCOG) or other comparable service if MWCOG does not offer this in the future.
- Will meet ZR16 short- and long-term bicycle parking requirements by providing 62 long-term spaces and 12 short-term spaces free of charge to residents.
- Long-term bicycle storage rooms will accommodate non-traditional sized bikes including cargo, tandem, and kids' bikes.
- Provide welcome packets to all new residents that should, at a minimum, include the Metrorail pocket guide, brochures of local bus lines (Circulator and Metrobus), carpool and vanpool information, CaBi coupon or rack card, Guaranteed Ride Home (GRH) brochure, and the most recent DC Bike Map. Brochures can be ordered from DDOT's goDCgo program by emailing info@godcgo.com.
- Transportation Coordinator will subscribe to goDCgo's residential newsletter.
- Post all TDM commitments on website, publicize availability, and allow the public to see what commitments have been promised.
- Provide a FREE SmarTrip card to every new resident and a complimentary Capital Bikeshare coupon good for one ride.

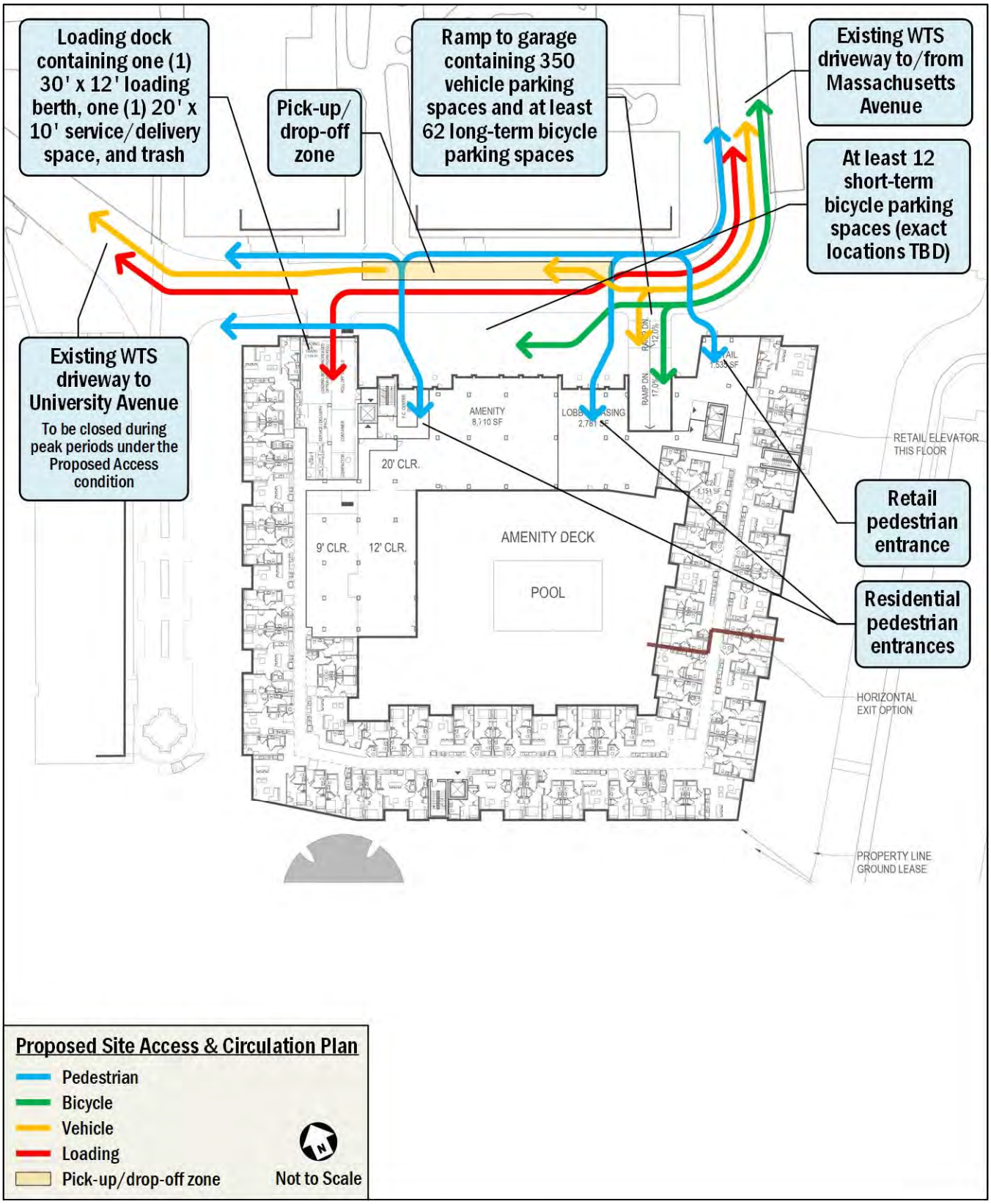

Figure 6: Proposed Site Access and Circulation Plan

Travel Demand Assumptions

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

Traditionally, weekday peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation*, 10th Edition. This methodology was supplemented to account for the urban nature of the project (ITE *Trip Generation* provides data for non-urban, low transit use sites) and to generate trips for multiple modes, as vetted and approved by DDOT.

Note that the trip generation shown below, the traffic forecasts presented in this report and the capacity analyses are based on the initial plan presented during the CTR scoping process that included 219 dwelling units and 690 beds. Since the plan has since been reduced to 215 dwelling units and 659 beds, these analyses represent a conservatively high estimate of the impact for the proposed project. For reference purposes, updated trip generation for the current 659-bed facility is provided in the technical attachments.

Proposed Site Trip Generation

The residential portion of the project's proposed trip generation was calculated based on ITE land use 225, *Off-Campus Student Apartment - Adjacent to Campus*, while the retail portion was calculated based on ITE land use 820, *Shopping Center.* Trips were split into different modes using assumptions derived from census data for people that currently live or work near the site, WMATA ridership survey data, and the proposed parking supply. A summary of the mode split assumptions is provided in Table 1.

Table 1: Mode Split Assumptions

Land Use	Mode			
	Drive	Transit	Bike	Walk
Residential	20%	50%	5%	25%
Retail	50%	25%	5%	20%

A summary of the multimodal trip generation for the project is provided in Table 2 for the AM and PM peak hours. The project is expected to generate 14 vehicular trips (6 in, 8 out) during the AM peak hour, and 33 vehicular trips (16 in, 17 out) during the PM peak hour. Detailed calculations are included in the Technical Attachments.

Table 2: Multimodal Trip Generation

Mode	Mode Split	Land Use	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Auto (veh/hr)	20%	Residential	5	8	13	14	16	30
	50%	Retail	1	0	1	2	1	3
		Total	**6**	**8**	**14**	**16**	**17**	**33**
Transit (ppl/hr)	50%	Residential	16	22	38	44	43	87
	25%	Retail	1	0	1	1	2	3
		Total	**17**	**22**	**39**	**45**	**45**	**90**
Bike (ppl/hr)	5%	Residential	2	2	4	4	5	9
	5%	Retail	0	0	0	0	1	1
		Total	**2**	**2**	**4**	**4**	**6**	**10**
Walk (ppl/hr)	25%	Residential	8	11	19	22	21	43
	20%	Retail	0	0	0	1	1	2
		Total	**8**	**11**	**19**	**23**	**22**	**45**

Traffic Operations

This chapter provides a summary of an analysis of the existing and future roadway capacity surrounding the site. Included is an analysis of potential vehicular impacts of the Wesley Campus Plan.

The purpose of the capacity analysis is to:

- Determine the existing capacity of the study area roadways;
- Determine the overall impact of the project on the study area roadways; and
- Discuss any potential improvements to accommodate the additional vehicular trips.

This analysis was performed by determining the traffic volumes and roadway capacity for Existing Conditions, Background (no-build) Conditions, and Total Future (build) Conditions. The scope of the capacity analysis was developed based on DDOT guidelines and agreed upon by DDOT staff.

The capacity analysis focuses on the weekday AM and PM commuter peak hours.

This chapter concludes:

- Under Existing Conditions, three (3) study intersections operate at an unacceptable level of service based on the HCM capacity analyses, and one (1) study intersection experiences queues that exceed available storage.
- Under Background Conditions, three (3) study intersections operate at an unacceptable level of service based on the HCM capacity analyses, and one (1) study intersection experiences queues that exceed available storage.
- Under Total Future Conditions with the Existing Access, three (3) study intersections operate at an unacceptable level of service based on the HCM capacity analyses, and two (2) study intersections experience queues that exceed available storage.
- Under Total Future Conditions with the Proposed Access, two (2) study intersections operate at an unacceptable level of service based on the HCM capacity analyses, and one (1) study intersection experiences queues that exceed available storage.
- Two (2) study intersections met the threshold for requiring mitigation measures as a result of the proposed development:
    - Massachusetts Avenue and Wesley Circle NW (PM)
    - Massachusetts Avenue and WTS Driveway NW (PM)
- Potential mitigation measures were identified at these intersections in the form of a robust Transportation Demand Management (TDM) plan.
- Overall, this report concludes that the proposed project will not have a detrimental impact to the surrounding vehicular network, with the implementation of all recommended site design elements and Transportation Demand Management (TDM) measures.

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 upon by DDOT. The general methodology of the analysis follows national and DDOT guidelines on the preparation of transportation impact evaluations of site development. The approved scope is included in the technical attachments.

Capacity Analysis Scenarios

The vehicular capacity analyses were performed to determine whether the project will lead to adverse impacts on traffic operations. A review of potential impacts to other modes is outlined later in this report. This is accomplished by comparing three (3) future scenarios:

- Without the project (referred to as the Background Conditions);
- With the project approved and constructed with the Existing Access condition; and
- With the project approved and constructed with the Proposed Access condition; and

Specifically, the roadway capacity analysis examines the following scenarios:

- Existing Conditions (2021 Existing Conditions);
- Future Conditions without the Project (2024 Background Conditions); and
- Future Conditions with the Project and the Existing Access condition that maintains the outbound traffic flow to University Avenue during the peak periods (2024 Total Future Conditions with Existing Access).
- Future Conditions with the Project and the Proposed Access condition that restricts site traffic on University Avenue during the peak periods (2024 Total Future Conditions with Proposed Access).

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 project. Although it is possible that impacts will occur outside of the study area, those impacts are neither significant enough to be considered a material adverse 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 selected:

1. Massachusetts Avenue & 46th Street/Tilden Street/Wesley Circle NW
2. University Avenue & Wesley Circle NW
3. Massachusetts Avenue & Wesley Circle NW
4. University Avenue & Sedgwick Street/WTS Driveway NW
5. Massachusetts Avenue & 45th Street NW
6. Massachusetts Avenue & WTS Driveway NW
7. Massachusetts Avenue & Glover Gate/Katzen Driveway NW

Figure 7 shows a map of the study area intersections.

Geometry and Operations Assumptions

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

2021 Existing Geometry and Operations Assumptions

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.

The lane configurations and traffic controls for the Existing Conditions are shown on Figure 8.

2024 Background Geometry and Operations Assumptions

The configurations and traffic controls for the 2024 Background Conditions were based on those for the 2021 Existing Conditions with the addition of background improvements.

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 project.

Based on these criteria, there were no background improvements assumed in the analysis.

The lane configurations and traffic controls for the Background Conditions, which are the same as those of the Existing Conditions, are shown on Figure 8.

2024 Total Future Conditions Geometry and Operations Assumptions

The configurations and traffic controls for the 2024 Total Future Conditions were based on those for the 2024 Background Conditions with the addition of the proposed project.

The lane configurations and traffic controls for the Total Future Conditions, which are the same as those of the Existing and Background Conditions, are shown on Figure 8. Although there are different traffic volume assumptions for Total Future Conditions with Existing Access and with Proposed Access, the lane configurations and traffic controls are the same for both.

Traffic Volume Assumptions

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

2021 Existing Traffic Volumes

Data collection for all intersections was not possible during fall 2021 as traffic volumes were not representative of typical conditions due to the ongoing COVID-19 emergency. To establish baseline conditions, the study analyzed 2021 traffic volumes comprised of turning movement count data collected in 2012 and February 2020 with applied growth rates based on the data collection year, as well as turning movement count data collected in September 2021 at intersections for which historical data was not available. The grown volumes from these sources were then balanced conservatively (adding volumes to the overall network) to create 2021 existing conditions. The traffic volume data sources are summarized below.

2012 WTS Campus Plan Update

Turning movement counts collected in 2012 for this project's TIA were available for the following intersections:

- University Avenue & Sedgwick Street/WTS Driveway NW; and
- Massachusetts Avenue & WTS Driveway NW.

The unadjusted peak hour traffic volumes from this source are shown in Figure 9.

2021 AU Campus Plan

Turning movement counts collected in February 2020 (prior to the COVID-19 emergency) for this project's CTR were available for the following intersections:

- Massachusetts Avenue & 46th Street/Tilden Street/Wesley Circle NW;
- Massachusetts Avenue & 45th Street NW; and
- Massachusetts Avenue & Glover Gate/Katzen Driveway NW.

The unadjusted peak hour traffic volumes from this source are shown in Figure 9.

2021 Turning Movement Counts

Turning movement counts were collected on Wednesday, September 22, 2021 for the following intersections for which historical turning movement count data was not available:

- University Avenue & Wesley Circle NW; and
- Massachusetts Avenue & Wesley Circle NW.

The unadjusted peak hour traffic volumes from this source are shown in Figure 9.

Volumes Generated by Regional Traffic Growth through 2021

Traffic growth was applied to the 2012 and 2020 volumes based on their respective data collection year to establish 2021 existing volumes. These background growth volumes are shown in Figure 10.

The applied growth rates for 2012/2020 through 2021 are based on historic AADT data and are shown on Table 3. Detailed growth rate assumptions are provided in the Technical Attachments.

The 2021 Existing peak hour traffic volumes are shown in Figure 11.

2024 Background Traffic Volumes (without the Project)

The traffic projections for the 2024 Background Conditions consist of the 2021 Existing volumes with the following additions:

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

Volumes Generated by Background Developments

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 future analysis year of 2024.

Based on these criteria, and as discussed with and agreed upon by DDOT, there are no developments meeting the above criteria; therefore there are no background developments included in this analysis.

Volumes Generated by Regional Traffic Growth

While background developments represent local traffic changes, regional traffic growth is typically accounted for using growth

rates. The growth rates used in this analysis are based on MWCOG's currently adopted regional transportation model, comparing the difference between the year 2021 and 2024 model scenarios. The growth rates observed in this model served as a basis for analysis assumptions, and a conservative 0.10 percent annual growth rate was applied to roadways where negative growth was observed. The applied growth rates are shown in Table 3. The traffic volumes generated by the inherent growth along the network between 2021 and 2024 are shown on Figure 12.

The existing peak hour volumes presented in Figure 11 were combined with the background growth peak hour volumes shown in Figure 12 to establish the 2024 Background traffic volumes. The traffic volumes for the 2024 Background Conditions are shown in Figure 13.

2024 Total Future with Existing Access Traffic Volumes (Site Access Consistent with Existing Conditions)

The 2024 Total Future with Existing Access traffic volumes consist of the following:

- Existing volumes, shown on Figure 11;
- Inherent growth on study area roadways, shown on Figure 12;
- Site-generated volumes under existing vehicular access conditions, shown on Figure 19.

Site-Generated Volumes (Existing Access Conditions)

Trip distribution for the site-generated trips under existing vehicular access conditions was determined based on:

- Census Transportation Planning Products (CTPP) Traffic Analysis Zone (TAZ) data;
- Existing and future travel patterns in the study area; and
- Inbound and outbound site travel patterns as determined by vehicular access with existing access conditions (maintaining the existing WTS campus circulation with the University Avenue driveway exit consistent with existing conditions).

Based on this review and the site access locations, the site-generated trips were distributed through the study area intersections. Trip distribution assumptions and specific routings were analyzed for inbound and outbound trips. Inbound and outbound distribution assumptions for the project are provided in Figure 14 and Figure 15, respectively. Detailed distributions at each study intersection are shown in Figure 17.

Site-generated peak hour volumes under existing vehicular access conditions are shown in Figure 19.

The traffic volumes for the 2024 Total Future with Existing Access Conditions are shown on Figure 21.

2024 Total Future with Proposed Access Traffic Volumes (University Avenue Site Egress Closed During Peak Periods)

The 2024 Total Future with Proposed Access traffic volumes consist of the following:

- Existing volumes, shown on Figure 11;
- Inherent growth on study area roadways, shown on Figure 12;
- Site-generated volumes under proposed access conditions with the University Avenue site egress closed (access for delivery vehicles maintained) during the AM and PM peak periods, shown on Figure 20.

Site-Generated Volumes (Proposed Access Conditions)

Trip distribution for the site-generated trips under proposed vehicular access conditions was determined based on:

- Census Transportation Planning Products (CTPP) Traffic Analysis Zone (TAZ) data;
- Existing and future travel patterns in the study area; and
- Inbound and outbound site travel patterns as determined by vehicular access with proposed access conditions (with the University Avenue driveway resitricted during the AM and PM peak periods – delivery vehicle access maintained).
    - All exiting site traffic rerouted to the right turn egress movement onto Massachusetts Avenue.

Based on this review and the site access locations, the site-generated trips were distributed through the study area intersections. Trip distribution assumptions and specific routings were analyzed for inbound and outbound trips. Inbound and outbound distribution assumptions for the project are provided in Figure 14 and Figure 16, respectively. Detailed distributions at each study intersection are shown in Figure 18.

Site-generated peak hour volumes under proposed vehicular access conditions are shown in Figure 20.

The traffic volumes for the 2024 Total Future with Proposed Access Conditions are shown on Figure 22.

Table 3: Applied Annual and Total Growth Rates

Roadway	Dir.	Proposed Annual Growth Rate Between 2020 and 2021 [1]		Proposed Total Growth Between 2020 and 2021		Proposed Annual Growth Rate Between 2021 and 2024 [2]		Proposed Total Growth Between 2021 and 2024	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Massachusetts Ave NW	EB	0.10%	0.10%	0.10%	0.10%	0.30%	0.10%	0.90%	0.30%
	WB	2.00%	0.50%	2.00%	0.50%	0.10%	0.30%	0.30%	0.90%
Sedgewick St NW	EB	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.30%	0.30%
	WB	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.30%	0.30%
46th St NW	NB	2.00%	0.10%	2.00%	0.10%	0.10%	0.10%	0.30%	0.30%
	SB	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.30%	0.30%
University Ave NW [3]	NB	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.30%	0.30%
	SB	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.30%	0.30%
45th St NW	NB	0.50%	0.50%	0.50%	0.50%	0.10%	0.10%	0.30%	0.30%
	SB	2.00%	0.10%	2.00%	0.10%	0.90%	0.10%	2.72%	0.30%
Campus Dr NW	NB	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.30%	0.30%
	SB	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.30%	0.30%

[1] These rates were applied to volumes recorded in February 2020 that were used to establish 2021 existing conditions. Rates are based on MWCOG's currently adopted regional transportation model for this time period.
[2] These rates were applied to volumes grown from 2021 existing conditions. Rates are based on MWCOG's currently adopted regional transportation model for this time period.
[3] Study intersection #3 (University Ave & Sedgwick St/WTS Exit NW) only had available traffic counts from 2012, not February 2020 like the other study intersections. Therefore, to establish 2021 Existing Conditions, annual growth rates of 0.10% were applied to the northbound and southbound volumes of University Ave NW at this intersection for every year between 2012 and 2021, totaling 0.90% for each direction.

Vehicular Analysis Results

Intersection Capacity Analysis

Intersection capacity analyses were performed for the four (4) scenarios outlined previously at the intersections contained within the study area during the AM and PM peak hours. *Synchro* version 10 was used to analyze the study intersections based on the Highway Capacity Manual (HCM) 2000 methodology.

Further analyses were also performed at the WTS driveway intersection with Massachusetts Avenue using the SimTraffic modeling software to account for gaps in through traffic that would be provided by the upstream traffic signal to the east and the pedestrian signal to the west. The results of these simulations indicate that the WTS driveway on Massachusetts Avenue operates with LOS C or better during all scenarios studied. The simulation runs were based on 15-minute seeds with 60-minute run times, and the results shown were taken as the average of five (5) model runs.

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 intersection peak hour traffic volumes; (2) the lane use and traffic controls; and (3) the HCM methodologies (using *Synchro* software). The average delay of each approach and LOS is shown for all intersections in addition to the overall average delay and intersection LOS grade. Detailed LOS descriptions and the analysis worksheets are contained in the Technical Attachments.

Table 4 shows the results of the capacity analyses, including LOS and average delay per vehicle (in seconds) for the 2021 Existing, 2024 Background, 2024 Total Future with Existing Access, and 2024 Total Future with Proposed Access scenarios. Table 5 shows a comparison of the volume to capacity (v/c) ratios, while Table 6 shows a comparison of queuing results.

Intersection Capacity Under Existing Conditions

As shown in Table 4, two (2) of the study intersections operate at unacceptable conditions or have one or more approaches operating at unacceptable levels during Existing Conditions:

- Massachusetts Ave & 46th St/Tilden St/Wesley Cir NW
  - Southwestbound (PM)
- Massachusetts Ave & Wesley Cir NW
  - Northbound (PM)

Intersection Capacity Under Background Conditions

As shown in Table 4, two (2) of the study intersections operate at unacceptable conditions or have one or more approaches operating at unacceptable levels during Background Conditions:

- Massachusetts Ave & 46th St/Tilden St/Wesley Cir NW
  - Southwestbound (PM)
- Massachusetts Ave & Wesley Cir NW
  - Northbound (PM)

Intersection Capacity Under Future with Existing Access Conditions

As shown in Table 4, two (2) of the study intersections operate at unacceptable conditions or have one or more approaches operating at unacceptable levels during Total Future with Existing Access Conditions:

- Massachusetts Ave & 46th St/Tilden St/Wesley Cir NW
  - Southwestbound (PM)
- Massachusetts Ave & Wesley Cir NW
  - Northbound (PM)

Intersection Capacity Under Future with Proposed Access Conditions

As shown in Table 4, one (1) of the study intersections operates at unacceptable conditions or have one or more approaches operating at unacceptable levels during Total Future with Proposed Access Conditions:

- Massachusetts Ave & 46th St/Tilden St/Wesley Cir NW
  - Southwestbound (PM)

Queuing Analysis

In addition to the capacity analyses presented above, a queuing analysis was performed at each of the study intersections. The queuing analysis was performed using *Synchro* software. The 50th percentile and 95th percentile maximum queue lengths are shown for each lane group at the study area’s signalized intersections. The 50th percentile maximum queue is the maximum back of queue on a typical cycle. The 95th percentile

queue is the maximum back of queue with 95th percentile traffic volumes. For unsignalized intersections, the 95th percentile queue is reported for each lane group (including free-flowing left turns and stop-controlled movements) based on the HCM calculations.

Table 6 shows the queuing results for the study intersections, including 50th and 95th percentile queues for the 2021 Existing, 2024 Background, 2024 Total Future with Existing Access, and 2024 Total Future with Proposed Access scenarios.

Queuing Under Existing Conditions

As shown in Table 6, one (1) of the study intersections has one or more lane group that exceeds the given storage length during Existing Conditions:

- Massachusetts Ave & Glover Gate/Katzen Dwy NW
  - Northeastbound left/thru (PM)
  - Southwestbound left/thru/right (AM, PM)

Queuing Under Background Conditions

As shown in Table 6, one (1) of the study intersections has one or more lane group that exceeds the given storage length during Background Conditions:

- Massachusetts Ave & Glover Gate/Katzen Dwy NW
  - Northeastbound left/thru (PM)
  - Southwestbound left/thru/right (AM, PM)

Queuing Under Future with Existing Access Conditions

As shown in Table 6, two (2) of the study intersections have one or more lane group that exceeds the given storage length during Total Future with Existing Access Conditions:

- Massachusetts Ave & Wesley Cir NW
  - Northbound left/right (PM)
- Massachusetts Ave & Glover Gate/Katzen Dwy NW
  - Northeastbound left/thru (PM)
  - Southwestbound left/thru/right (AM, PM)

Queuing Under Future with Proposed Access Conditions

As shown in Table 6, one (1) of the study intersections has one or more lane group that exceeds the given storage length during Total Future with Proposed Access Conditions:

- Massachusetts Ave & Glover Gate/Katzen Dwy NW
  - Northeastbound left/thru (PM)
  - Southwestbound left/thru/right (AM, PM)

Mitigation Measures

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

- The capacity analyses show a LOS E or F at an intersection or along an approach in Future conditions with the project where one does not exist in Background Conditions;
- There is an increase in delay at any approach or overall intersection operating under LOS E or F of greater than five (5) percent when compared to Background Conditions;
- A 95th percentile queue exceeds storage along an approach in Future Conditions with the project where it does not in Background Conditions; or
- There is an increase in the 95th percentile queue by more than 150 feet along an approach in that exceeds storage in Background Conditions.

Based on these criteria, there are impacts at one intersection under Total Future with Existing Access and no impacts under Total Future with Proposed Access. These impacts are detailed below.

Massachusetts Avenue and Wesley Circle NW (Total Future with Existing Access Conditions)

Northbound Approach

The northbound[1] approach of Wesley Circle NW is projected to increase delay by more than 5 percent during Total Future with Existing Access Conditions when compared to Background Conditions during the afternoon peak hour.

This condition cannot be mitigated through either geometric or traffic signal modifications because there can only be one lane merging onto Massachusetts Avenue NW, and because the intersection is unsignalized. Rather, mitigation is proposed to be

[1] This approach is coded in *Synchro* as northbound to differentiate it from the other approaches, but it is actually the eastbound approach of Wesley Circle NW as it merges onto southeastbound Massachusetts Avenue NW.

addressed through a robust Transportation Demand Management (TDM) plan consistent with DDOT's Baseline Plan.

Massachusetts Avenue and WTS Driveway NW (Total Future with Existing Access Conditions and Total Future with Proposed Access Conditions)

Northbound Approach

With the removal of WTS outbound traffic (delivery vehicle access maintained) from University Avenue during the peak periods evaluated as part of Total Future with Proposed Access Conditions, the northbound[2] approach of Wesley Circle NW would realize a reduction in delay and would no longer exceed adequacy standards.

Under Total Future with Proposed Access Conditions, the project would not have any vehicular impacts within the study area that would warrant mitigation per the DDOT CTR guidelines.

[2] This approach is coded in *Synchro* as northbound to differentiate it from the other approaches, but it is actually the eastbound approach of Wesley Circle NW as it merges onto southeastbound Massachusetts Avenue NW.

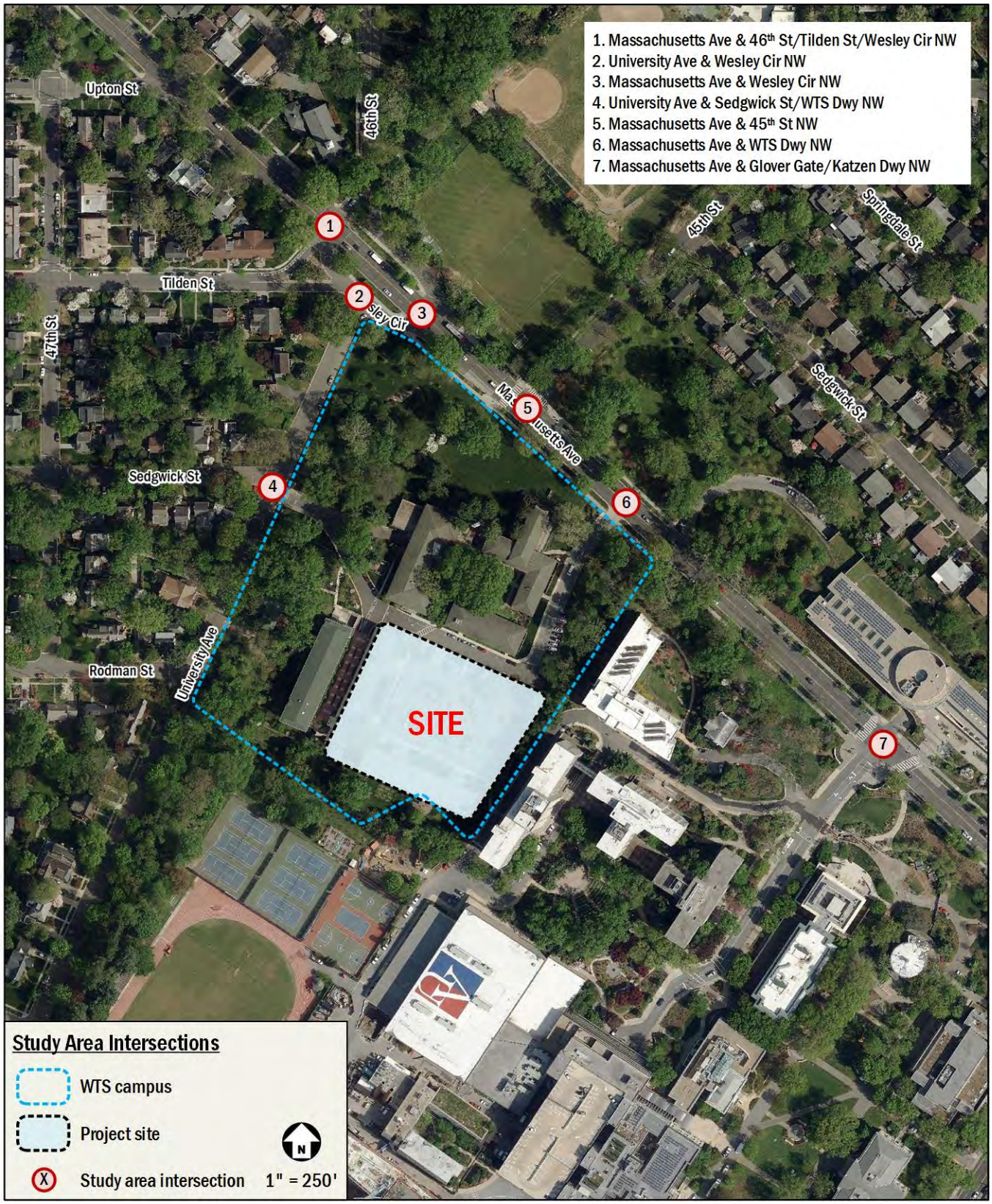

Figure 7: Study Area Intersections

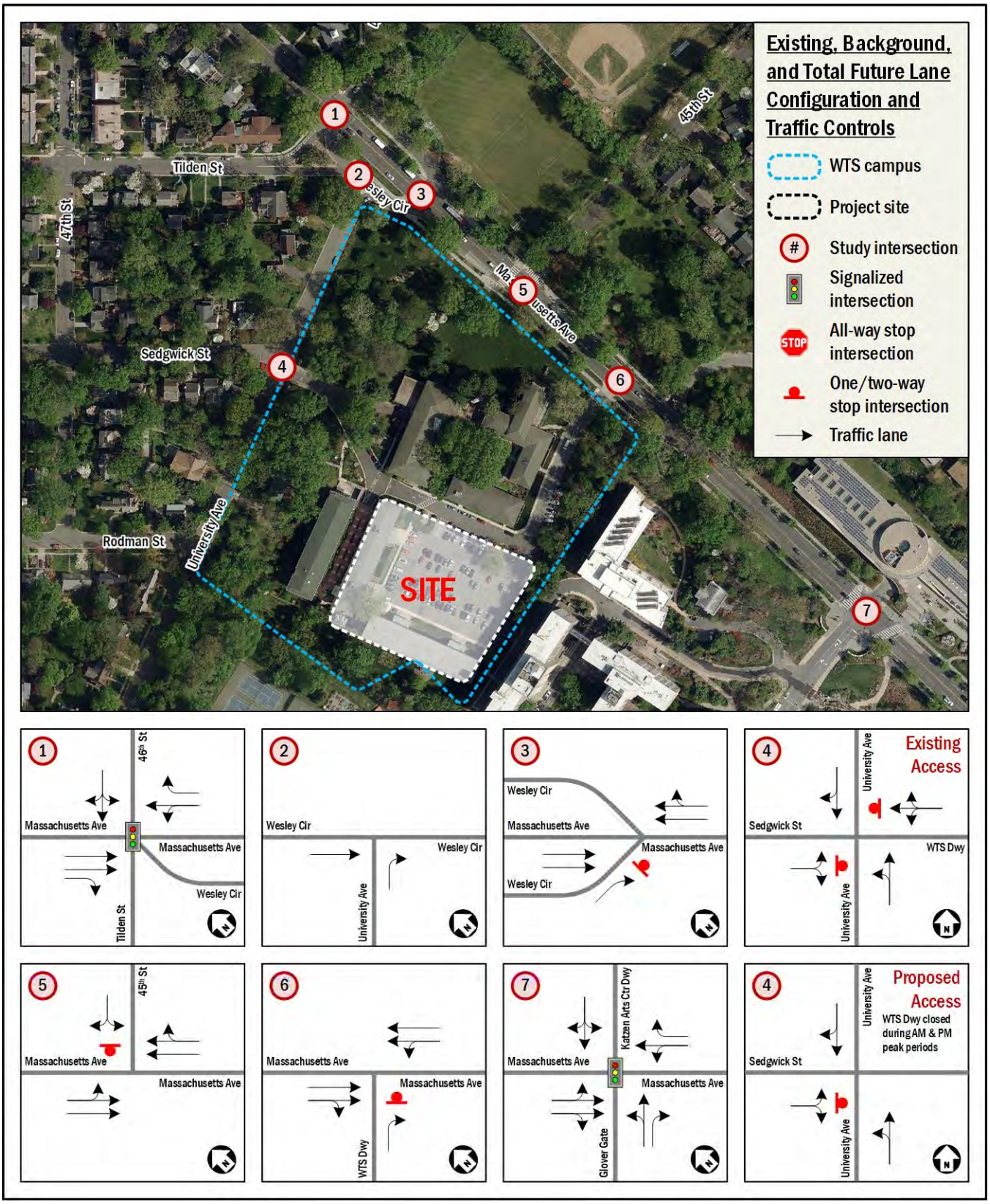

Figure 8: Existing, Background, and Total Future Lane Configurations and Traffic Controls

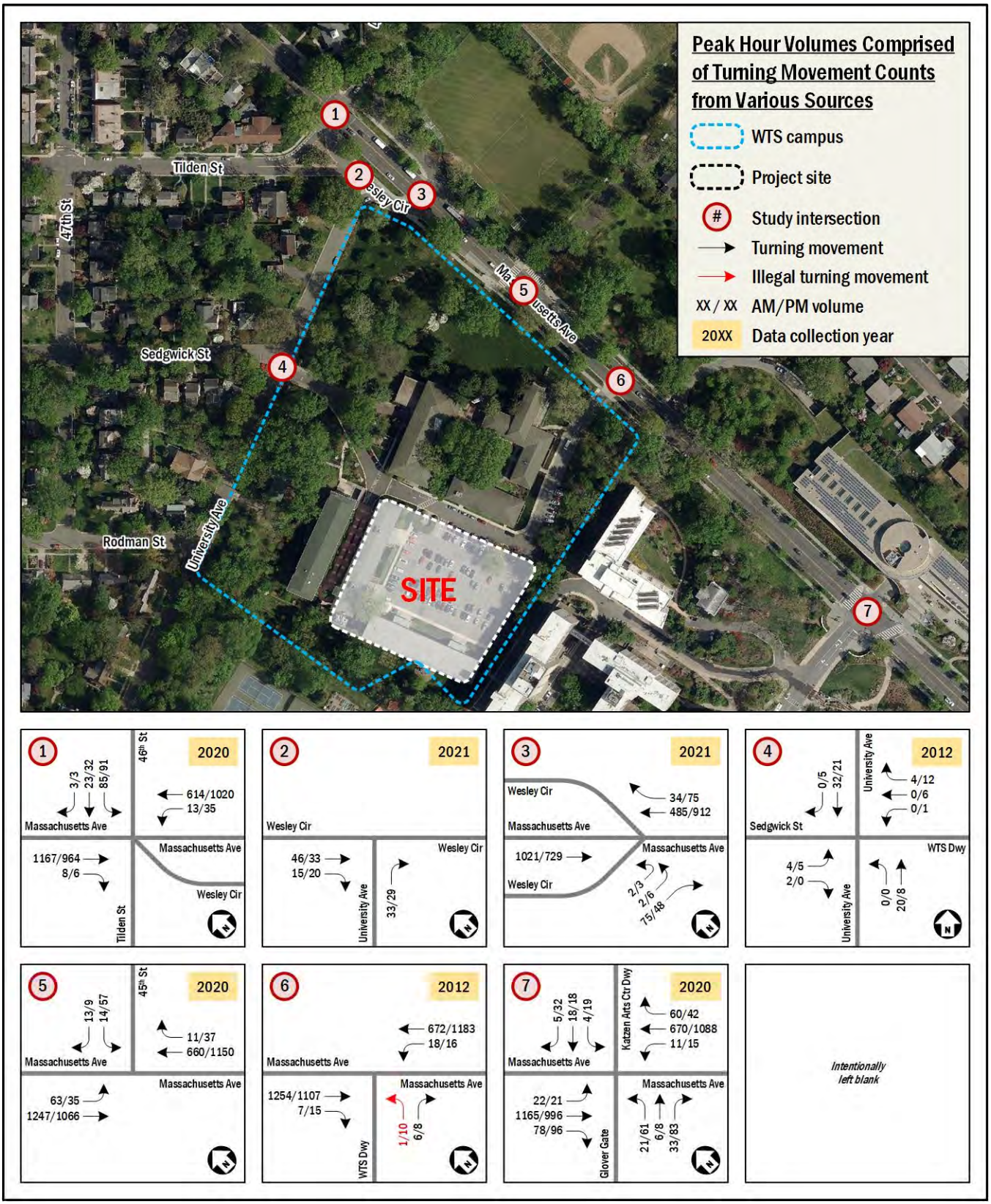

Figure 9: Peak Hour Volumes Comprised of Turning Movement Counts from Various Sources

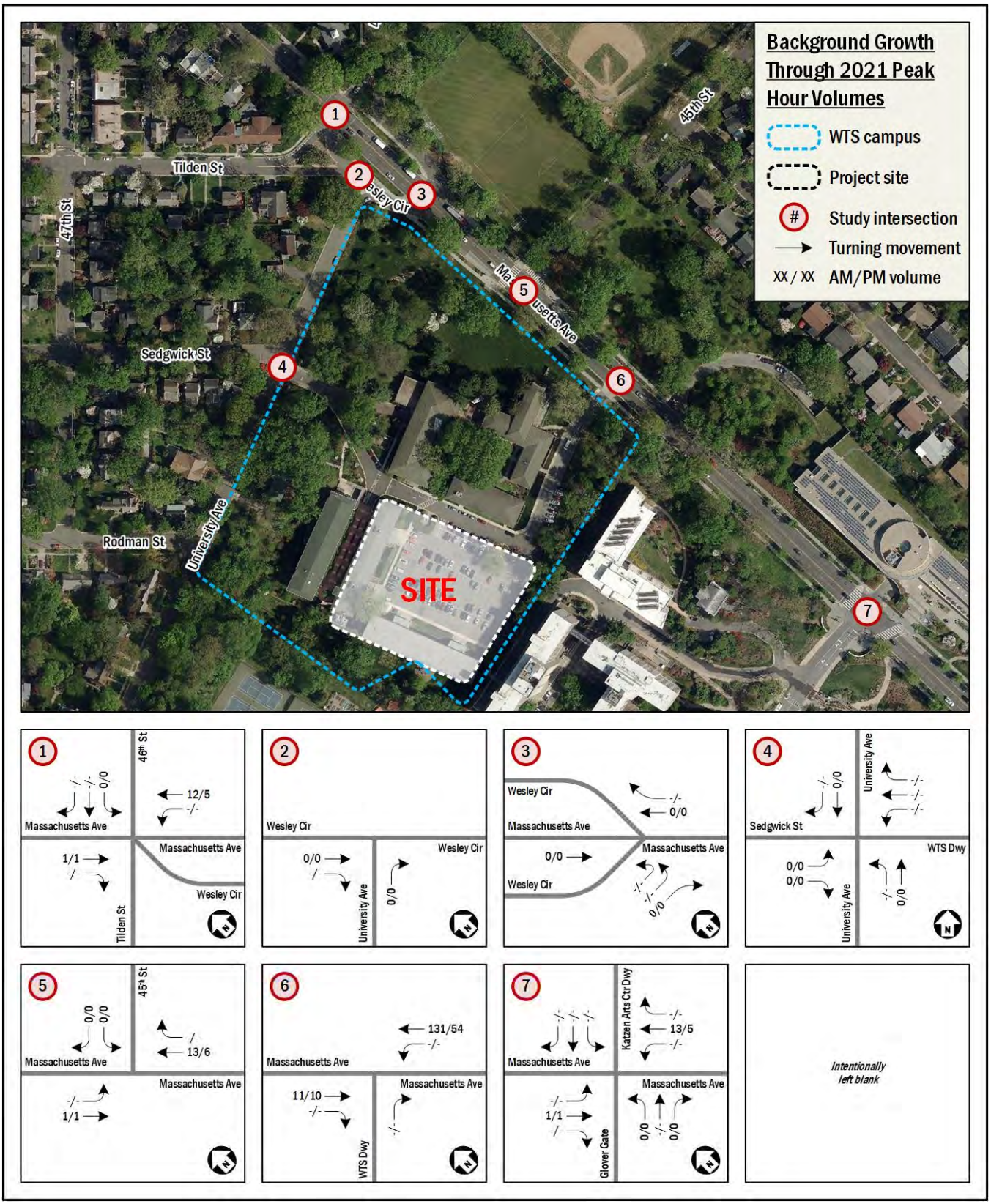

Figure 10: Background Growth Applied to 2012 & 2020 Peak Hour Volumes to Establish Existing 2021 Peak Hour Volumes

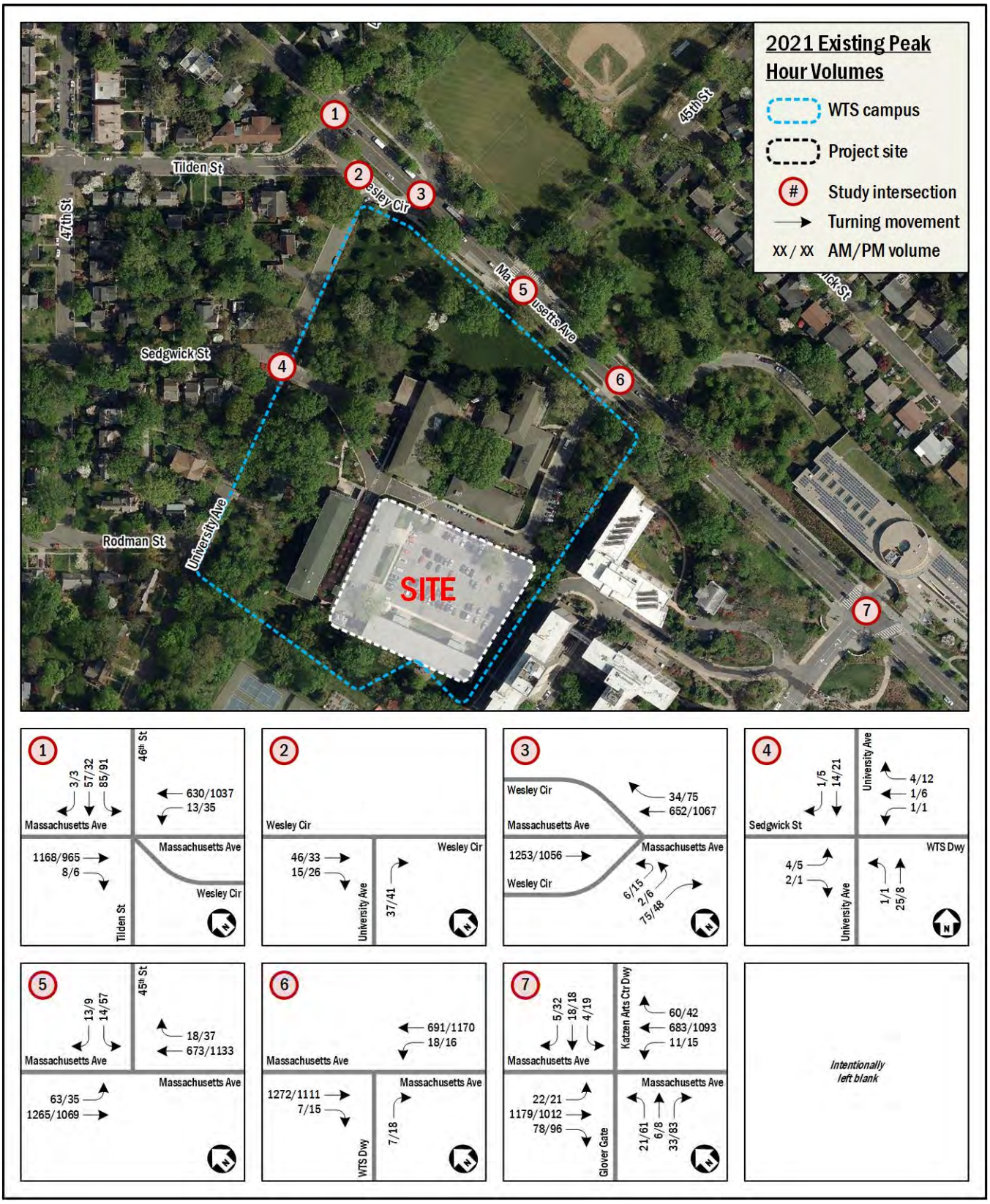

Figure 11: 2021 Existing Peak Hour Volumes

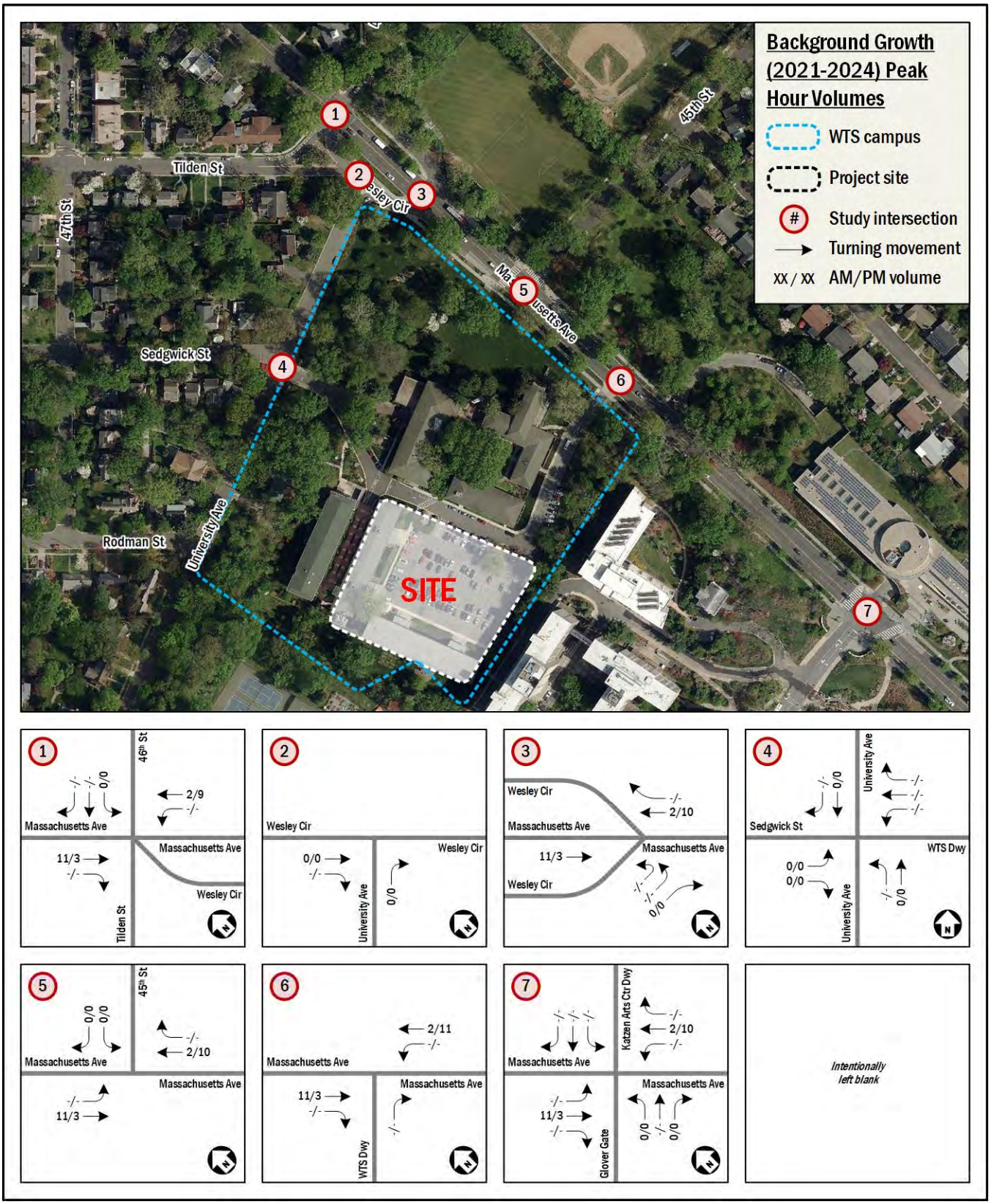

Figure 12: Background Growth Peak Hour Volumes

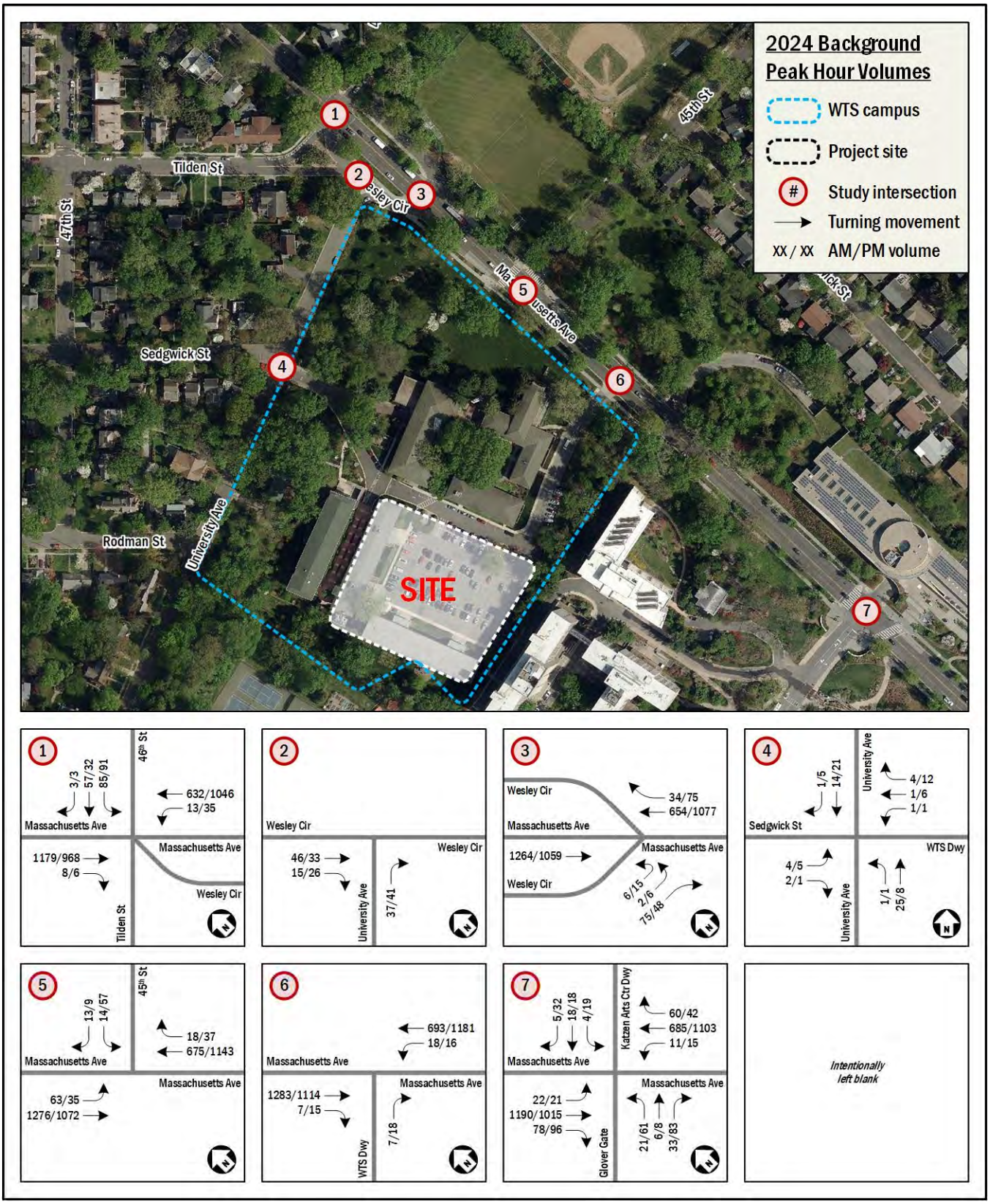

Figure 13: 2024 Background Peak Hour Volumes

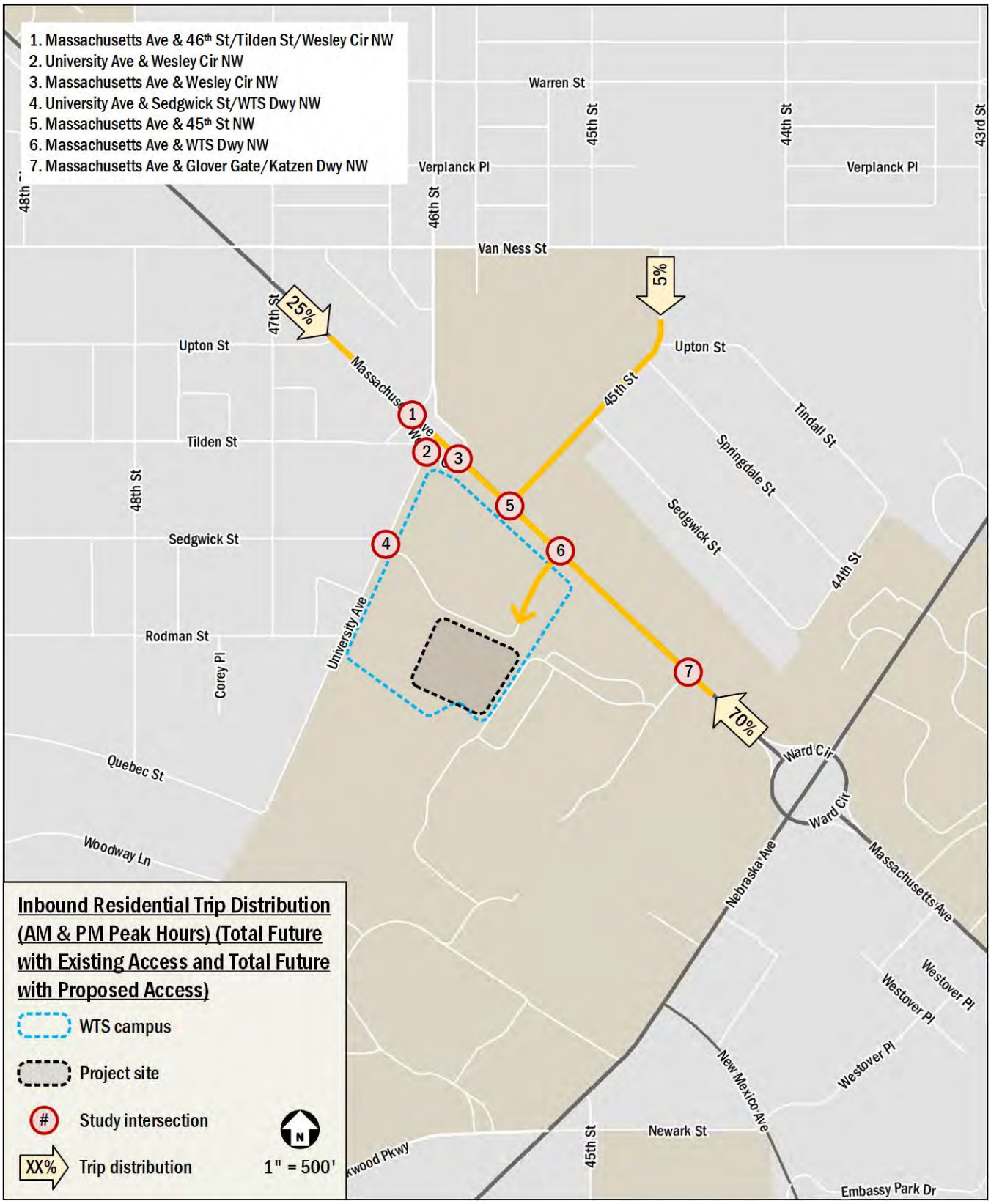

Figure 14: Inbound Trip Distribution (Total Future with Existing Access and Total Future with Proposed Access)

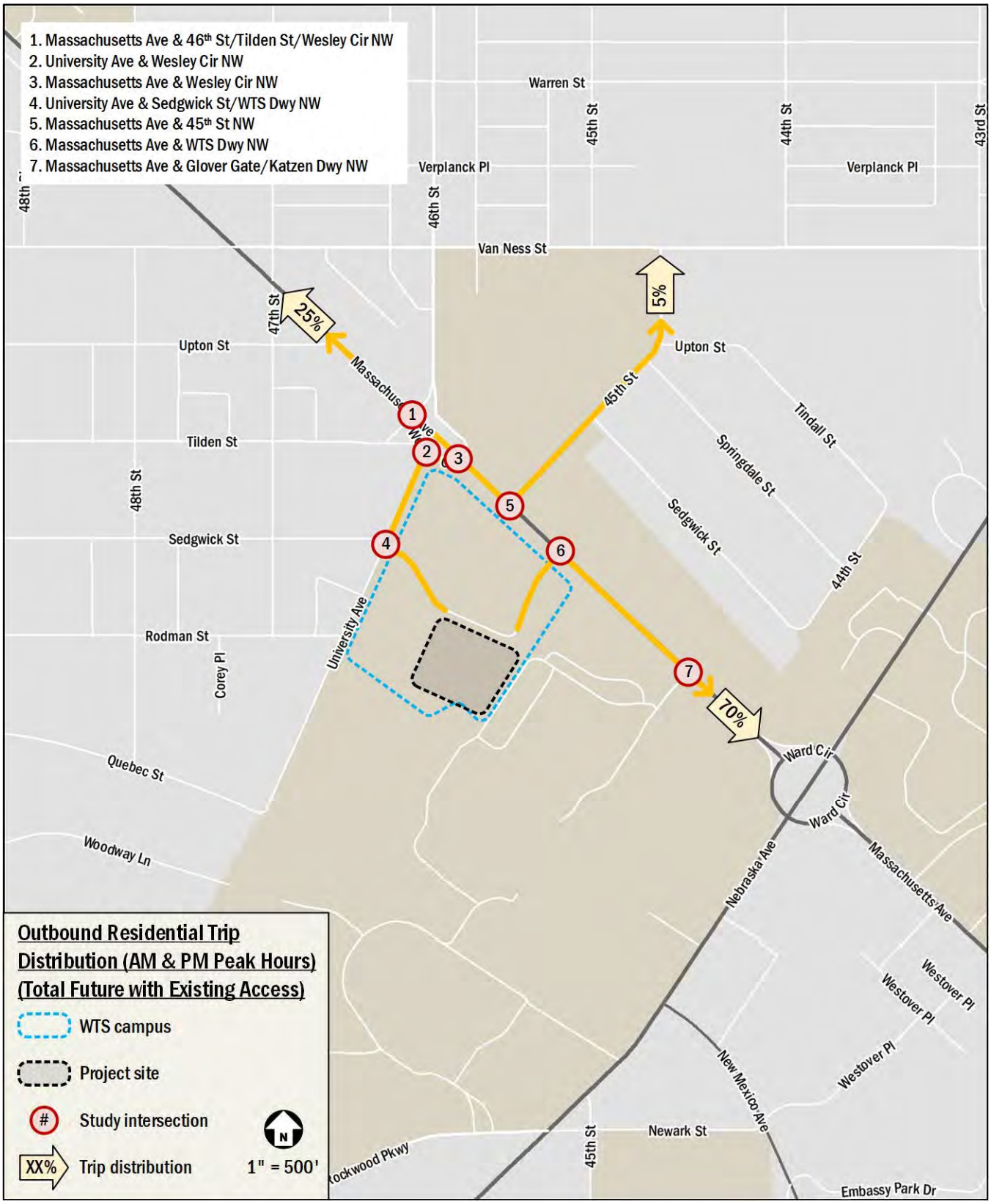

Figure 15: Outbound Trip Distribution (Total Future with Existing Access: w/ University Ave Driveway Exit During Peak Periods)

Figure 16: Outbound Trip Distribution (Total Future with Proposed Access: w/ University Ave Driveway Exit Restricted During Peak Periods – Delivery Vehicle Access Maintained)

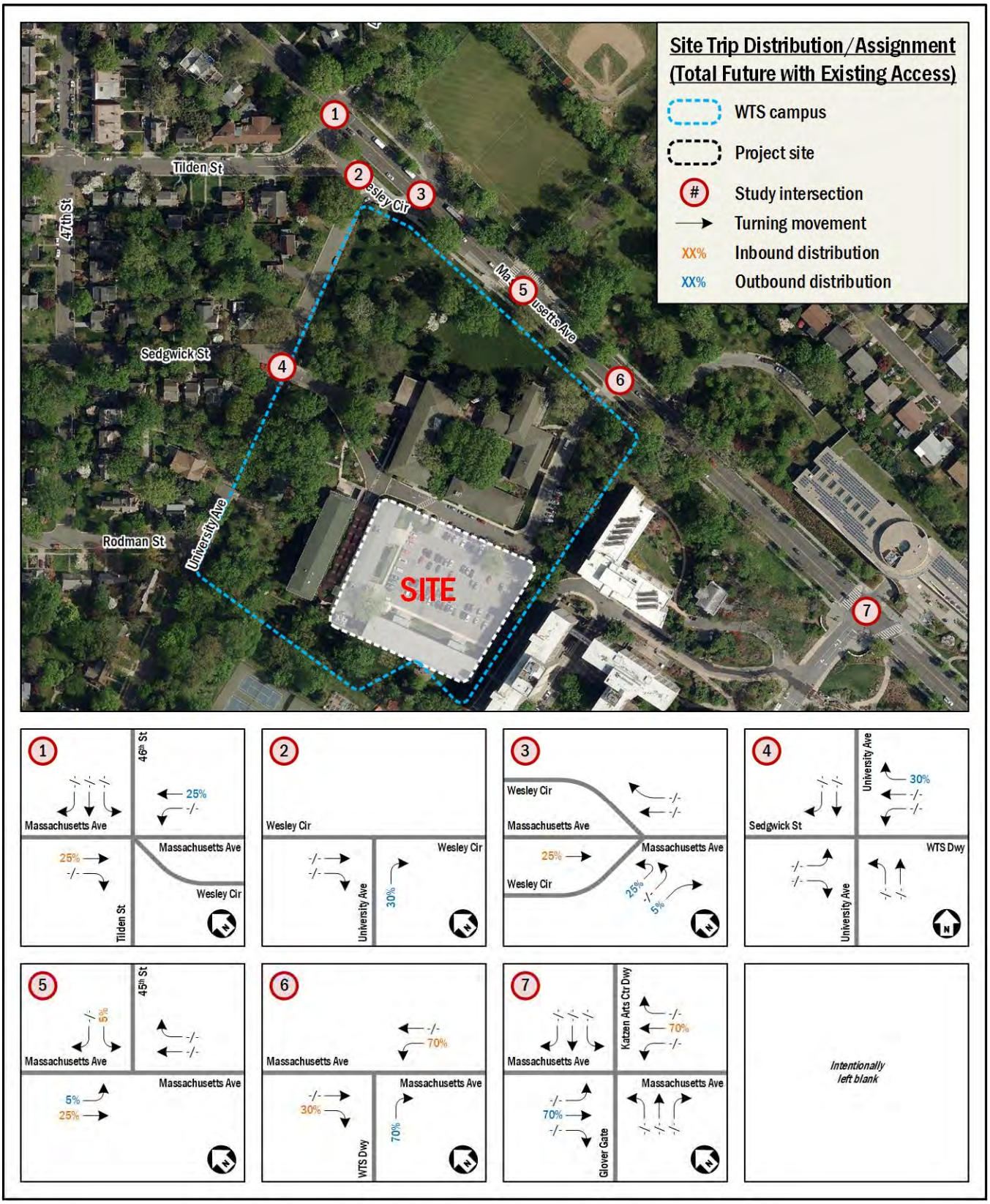

Figure 17: Trip Distribution at Study Intersections (Total Future with Existing Access: w/ University Ave Driveway Exit During Peak Periods)

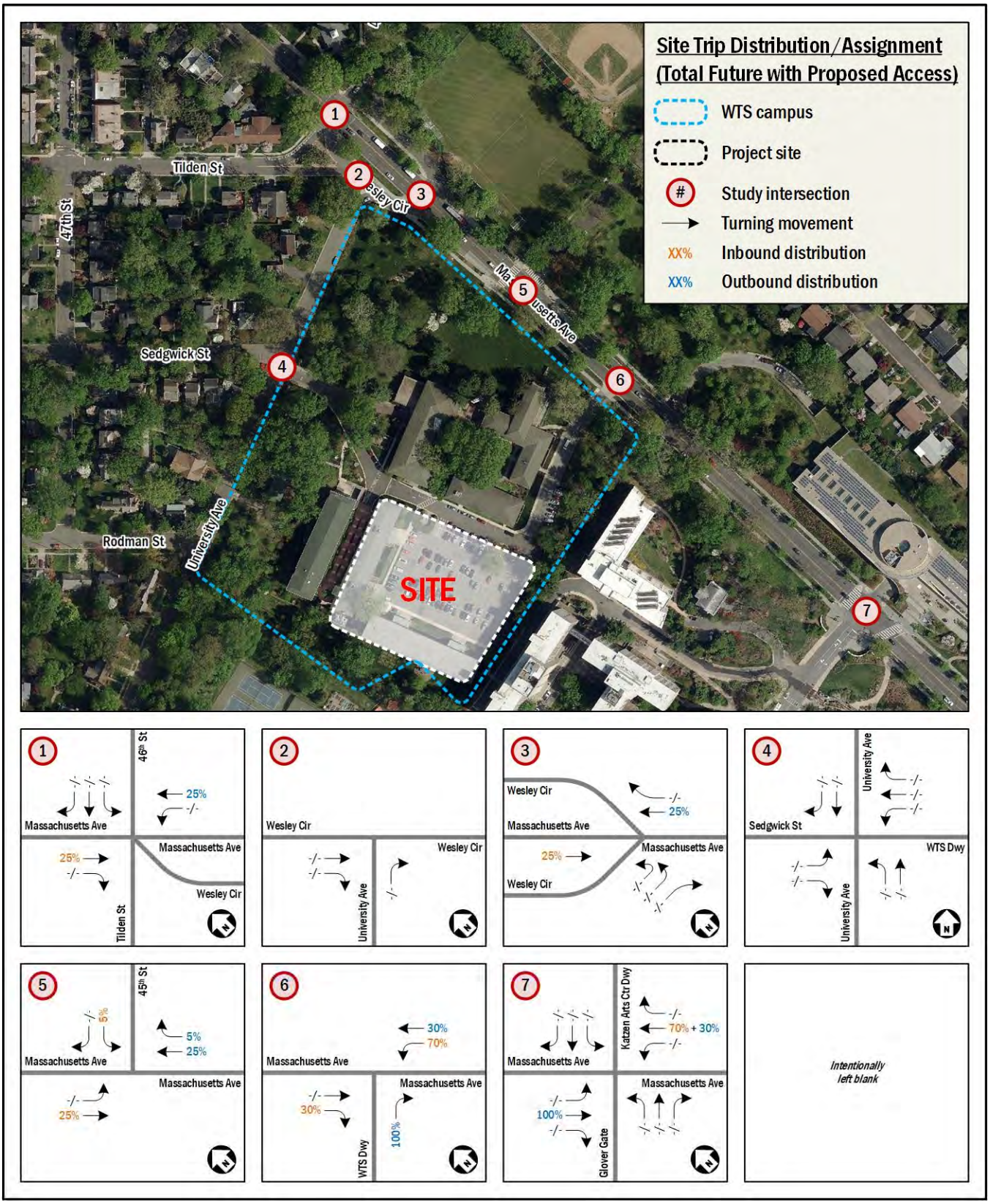

Figure 18: Trip Distribution at Study Intersections (Total Future with Proposed Access: w/ University Ave Driveway Exit Restricted During Peak Periods – Delivery Vehicle Access Maintained)

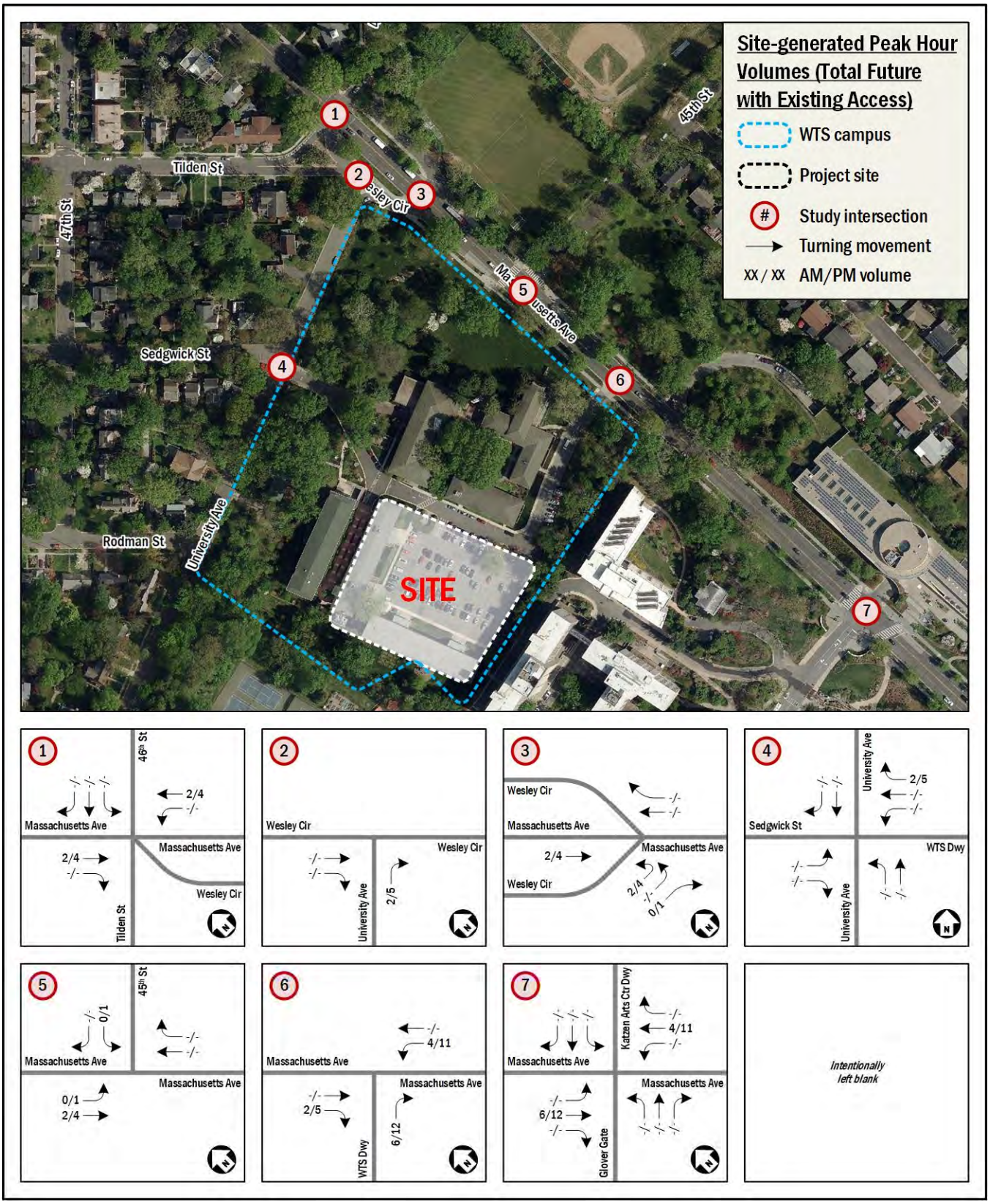

Figure 19: Site-generated Peak Hour Volumes (Total Future with Existing Access: w/ University Ave Driveway Exit During Peak Periods)

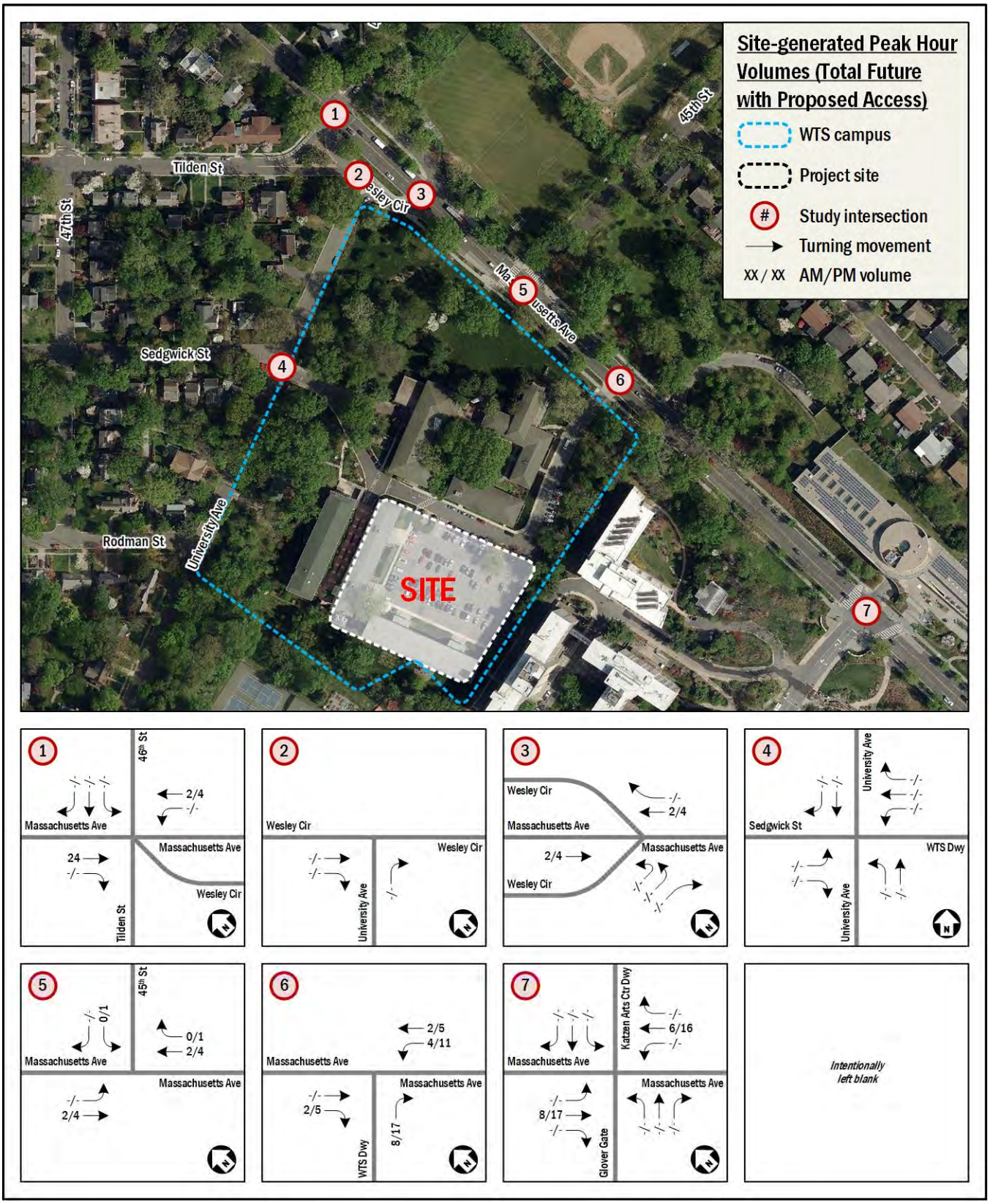

Figure 20: Site-generated Peak Hour Volumes (Total Future with Proposed Access: w/ University Ave Driveway Exit Restricted During Peak Periods – Delivery Vehicle Access Maintained)

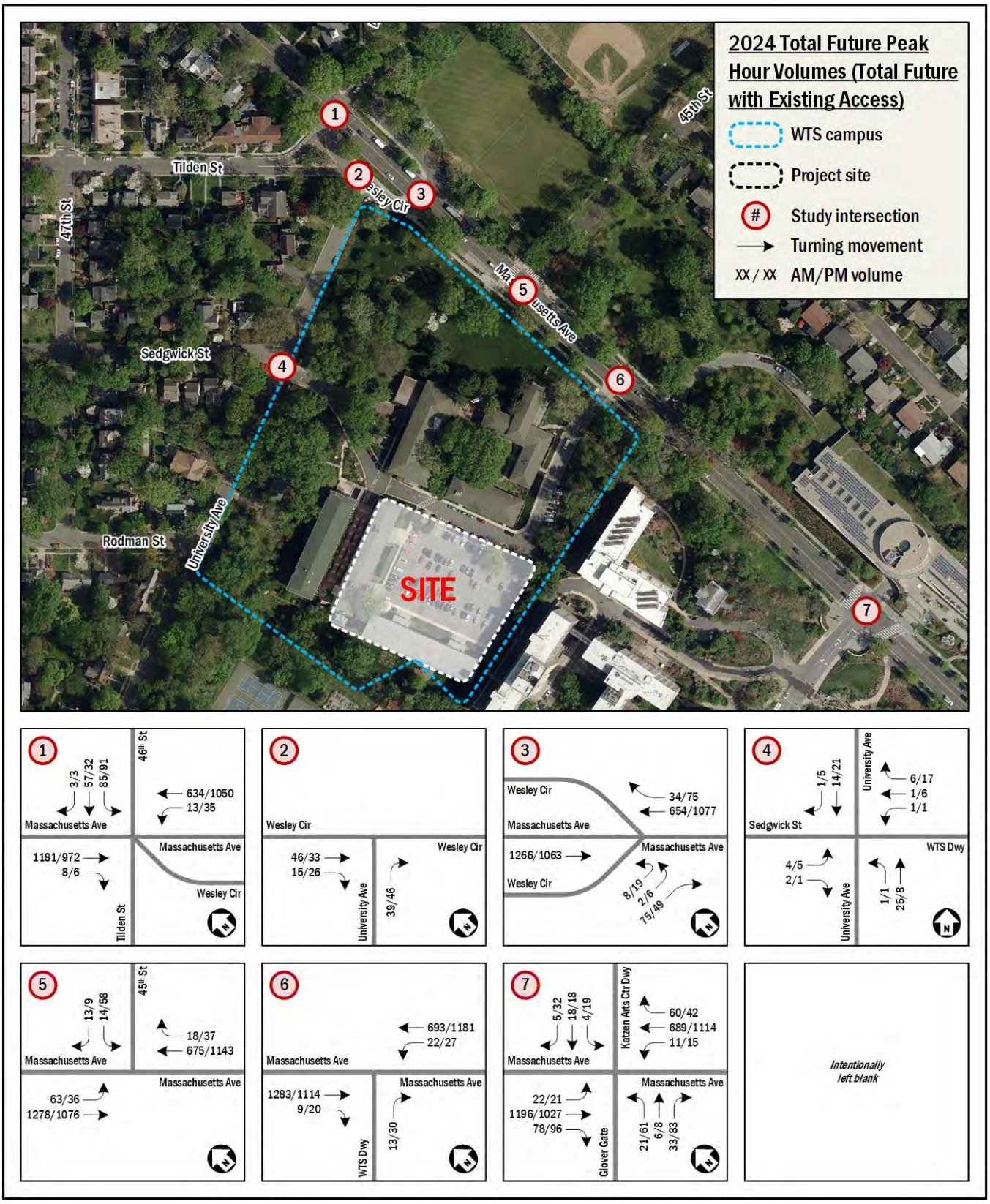

Figure 21: 2024 Total Future Peak Hour Volumes (Total Future with Existing Access: w/ University Ave Driveway Exit During Peak Periods)

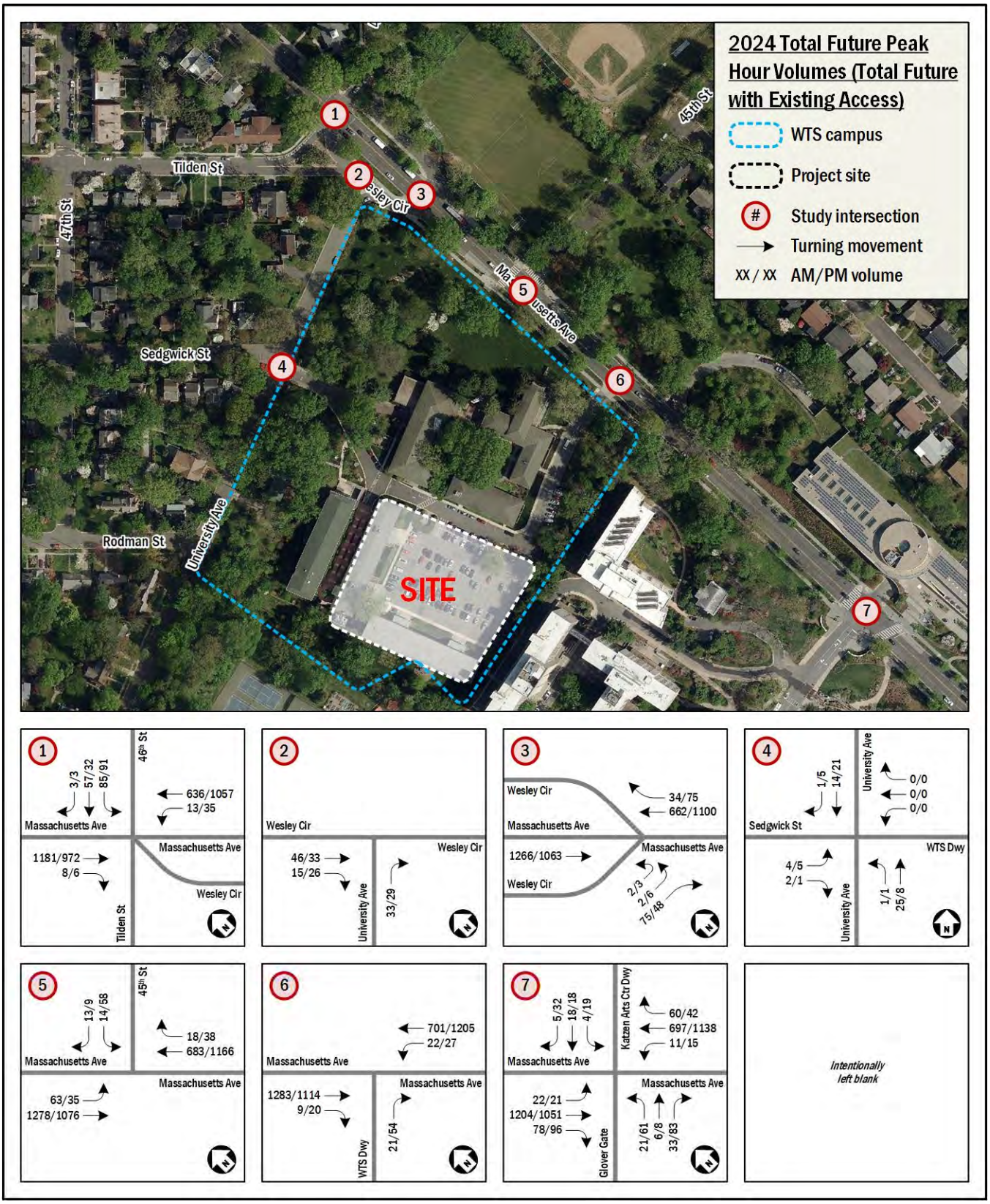

Figure 22: 2024 Total Future Peak Hour Volumes (Total Future with Proposed Access: w/ University Ave Driveway Exit Restricted During Peak Periods – Delivery Vehicle Access Maintained)

Table 4: LOS Comparison

	Intersection and Approach	Existing (2021)				Background (2024)				Future with Existing Access (2024) (w/ Existing Access Scenario)				Future with Proposed Access (2024) (University Dr Restricted During Peak Hours)			
		AM Peak		*PM Peak*		*AM Peak*		*PM Peak*		*AM Peak*		*PM Peak*		*AM Peak*		*PM Peak*	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	**Massachusetts Ave & 46th St/Tilden St/Wesley Cir NW**																
	Overall	**11.2**	**B**	**8.6**	**A**	**11.2**	**B**	**8.6**	**A**	**11.2**	**B**	**8.6**	**A**	**11.2**	**B**	**8.5**	**A**
	Southeastbound	10.9	B	6.7	A	11.0	B	6.7	A	11.1	B	6.8	A	11.1	B	6.8	A
	Northwestbound	2.6	A	4.0	A	2.6	A	4.0	A	2.6	A	4.0	A	2.5	A	4.0	A
	Northeastbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
	Southwestbound	51.4	D	61.8	E	51.4	D	61.8	E	51.4	D	61.8	E	51.4	D	61.8	E
2.	**University Ave & Wesley Cir NW**																
	Eastbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0		0.0	
	Northbound	8.7	A	8.7	A	8.7	A	8.7	A	8.7	A	8.7	A	8.7	A	8.7	A
3.	**Massachusetts Ave & Wesley Cir NW**																
	Northbound (Eastbound)	14.1	B	41.3	E	14.2	B	42.2	E	15.2	C	47.9	E	12.3	B	27.8	D
	Southeastbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
	Northwestbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
4.	**University Ave & Sedgwick St/WTS Dwy NW**																
	Eastbound	8.7	A	8.8	A	8.7	A	8.8	A	8.7	A	8.9	A	8.7	A	8.7	A
	Westbound	8.7	A	8.7	A	8.7	A	8.7	A	8.6	A	8.7	A	0.0	A	0.0	A
	Northbound	0.3	A	0.7	A	0.3	A	0.7	A	0.3	A	0.7	A	0.3	A	0.7	A
	Southbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
5.	**Massachusetts Ave & 45th St NW**																
	Overall	**0.5**	**A**	**0.4**	**A**	**0.5**	**A**	**0.4**	**A**	**0.5**	**A**	**0.4**	**A**	**0.5**	**A**	**0.4**	**A**
	Southeastbound	0.7	A	0.5	A	0.7	A	0.5	A	0.7	A	0.5	A	0.7	A	0.5	A
	Northwestbound	0.1	A	0.3	A	0.1	A	0.3	A	0.1	A	0.3	A	0.1	A	0.3	A
	Southwestbound	0.0	A	0.1	A	0.0	A	0.1	A	0.0	A	0.1	A	0.0	A	0.1	A
6.	**Massachusetts Ave & WTS Dwy NW**																
	Northbound	14.8	B	380.1	F	14.9	B	385.5	F	15.1	C	611.8	F	15.3	C	1116.9	F
	Southeastbound	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
	Northwestbound	1.3	A	46.8	D	1.3	A	48.0	D	1.6	A	103.2	F	1.6	A	103.1	A
	SimTraffic																
	Northbound	--	--	31.4	C	--	--	29.9	C	--	--	32.5	C	--	--	28.3	C
	Southeastbound	--	--	1.3	A	--	--	1.1	A	--	--	1.2	A	--	--	1.2	A
	Northwestbound	--	--	4.8	A	--	--	5.1	A	--	--	6.3	A	--	--	6.7	A
7.	**Massachusetts Ave & Glover Gate/Katzen Dwy NW**																
	Overall	**12.7**	**B**	**13.7**	**B**	**12.9**	**B**	**13.7**	**B**	**12.9**	**B**	**13.8**	**B**	**13.1**	**B**	**14.0**	**B**
	Southeastbound	11.9	B	10.5	B	12.1	B	10.5	B	12.2	B	10.6	B	12.3	B	10.9	B
	Northwestbound	10.0	B	10.6	B	10.1	B	10.7	B	10.1	B	10.8	B	10.3	B	11.0	B
	Northeastbound	48.8	D	47.1	D	48.8	D	47.1	D	48.8	D	47.1	D	48.8	D	47.1	D
	Southwestbound	47.4	D	45.4	D	47.4	D	45.4	D	47.4	D	45.4	D	47.4	D	45.4	D

Table 5: v/c Comparison

	Intersection and Movement	Existing (2021)		Background (2024)		Future with Existing Access (2024) (w/ Existing Access Scenario)		Future with Proposed Access (2024) (University Dr Restricted During Peak Hours)	
		AM Peak	*PM Peak*	*AM Peak*	*PM Peak*	*AM Peak*	*PM Peak*	*AM Peak*	*PM Peak*
		v/c	v/c	v/c	v/c	v/c	v/c	v/c	v/c
1.	**Massachusetts Ave & 46th St/Tilden St/Wesley Cir NW**								
	Southeastbound Thru	0.62	0.49	0.62	0.49	0.63	0.49	0.63	0.49
	Southeastbound Right	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Northwestbound Thru	0.37	0.55	0.37	0.55	0.37	0.56	0.38	0.56
	Southwestbound Thru	0.57	0.64	0.57	0.64	0.57	0.64	0.57	0.64
2.	**University Ave & Wesley Cir NW**								
	Eastbound TR	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Northbound Right	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.03
3.	**Massachusetts Ave & Wesley Cir NW**								
	Northbound (Eastbound) LTR	0.18	0.43	0.18	0.43	0.20	0.49	0.14	0.28
	Southeastbound Thru	0.38	0.32	0.38	0.32	0.38	0.33	0.38	0.33
	Northwestbound TR	0.26	0.44	0.26	0.44	0.26	0.44	0.27	0.45
4.	**University Ave & Sedgwick St/WTS Dwy NW**								
	Eastbound LR	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Westbound LTR	0.01	0.02	0.01	0.02	0.01	0.03	0.01	0.00
	Northbound LT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Southbound TR	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.02
5.	**Massachusetts Ave & 45th St NW**								
	Southeastbound LT	0.54	0.45	0.54	0.45	0.54	0.46	0.54	0.45
	Northwestbound TR	0.23	0.38	0.23	0.39	0.23	0.39	0.23	0.39
	Southwestbound LR	0.02	0.05	0.02	0.05	0.02	0.05	0.02	0.05
6.	**Massachusetts Ave & WTS Dwy NW**								
	Northbound Right	0.02	0.87	0.02	0.88	0.04	1.47	0.06	2.67
	Southeastbound Thru	0.55	--	0.56	--	0.56	--	0.56	--
	Southeastbound TR	0.28	0.74	0.28	0.74	0.28	0.74	0.29	0.74
	Northwestbound LT	0.04	0.52	0.04	0.53	0.05	0.89	0.05	0.89
	Northwestbound Thru	--	0.51	--	0.51	--	0.51	--	0.53
7.	**Massachusetts Ave & Glover Gate/Katzen Dwy NW**								
	Southeastbound LTR	0.70	0.69	0.70	0.69	0.71	0.70	0.71	0.71
	Northwestbound LT	0.66	--	0.67	--	0.67	--	0.68	--
	Northwestbound Right	0.08	--	0.08	--	0.08	--	0.08	--
	Northwestbound LTR	--	0.62	--	0.63	--	0.63	--	0.65
	Northeastbound LT	0.25	0.41	0.25	0.41	0.25	0.41	0.25	0.41
	Northeastbound Right	0.24	0.45	0.24	0.45	0.24	0.45	0.24	0.45
	Southwestbound LTR	0.15	0.33	0.15	0.33	0.15	0.33	0.15	0.33

Table 6: 50th & 95th Percentile Queuing Comparison (in feet)

	Intersection and Lane Group	Storage Length (ft)	Existing (2021)				Background (2024)				Future with Existing Access (2024) (w/ Existing Access Scenario)				Future with Proposed Access (2024) (University Dr Restricted During Peak Hours)			
			AM Peak		*PM Peak*		*AM Peak*		*PM Peak*		*AM Peak*		*PM Peak*		*AM Peak*		*PM Peak*	
			50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
1.	**Massachusetts Ave & 46th St/Tilden St/Wesley Cir NW**																	
	Southeastbound Thru	310	237	299	138	176	242	303	140	177	242	305	141	178	242	305	141	178
	Southeastbound Right	310	2	6	1	4	2	6	1	4	2	6	1	4	2	6	1	4
	Northwestbound Thru	170	18	24	71	84	17	24	72	84	18	24	72	84	17	22	71	83
	Southwestbound Thru	540	106	179	95	#175	106	179	95	#175	106	179	95	#175	106	179	95	#175
2.	**University Ave & Wesley Cir NW**																	
	Eastbound TR	510	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
	Northbound Right	330	--	3	--	4	--	3	--	4	--	3	--	4	--	3	--	2
3.	**Massachusetts Ave & Wesley Cir NW**																	
	Northbound (Eastbound) LTR	50	--	16	--	48	--	16	--	49	--	18	--	58	--	12	--	27
	Southeastbound Thru	170	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
	Northwestbound TR	160	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
4.	**University Ave & Sedgwick St/WTS Dwy NW**																	
	Eastbound LR	340	--	0	--	1	--	0	--	1	--	0	--	1	--	0	--	1
	Westbound LTR	100	--	0	--	2	--	0	--	2	--	1	--	2	--	0	--	0
	Northbound LT	320	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
	Southbound TR	320	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
5.	**Massachusetts Ave & 45th St NW**																	
	Southeastbound LT	200	18	3	6	0	18	4	6	0	18	3	7	0	18	4	7	0
	Northwestbound TR	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Southwestbound LR	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.	**Massachusetts Ave & WTS Dwy NW**																	
	Northbound Right	290	--	2	--	64	--	2	--	64	--	3	--	106	--	5	--	191
	Southeastbound Thru	200	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--
	Southeastbound TR	200	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0
	Northwestbound LT	80	--	3	--	44	--	3	--	44	--	4	--	78	--	4	--	78
	Northwestbound Thru	80	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0
7.	**Massachusetts Ave & Glover Gate/Katzen Dwy NW**																	
	Southeastbound LTR	420	286	394	210	242	295	400	210	242	298	401	213	245	303	404	219	251
	Northwestbound LT	480	250	370	--	--	253	376	--	--	255	380	--	--	262	389	--	--
	Northwestbound Right	480	0	10	--	--	0	10	--	--	0	10	--	--	0	10	--	--
	Northwestbound LTR	480	--	--	230	291	--	--	233	295	--	--	237	300	--	--	247	312
	Northeastbound LT	100	21	52	52	102	21	52	52	102	21	52	52	102	21	52	52	102
	Northeastbound Right	100	0	12	0	52	0	12	0	52	0	12	0	52	0	12	0	52
	Southwestbound LTR	40	17	46	28	74	17	46	28	74	17	46	28	74	17	46	28	74

Transit Facilities

This chapter discusses the existing and proposed transit facilities near the site and evaluates the overall transit impacts of the site.

This chapter concludes that:

- The project site is well-served by existing transit;
- The project site is approximately 1.1 miles from the Tenleytown-AU Metro station;
- The project site is served by two (2) Metrobus routes and three (3) AU shuttle routes; and
- The project is expected to generate a manageable amount of transit trips that existing transit service is capable of handling.

Existing Transit Service

The study area is served by Metrorail and the Metrobus and American University (AU) shuttle systems. Combined, these transit services provide local and regional transit connections and link the site with residential, employment, commercial, and cultural destinations throughout the region. Figure 23 identifies the transit routes, stations, and stops in the study area.

The site is located 1.1 miles from the Tenleytown-AU Metro station on the Red Line, which travels between the Glenmont and Shady Grove stations by way of downtown Washington, DC.

The site is also served by three (3) AU shuttle routes, which WTS students can ride for free, and two (2) Metrobus routes. These bus routes connect the site to many areas of the region, as well as several Metro stations. Table 7 shows a summary of the bus route information for the routes that serve the site, including service hours, headway, and distance to the nearest bus stop.

Table 8 shows WMATA's recommended amenities for each type of bus stop. Table 9 shows a detailed inventory of the amenities appearing at each bus stop within the transit study area.

Proposed Transit Service

There are no known planned or proposed transit improvements in the project study area.

Site-Generated Transit Impacts

The proposed development is projected to generate 39 transit trips (17 inbound, 22 outbound) during the AM peak hour and 90 transit trips (45 inbound, 45 outbound) during the PM peak hour.

It is expected that existing transit service can accommodate these new site-generated trips.

Table 7: Local Bus Route Information

Route Number	Route Name	Service Hours at Stop Closest to Site			Headway (minutes)	Walking Distance to Nearest Stop
		Weekdays	Saturdays	Sundays		
M4	Nebraska Avenue Line	6:14am-9:14pm	-	-	11 - 36	0.3 mi (6 min)
N2,4,6	Massachusetts Avenue Line	5:44am-12:07am	5:40am-11:59pm	6:22am-11:14pm	4 - 45	0.1 mi (2 min)
-	AU Shuttle Blue Route	6:00am-12:15am	7:00am-12:15am	8:00am-12:15am	15 - 30	0.2 mi (4 min)
-	AU Shuttle Green Route	7:55am-9:40pm	-	-	85 - 97	0.3 mi (6 min)
-	AU Shuttle Red Express Route	7:00am-11:05pm	8:45am-4:30pm	-	15 - 30	0.2 mi (5 min)

Table 8: WMATA Recommended Bus Stop Amenities

Amenity	Basic Stop		Enhanced Stop	Transit Center Stop
	< 50 daily boardings	≥ 50 daily boardings		
Bus stop flag	●	●	●	●
Route map and schedule	●	●	●	●
5’ x 8’ landing pad	●	●	●	●
40’/60’ x 8’ landing pad			●	●
4’ sidewalk	●	●	●	●
Bench		●	●	●
Shelter		●	●	●
Lighting (on shelter or within 30’ if overhead)	Recommended for stops with early morning and evening service		●	●
Dynamic information signage	Contingent on presence of shelter			
Trash and recycling receptacles	Recommended where surrounding uses may generate trash			

Source: 2019 WMATA *Bus Stop Amenity Reference Guide*

Table 9: Bus Stop Inventory

Location	Stop ID	Routes Served	Amenities								
			Bus stop flag	Route map & sched-ule	Land-ing pad	Side-walk	Bench	Shel-ter	Dy-namic info sign	Light-ing	Trash Recp.
Massachusetts Ave & Fordham Rd (EB)	1002411	N4, N6	●	●	●	●	●	●		●	●
Massachusetts Ave & 48th St (WB)	1002407	N4, N6	●		●	●					●
Massachusetts Ave & Van Ness St (EB)	1002388	N4, N6	●	●	●	●				●	●
Massachusetts Ave & Van Ness St (WB)	1002387	N4, N6	●	●	●	●				●	
Massachusetts Ave & 46th St (WB)	1002341	N4, N6	●	●		●				●	
Massachusetts Ave & Tilden St (EB)	1002339	N4, N6	●		●	●				●	
Massachusetts Ave & 45th St (EB)	1002310	N4, N6	●	●	●	●	●	●		●	●
Massachusetts Ave & 45th St (WB)	1002323	N4, N6	●	●	●	●				●	●
Massachusetts Ave & Ward Cir (WB) / *Katzen Arts Center*	1002283 / *114*	N4, N6 / *Red Express, Green*	●	●	●	●				●	●
Massachusetts Ave & Ward Cir (EB) / *Massachusetts Ave NW*	1002275 / *115*	N4, N6 / *Red Express, Green*	●	●	●	●	●	●		●	
Nebraska Ave & Ward Cir (SB) / *Kerwin Hall*	1003092 / *109*	M4, N2 / *Blue, Green*	●	●	●	●				●	
Nebraska Ave & N Drwy Amer Univ (NB) / *East Campus*	1002227 / *112*	M4, N2, N6 / *Green*	●	●		●	●	●		●	
New Mexico Ave & Nebraska Ave (EB)	1002205	N2, N6	●	●		●				●	●
New Mexico Ave & Nebraska Ave (WB)	1002201	N2	●	●	●	●				●	●
Nebraska Ave & New Mexico Ave (SB)	1002204	M4	●		●	●				●	
Nebraska Ave & New Mexico Ave (NB)	1002197	M4	●		●	●				●	
Massachusetts Ave & Westover Pl (EB)	1002229	N4, N6	●	●	●	●				●	
Massachusetts Ave & Ward Cir (WB)	1002258	N4, N6	●	●	●	●					●
Nebraska Ave & Ward Cir (SB) / *Nebraska Hall - Inbound*	1003710 / *108*	M4, N2 / *Red Express, Blue*	●	●	●	●				●	
Nebraska Ave & Ward Cir (NB) / *Nebraska Hall - Outbound*	1002284 / *102*	M4, N2 / *Red Express, Blue*	●	●	●	●	●	●		●	●
Nebraska Ave & #3700 (SB)	1002292	M4, N2	●	●	●	●				●	
Nebraska Ave & Naval Sec Ctr (NB)	1002304	M4, N2	●	●	●	●	●	●		●	●
Spring Valley Building	*111*	*Red Express, Green*	●		●	●	●	●		●	●
Kogod	*101*	*Blue*			●	●	●	●		●	●
Letts Anderson	*100*	*Blue, Green*			●	●	●	●		●	●

AU Shuttle routes, stop locations, and stop ID's noted in italics.

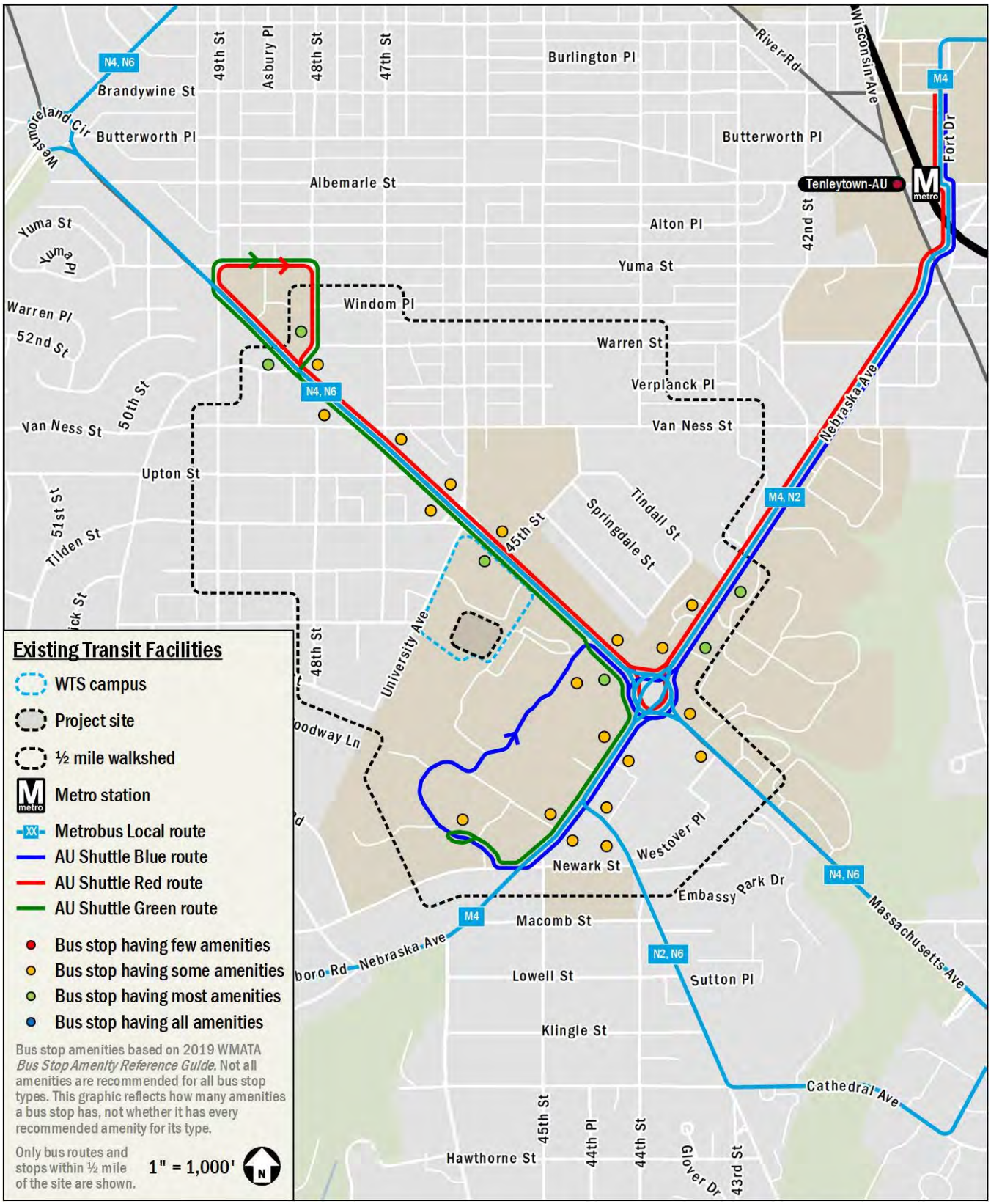

Figure 23: Existing Transit Facilities

Pedestrian Facilities

This chapter summarizes existing pedestrian access to the site and reviews the impacts of the site on the pedestrian network.

The following conclusions are reached within this chapter:

- Despite some incidences of missing sidewalks, curb ramps, and crosswalks on minor streets near the project site, there are generally adequate pedestrian facilities along primary walking routes between the site and major local destinations;
- The area surrounding the site is free of major barriers to pedestrian connectivity;
- The project is expected to generate pedestrian trips to and from nearby destinations, and the pedestrian facilities surrounding the project can accommodate these new trips; and
- While sidewalks are provided along the Massachusetts Avenue driveway, no sidewalks are provided along the University Avenue site driveway or along University Avenue between the driveway and Wesley Circle.

Pedestrian Study Area

Pedestrian facilities within a quarter-mile of the site were evaluated. There are several streets within the study area that do not have sidewalks, particularly in the residential areas immediately west and northeast of the site. There are also some sidewalks nearby that do not meet minimum width requirements, in addition to having missing or non-compliant crosswalks and curb ramps. Despite these shortcomings, there are generally adequate pedestrian facilities along Massachusetts Avenue NW, which is a primary walking route to major local destinations.

Figure 24 shows suggested pedestrian pathways to nearby destinations, including walking time and distances.

Existing Pedestrian Infrastructure

A detailed inventory of the existing pedestrian facilities within the study area is shown on Figure 25. Sidewalks, crosswalks, and curb ramps are evaluated based on the guidelines set forth by DDOT's *Design and Engineering Manual (2019)* in addition to Americans with Disabilities Act (ADA) standards. These facilities are shown within their respective land use types based on DC's Zoning Regulations of 2016, which determine which of DDOT's sidewalk width requirements apply. These sidewalk width requirements are shown in Table 10.

Table 10: DDOT Sidewalk Width Requirements

Street Type	Curb Walk	Tree/Fur-nishing Zone	Sidewalk Unobstructed Clear Width	Total Minimum Sidewalk Width
Low to Moderate Density Residential	None	4 - 6 feet	6 feet	10 feet
High Density Residential or Light Commercial	1 foot	4 - 8 feet	8 feet	13 feet
Central DC and Commercial Areas	1 - 2 feet	4 - 10 feet	10 feet	16 feet

Source: DDOT *Design and Engineering Manual*

Sidewalks

As shown on Figure 25, the pedestrian study area includes streets within the "Low to Moderate Density Residential" and "High Density Residential or Light Commercial" categories of sidewalk width requirements. There are several streets within the study area that do not have sidewalks, particularly in the residential areas immediately west and northeast of the site. There are also some sidewalks nearby that do not meet minimum width requirements. In some cases, as along the south side of Massachusetts Avenue NW, the sidewalk meets the width requirement of a lower intensity land use, but not its applicable land use. In other cases, as on the American University campus, the sidewalk is not accompanied by a tree/furnishing zone.

Curb ramps

ADA standards require that all curb ramps be provided wherever an accessible route crosses a curb and must have a detectable warning. Additionally, curb ramps shared between two crosswalks are not desired but where they are present, a 48" clear space is required outside active vehicle traffic lanes and within marked crossings. As shown on Figure 25, there are some intersections near the project site that are missing a curb ramp and/or crosswalk on one or more leg.

Crosswalks

DDOT's *Design and Engineering Manual (2019)* requires crosswalks at all intersections or mid-block locations controlled by vehicular and/or pedestrian traffic signals or all-way stop signs. Additionally, high-visibility crosswalks are required at all

uncontrolled crosswalks and all crosswalks (including signalized or stop-controlled crosswalks) leading to a block with a school, within a designated school zone area, along a designated school walking route, on blocks adjacent to a Metro station, in areas with moderate to high pedestrian volumes, and in locations with high frequencies of conflicts with pedestrians and turning vehicles.

As shown on Figure 25, there are several instances near the site where crosswalks are not present, or a crosswalk is present but not a high-visibility type at a location where it is required.

Proposed Pedestrian Infrastructure

The Wesley Campus Plan will provide a new sidewalk and streetscape along the buildings northern side to connect to provide links to adjacent pedestrian infrastructure within the campus.

The Applicant is also coordinating with American University (AU) on options to maintain the existing pedestrian connection between the two campuses, located on the east side of the project site.

Site-Generated Pedestrian Impacts

The proposed development is projected to generate 19 pedestrian trips (8 inbound, 11 outbound) during the AM peak hour and 45 pedestrian trips (23 inbound, 22 outbound) during the PM peak hour.

The origins and destinations of these pedestrian trips are likely to be:

- Retail and restaurant locations; and
- Neighborhood destinations such as libraries and parks.

In addition to these trips, the transit trips generated by the site will also generate pedestrian demand between the site and nearby bus stops. It is expected that existing pedestrian facilities can accommodate these new site-generated trips.

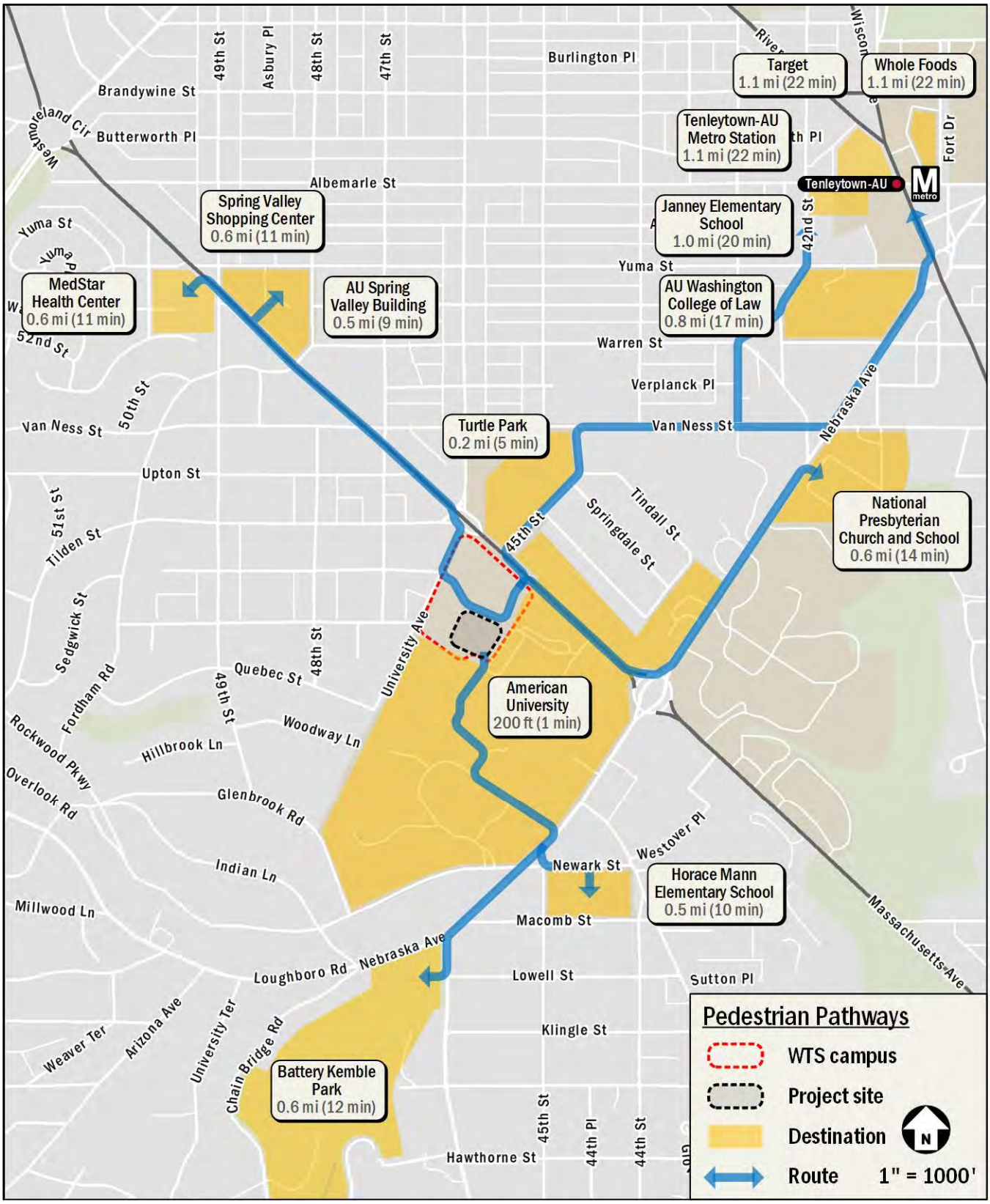

Figure 24: Existing Pedestrian Pathways

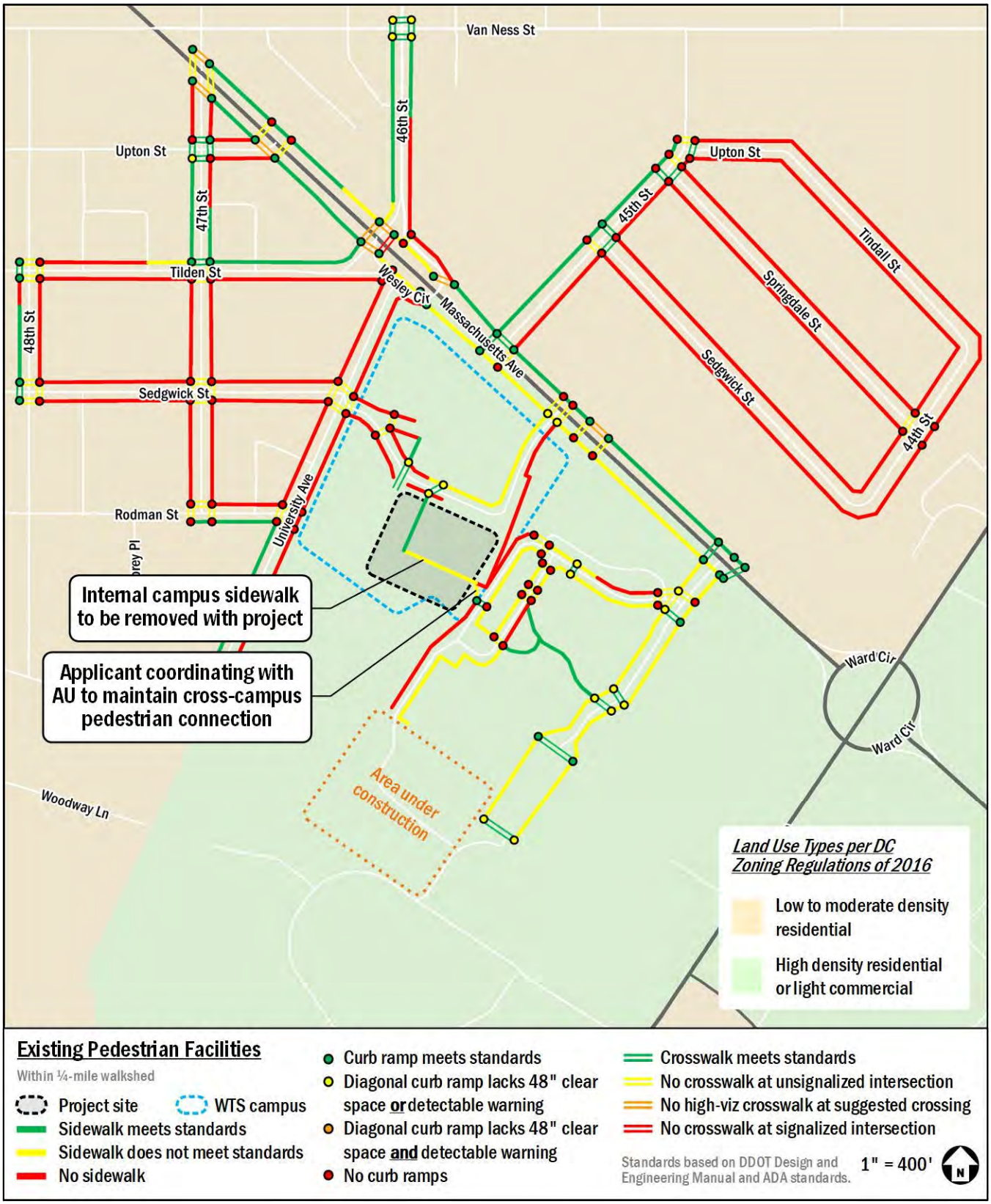

Figure 25: Existing Pedestrian Facilities

Bicycle Facilities

This chapter summarizes existing bicycle access to the site and reviews the impacts of the site on the bicycle network.

The following conclusions are reached within this chapter:

- The site is proximate to several on-street bicycle facilities;
- Several planned and proposed bicycle projects will improve bicycle access to the site;
- The project is expected to generate a manageable number of bicycle trips; therefore, site-generated bicycle trips can be accommodated on existing infrastructure; and
- The project will include short- and long-term bicycle parking that meets zoning requirements.

Existing Bicycle Facilities

The site is located approximately 0.5 miles northwest of the bike lanes on New Mexico Avenue NW, 0.7 miles southwest of the bike lanes on Van Ness Street NW, and 0.5 miles southwest of the on-street signed bike routes on 42nd and 43rd Streets NW. Using these facilities, bicyclists have access to several off-street bike facilities, such as the Rock Creek Trail and the Klingle Valley Trail.

Existing bicycle facilities are shown on Figure 26.

Capital Bikeshare

In addition to personal bicycles, the Capital Bikeshare program provides an additional cycling options for residents, employees, and visitors of the proposed project. The program has placed over 500 bikeshare stations across the Washington, DC metropolitan area with over 4,500 bicycles in the fleet. The following Capital Bikeshare stations are within a quarter-mile of the site:

- A 14-dock station at Ward Circle / American University, 0.2 miles east of the site; and
- A 19-dock station at American University East Campus, 0.4 miles southeast of the site.

Figure 26 illustrates these and other Capital Bikeshare locations in the area.

Shared Mobility

Shared mobility service in the District is provided by eight (8) electric-assist scooter (e-scooter) and electric-assist bicycle (e-bike) companies including Bird, Lime, Lyft, Razor, Skip, Spin, Helbiz, and Jump. These Personal Mobility Devices (PMDs) are provided by private companies that give registered users access to a variety of e-scooter and e-bike options. These devices are used through each company-specific mobile phone application. Many PMDs do not have designated stations where pick-up/drop-off activities occur like with Capital Bikeshare; instead, many PMDs are parked in public space, most commonly in the "furniture zone" (the portion of sidewalk between where people walk and the curb, often where other street signs, street furniture, trees, parking meters, etc. are located). Currently, PMD pilot/demonstration programs are underway in Arlington County, the District, Fairfax County, the City of Alexandria, and Montgomery County.

Planned Bicycle Facilities

There are several bicycle improvements near the site that are planned and scheduled to open in the near future. These are shown on Figure 27.

DDOT Bikeways Expansion

DDOT's "20 by 22" initiative is a plan to build 20 miles of new protected bike lanes in the District by 2022. The plan identifies the following street segments in the project site area to receive protected bike lanes:

- Massachusetts Avenue NW from the Maryland border to Ward Circle;
- Nebraska Avenue NW from Ward Circle to Warren Street; and
- New Mexico Avenue NW from Nebraska Avenue to Reservoir Road.

Proposed Bicycle Facilities

Several bicycle improvements are proposed near the site but are not yet funded or planned. These are shown on Figure 27.

MoveDC Bicycle Element

The bicycle element of *MoveDC*, the District's multimodal long-range transportation plan, includes the following bicycle improvements near the development that are proposed but not yet funded or planned:

- Bicycle improvements along Massachusetts Avenue NW, Nebraska Avenue NW, Arizona Avenue NW,

Loughboro Road NW, 49th Street NW, Albermarle Street NW, Glenbrook Road NW, and Rockwood Parkway NW.

Capital Bikeshare Development Plan

DDOT's Capital Bikeshare Development Plan was originally released in 2016 to guide the continued growth of Capital Bikeshare in the District of Columbia. The most recent update of the Development Plan was released in 2020 and includes the following:

- A planned station at Turtle Park, 0.2 miles from the site;
- A proposed station at Quebec Street and 48th Street NW, 0.4 miles from the site; and
- A proposed station at 47th Street and Warren Street NW, 0.5 miles from the site.

Site-Generated Bicycle Impacts

This section summarizes the impacts of the project on bicycling conditions surrounding the project site.

On-site Bicycle Infrastructure

The project will meet zoning requirements by providing at least 62 long-term bicycle parking spaces inside the building and at least 12 short-term bicycle parking spaces.

Bicycle Trip Generation

The proposed project is projected to generate four (4) bicycle trips (2 inbound, 2 outbound) during the AM peak hour and 10 bicycle trip (4 inbound, 6 outbound) during the PM peak hour.

It is expected that existing bicycle facilities can accommodate these new site-generated trips.

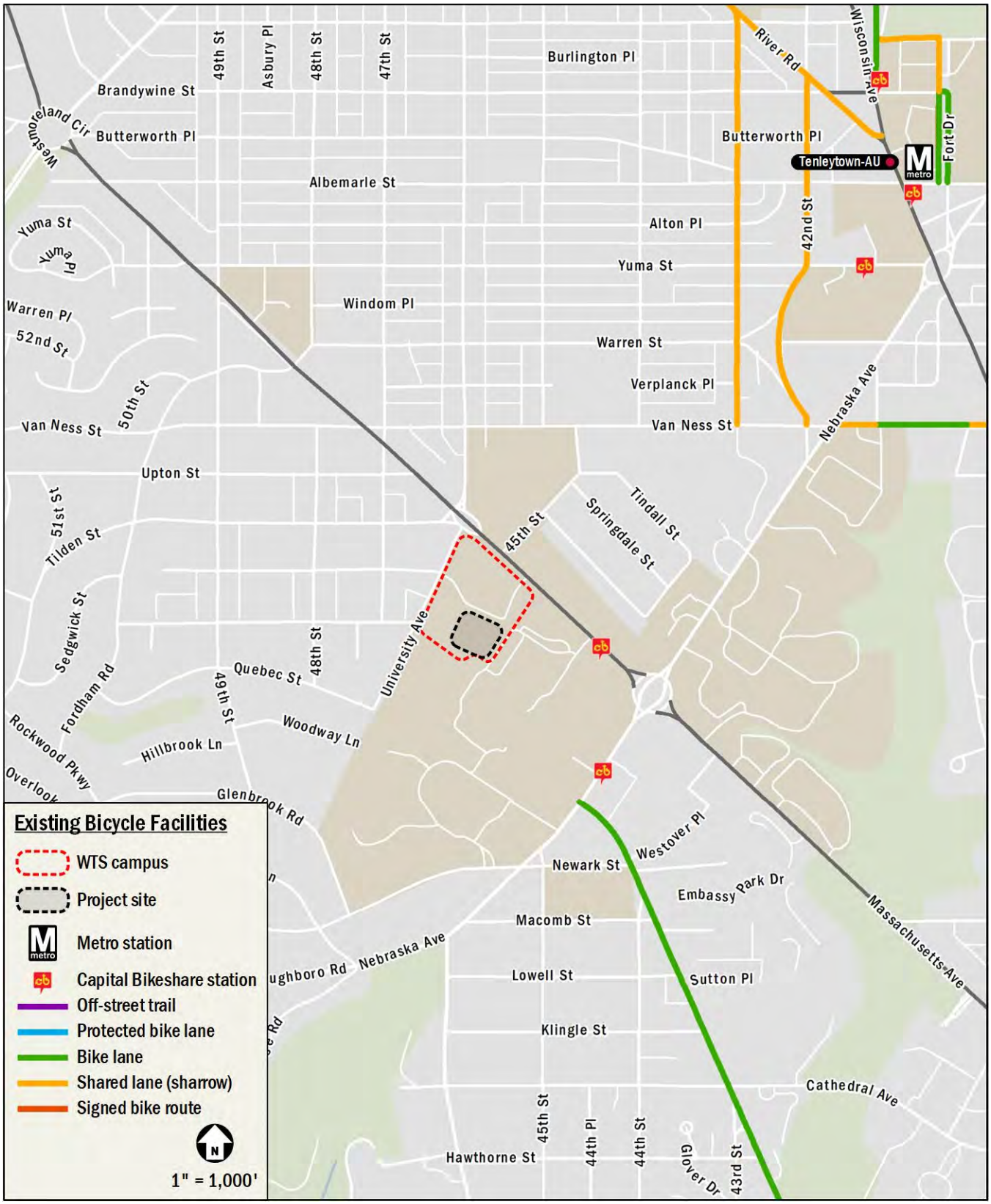

Figure 26: Existing Bicycle Facilities

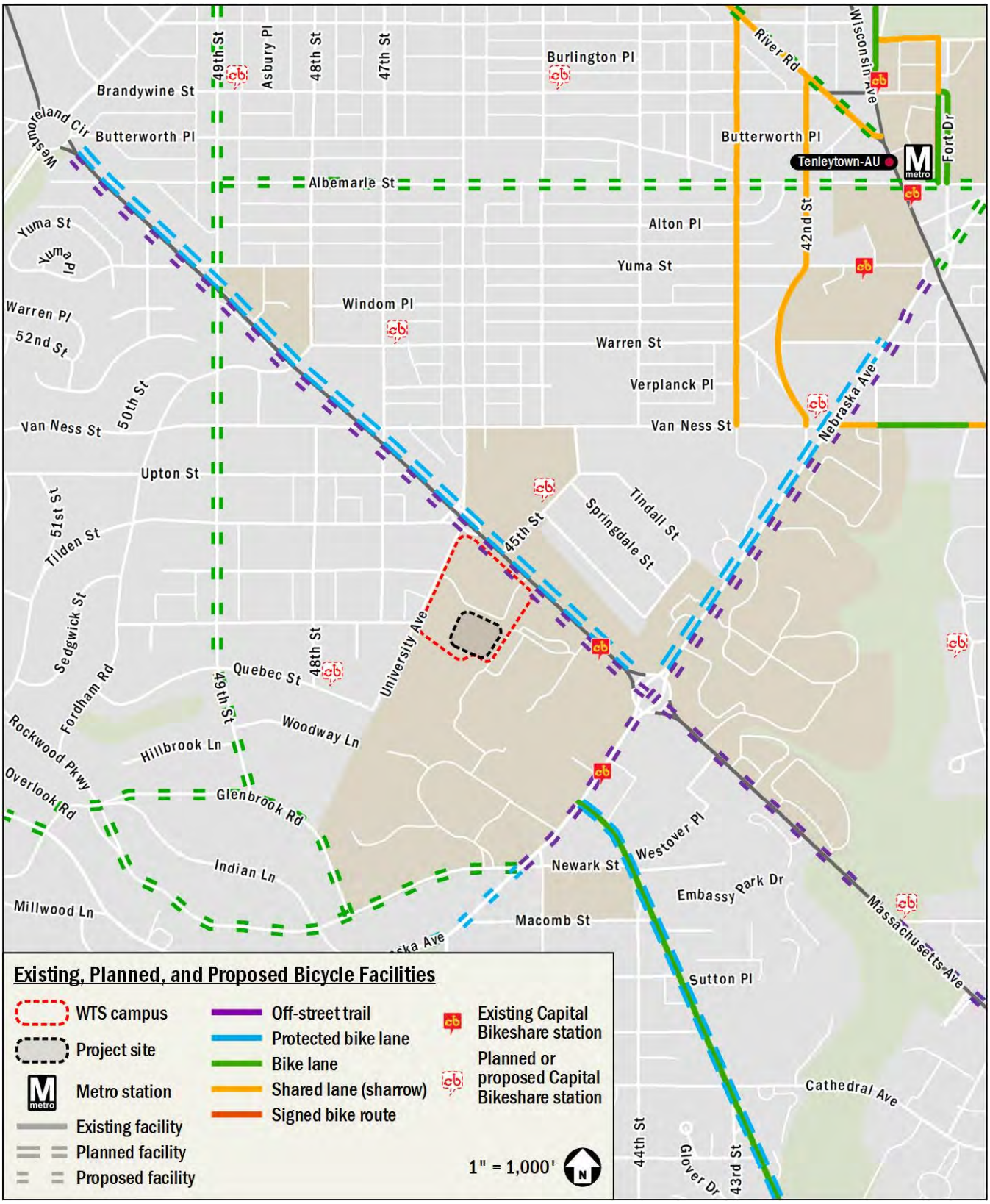

Figure 27: Existing, Planned, and Proposed Bicycle Facilities

Safety Analysis

This chapter qualitatively reviews any vehicle, pedestrian, or bicycle conflicts at the study area intersections or street links within the study area. This review notes any intersections within the study area that have been identified by DDOT as high crash locations and makes recommendations to improve safety conditions. These recommendations are presented for DDOT's consideration, not for the Applicant to complete as part of the proposed project. It should be noted that a new pedestrian HAWK signal has recently been installed to provide signalized pedestrian crossing of Massachusetts Avenue at 45th Street.

Summary of Safety Analysis

A safety analysis was performed to determine if there are any intersections that pose obvious conflicts with vehicles, pedestrians, or bicyclists. This was determined based on data included in DDOT's most recent *Traffic Safety Statistics Report* (2016-2018), *Vision Zero Action Plan*, and Open Data DC Vision Zero Safety data.

Based on available data, no intersections in the study area were identified by DDOT as hazardous/high crash intersections. However, a qualitative review of the crash data available through the DDOT-maintained and publicly-available "Crashes in DC" database was performed to identify study intersections in which conditions for vehicles, pedestrians, and bicyclists can be improved.

Based on a review of facilities in the area and crash data, two (2) intersections were identified for further evaluation. The following section details the potential conflicts at the identified study area intersections.

Potential Impacts

This section reviews the intersections identified to pose potential conflicts to vehicles, pedestrians, or bicyclists.

Massachusetts Avenue and Wesley Circle NW

While this intersection was not identified in DDOT's *Traffic Safety Statistics Report* (2016-2018) as having comparatively high rates of crash frequency, the DDOT-maintained "Crashes in DC" database shows a moderate number of crashes at this intersection since 2016, as shown on Figure 28, including one (1) pedestrian-involved crash, as shown on Figure 29.

This intersection operates as a four-legged, unsignalized intersection. Crosswalks are currently provided at every location where there is a traffic signal and/or stop sign, which excludes the through lanes of Massachusetts Avenue NW. However, the crosswalks at this intersection are not high-visibility although they are in an area with moderate to high pedestrian volumes. Curb ramps that include detectable warnings per ADA standards are provided on every corner.

As shown in Figure 27, protected bike lanes are proposed along Massachusetts Avenue NW that would likely improve conditions for both bicyclists and pedestrians at this intersection. Protected bike lanes could improve conditions for bicyclists by providing physical separation from vehicular traffic, and could improve conditions for pedestrians by reducing the distance across vehicle lanes pedestrians needed to cross.

This report recommends that DDOT perform a safety audit at this intersection as part of its Traffic Safety Assessment program to further evaluate the extent of safety issues and determine if any action is needed.

Massachusetts Avenue and Glover Gate/Katzen Driveway NW

While this intersection was not identified in DDOT's *Traffic Safety Statistics Report* (2016-2018) as having comparatively high rates of crash frequency, the DDOT-maintained "Crashes in DC" database shows a moderate number of crashes at this intersection since 2016, as shown on Figure 28, including two (2) pedestrian-involved crashes and one (1) bicycle-involved crash, as shown on Figure 29 and Figure 30.

This intersection operates as a four-legged, signalized intersection. Crosswalks are currently provided at every leg of the intersection. Curb ramps that include detectable warnings per ADA standards are provided on every corner.

As shown in Figure 27, protected bike lanes are proposed along Massachusetts Avenue NW that would likely improve conditions for both bicyclists and pedestrians at this intersection. Protected bike lanes could improve conditions for bicyclists by providing physical separation from vehicular traffic, and could improve conditions for pedestrians by reducing the distance across vehicle lanes pedestrians needed to cross.

This report recommends that DDOT perform a safety audit at this intersection as part of its Traffic Safety Assessment program to further evaluate the extent of safety issues and determine if any action is needed.

Figure 28: Total Crashes (2016 to present)

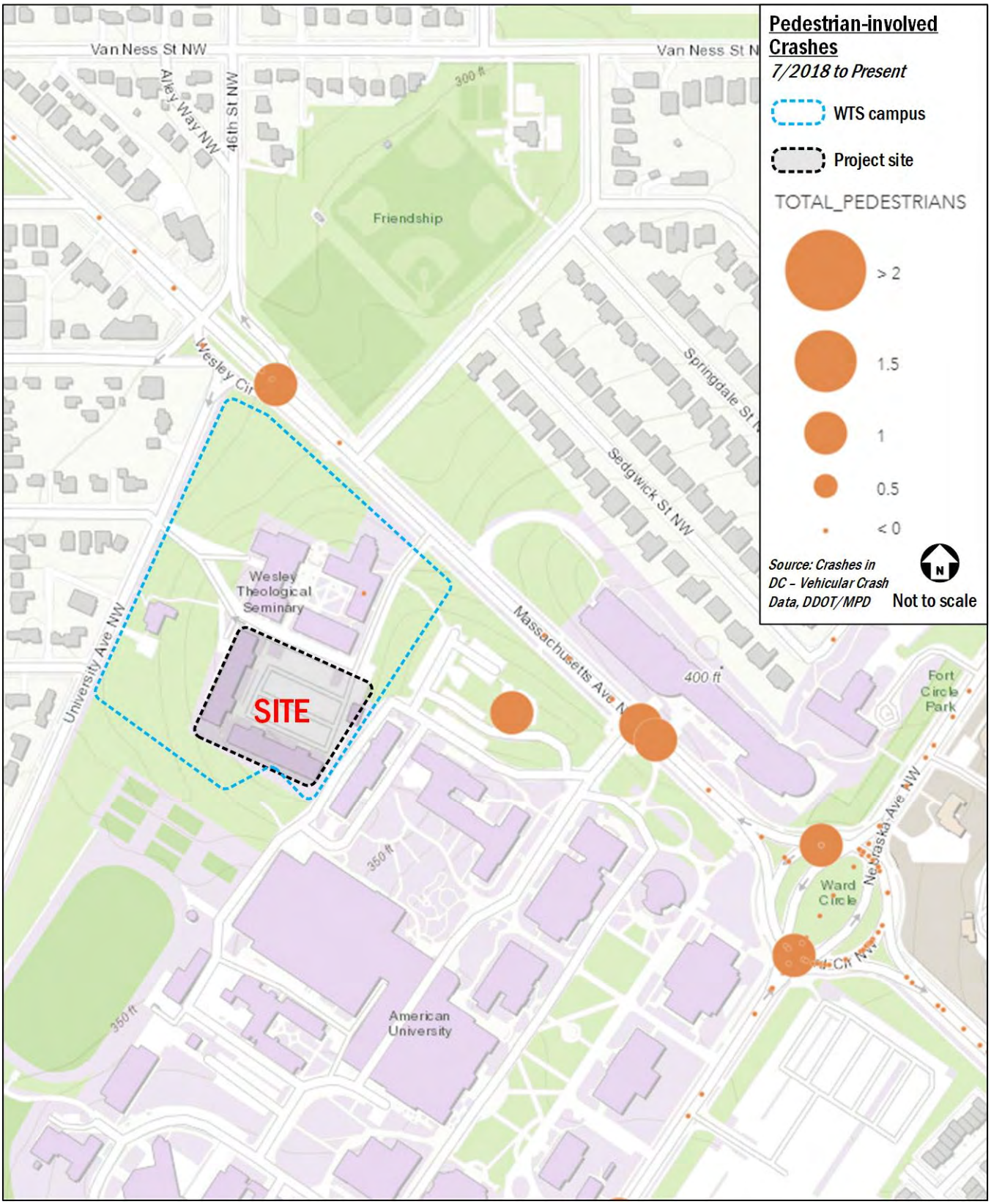

Figure 29: Pedestrian-involved Crashes (2018 to present)

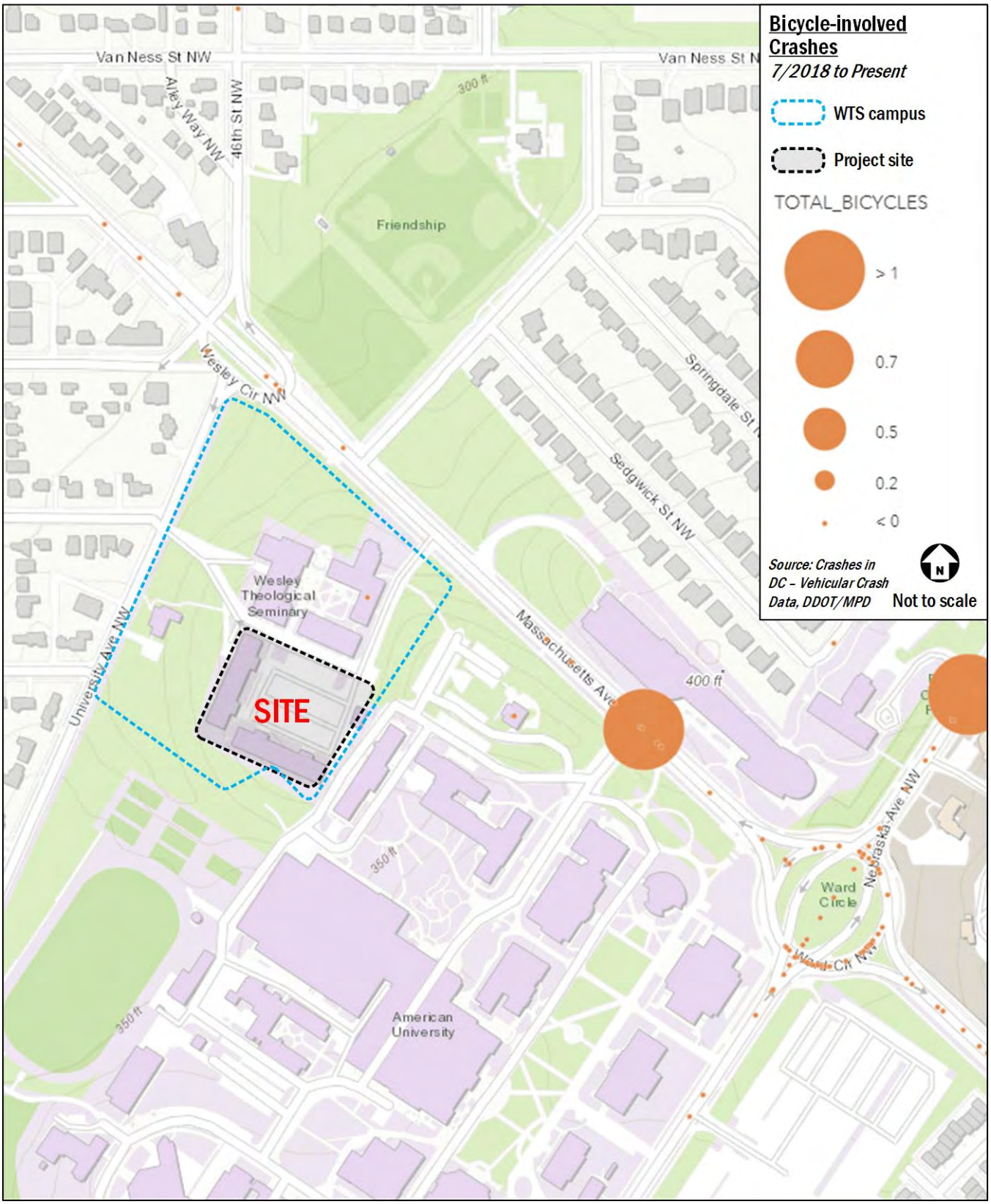

Figure 30: Bicycle-involved Crashes (2018 to present)

Summary and Conclusions

This report has evaluated whether the Wesley Campus Plan will generate a detrimental impact to the transportation network surrounding the site. This evaluation is based on a technical comparison of the Existing Conditions, Background Conditions, and Total Future Conditions. This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network assuming the proposed site design elements are implemented.

Proposed Project

The development site location is within the WTS campus, which is generally bounded by University Avenue NW to the west, Massachusetts Avenue NW to the north, and the American University (AU) campus to the east and south. The portion of the site to be redeveloped is currently occupied by a surface parking lot and two (2) student housing and administration buildings.

The proposed project includes removing the surface parking lot and existing buildings, replacing them with a new student housing building containing approximately 215 dwelling units, 1,535 square feet of retail spaces, and 350 below-grade parking spaces.

The proposed student housing building will be for WTS and AU students and may also house immediate families, faculty and staff and building employees. The housing building will not otherwise serve the general public.

Multimodal Overview

Trip Generation

The Wesley Campus Plan is expected to generate new trips within the surrounding transportation network across all transportation modes during the morning and afternoon peak hours. However, with the implementation of a Transportation Demand Management (TDM) plan as part of the project, the resulting new trips generated by the project will not have a detrimental impact on the transportation network. The multimodal trip generation for the proposed project is as follows:

- AM Peak Hour: 14 vehicles/hour, 39 transit riders/hour, four (4) bicycle trips/hour, and 19 walking trips/hour.
- PM Peak Hour: 33 vehicles/hour, 90 transit riders/hour, 10 bicycle trips/hour, and 45 walking trips/hour.

Transit

The site is located 1.1 miles from the Tenleytown-AU Metro station on the Red Line and is served by local bus routes.

The site is expected to generate a manageable amount of transit trips, and the existing service can accommodate these new trips.

Pedestrian

The site is surrounded by a generally adequate pedestrian network. Despite some incidences of missing sidewalks, curb ramps, and crosswalks on minor streets near the project site, there are generally adequate pedestrian facilities along primary walking routes between the site and major local destinations.

The site is expected to generate a manageable amount of pedestrian trips, and the existing pedestrian facilities can accommodate these new trips.

Bicycle

The site is proximate to several on-street bicycle facilities, including the bike lanes on New Mexico Avenue NW and Van Ness Street NW, and the on-street signed bike routes on 42nd and 43rd Streets NW. Using these facilities, bicyclists have access to several off-street bike facilities, such as the Rock Creek Trail and the Klingle Valley Trail.

Several planned and proposed bicycle projects will improve bicycle access to the site, including protected bike lanes on Massachusetts Avenue NW, Nebraska Avenue NW, and New Mexico Avenue NW.

The project will include long-term bicycle parking inside the building and short-term bicycle parking along the perimeter of the site that meets zoning requirements.

The site is expected to generate a manageable amount of bicycle trips, and the existing bicycle facilities can accommodate these new trips.

Vehicular

The site is accessible via Massachusetts Avenue NW, a principal arterial which connects the site to expressways within the District such as the Southeast Freeway (I-695), the Southwest Freeway (I-395), and the Anacostia Freeway (DC-295). These expressways connect with the Capital Beltway (I-495) and other regional Interstates.

To identify the project's impact on the transportation network, future conditions were analyzed with and without the project. Intersection analyses were performed to calculate the average delays and queues for vehicles at each of the study intersections. These average delays and queues were compared to the acceptable levels of delay and queue impacts set by DDOT standards to determine if the project will negatively impact the study area.

Further, future conditions with the proposed development were analyzed under the following two scenarios:

- Existing Access: University Avenue egress driveway remains open outbound site traffic during peak periods, consistent with existing conditions.
- Proposed Access: University Avenue egress driveway restricted during AM and PM peak periods, except for delivery vehicles that would still be permitted to use the driveway.

The analysis concluded that one (1) intersection would meet DDOT's delay-related threshold for mitigation under the Existing Access scenario and no intersections under Proposed Access scenario.

After exploring options for mitigating impacts at this intersection, this report recommends implementing a robust Transportation Demand Management (TDM) plan consistent with DDOT's Baseline Plan as a mitigation measure.

Safety Recommendations

A qualitative review of the crash data available through the DDOT-maintained and publicly-available "Crashes in DC" database was performed to identify study intersections, if any, in which conditions for vehicles, pedestrians, and bicyclists may be improved.

Based on a review of facilities in the area and relevant crash data, two (2) intersections were identified for further evaluation. Recommendations for these intersections, presented for DDOT's consideration and not for the Applicant to complete as part of the proposed project, are summarized below:

Massachusetts Avenue and Wesley Circle NW

Installation of the planned protected bike lanes along Massachusetts Avenue NW would improve conditions for bicyclists and pedestrians. Further, a safety audit should be performed as part of DDOT's Traffic Safety Assessment program.

Massachusetts Avenue and Glover Gate/Katzen Driveway NW

Installation of the planned protected bike lanes along Massachusetts Avenue NW would improve conditions for bicyclists and pedestrians. Further, a safety audit should be performed as part of DDOT's Traffic Safety Assessment program.

Transportation Demand Management (TDM) Plan

Per the DDOT CTR guidelines, the goal of implementing TDM measures is to reduce the number of single occupancy vehicles and vehicle ownership within the District. The promotion of various programs and existing infrastructure includes maximizing the use of transit, bicycle, and pedestrian facilities. DDOT has outlined expectations for TDM measures in the CTR guidelines, and this project is proposing to implement a TDM plan consistent with these guidelines based on the expected impact of the project, as discussed in the Project Design section of this report.

Summary

This report concludes that the Wesley Campus Plan will not have a detrimental impact on the surrounding transportation network assuming the proposed site design elements are implemented.

The project has several positive design elements that minimize potential transportation impacts, including but not limited to the following:

- The site's proximity to transit service and bicycle infrastructure;
- The site's location within a generally adequate pedestrian network along major walking routes;
- The site's loading facility design, which maintains loading activity within private property and provides loading circulation that ensures head-in/head-out truck movements are performed from the public roadway network;
- The inclusion of secure long-term bicycle parking spaces that meet zoning requirements;
- The inclusion of short-term bicycle parking spaces within the site that meet zoning requirements; and
- A TDM plan that reduces the demand of single-occupancy, private vehicles during peak period travel times and shifts single-occupancy vehicular demand to off-peak periods.

Transportation Technical Attachments

Wesley Campus Plan

Washington, DC

April 29, 2022

GOROVE SLADE
Transportation Planners and Engineers

CONTENTS

(Note: Click on heading to navigate directly to each section of the Technical Attachments)

A. Truck Maneuvering Diagrams